FOR A MORE COMPETITIVE LENDING MARKET IN BRAZIL:
TECHNOLOGICAL INNOVATION AND PRO-COMPETITION REGULATION

ABSTRACT

Technological innovation and pro-competition regulation from the Central Bank of Brazil are fundamentally changing the structure of the Brazilian lending market, especially by reducing barriers to entry, stimulating competition among financial institutions, and enabling the ascension of credit fintechs. To that end, this paper addresses two central questions: **(i)** does the entry of credit fintechs result in competition/contestability against incumbents?; and **(ii)** considering the current landscape, what are the most suitable instruments to foster competition and contestability between lenders in the Brazilian credit market? To answer these questions, we empirically research how traditional banks have employed innovation on their own over the last decade to stave off competition in the credit market, considering both Closed Innovation (in-house innovative projects) and Open Innovation (partnerships and acquisitions of startups to acquire their innovations for themselves). Our main findings to those two central questions are that **(i)** credit fintechs, by themselves, may not able to fully challenge incumbent institutions and unlock the lending market's competitive potential, seeing as how they are more likely to partner with (or be acquired by) incumbents; and, as such, **(ii)** the best strategy to stimulate competition in the sector is to foster the continuity of technological innovation and pro-competition regulatory action by the Central Bank, thus enabling contestability by new banks, finance companies, cooperatives, bigtechs and players from adjacent markets (i.e., payments or investments), and finally bringing down prices in the Brazilian lending markets.

Keywords: credit; competition; regulation; technology; fintechs.

RESUMO

Inovação tecnológica e ações regulatórias pró-concorrência do Banco Central do Brasil estão alterando fundamentalmente a estrutura do mercado de crédito brasileiro, especialmente através de redução das barreiras de entrada, estímulo à competição entre instituições financeiras, e ascensão das *fintechs* de crédito. Nessa linha, esse artigo aborda duas perguntas centrais: **(i)** a entrada de *fintechs* de crédito resulta em competição/contestabilidade radical contra incumbentes? e **(ii)** considerando o cenário atual, quais são os instrumentos mais adequados para fomentar a competição e contestabilidade entre as instituições do mercado de crédito brasileiro? Para responder a essas perguntas, pesquisamos empiricamente como os bancos tradicionais empregaram inovação na última década para se defender da concorrência no mercado de crédito, considerando tanto Inovação Fechada (projetos inovadores internos) quanto Inovação Aberta (parcerias e aquisições de *startups* para adquirir suas inovações para si próprios). Nossas principais descobertas em relação às duas perguntas centrais são de que **(i)** as *fintechs* de crédito, por si só, podem não ser capazes de desafiar totalmente as instituições incumbentes e destravar o potencial competitivo do mercado de crédito, dado que elas são mais prováveis de se tornarem parceiras dos (ou serem adquiridas pelos) incumbentes; e, sendo assim, **(ii)** a melhor estratégia para estimular a competição no setor é promover a continuidade da inovação tecnológica e ação regulatória pró-concorrência do Banco Central, possibilitando contestabilidade por novos bancos, financeiras, cooperativas, *bigtechs* e *players* de mercados adjacentes (i.e., pagamentos ou investimentos), e finalmente viabilizando uma redução de preços no mercado de crédito brasileiro.

Palavras-chave: crédito; concorrência; regulação; tecnologia; *fintechs*.

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Introduction

According to Thomas Philippon, competition greatly benefits markets and society as a whole by **(i)** pushing down prices of marketed products, thus allowing consumers to buy more of the same good, or more of some other goods; **(ii)** encouraging businesses to produce more, invest more, and

hire more; and **(iii)** raising product quality and innovation across the economy[1]. Notwithstanding these benefits, competition in the lending markets around the world is often less efficient than it could be, since they bear most well-known market failures in economic literature: information asymmetry between lenders and borrowers, very high barriers to entry, frequent market power, heavy regulation, and socioeconomic externalities[2].

The Brazilian lending market is no exception to these difficulties, bearing significant levels of concentration, profitability, and prices that raise questions about whether competition in the sector could be more efficient than it is[3]. That said, the sector has recently started to undergo real transformation to its market structure and competition dynamics – transformation resulting from the two phenomena featured in the title of this paper.

First, technological innovation arising from the digital revolution of the 21st century, along with all it has entailed: internet, smartphones, the data economy, and a deep change in consumer expectations. Economically speaking, technological innovation may be defined as a means for a company to **(i)** reduce production costs; or **(ii)** offer better products to the market. Banks already invest in it since centuries ago, and now, with the digital revolution, all of them are heavy on it[4].

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[1] PHILIPPON, Thomas. **The Great Reversal:** how America gave up on free markets. Cambridge: Belknap Press of Harvard University Press, 2019, p. 19.
[2] VIVES, Xavier. **Competition and Stability in Banking:** the role of Regulation and competition policy. Princeton: Princeton University Press, 2016, p. 70.
[3] For specific studies concerning/ratifying said competitive issues, please refer to (1) BARBOSA, Klênio; ROCHA, Bruno; SALAZAR, Fernando. *Assessing Competition in Banking Industry:* a multiproduct approach. Journal of Banking & Finance, vol 50, p.340-362. Amsterdã: Elsevier, January 2015; (2) JOAQUIM, Gustavo; VAN DOORNIK, Bernardus. *Bank Competition, Cost of Credit and Economic Activity:* evidence from Brazil. Working Paper Series no. 508. Brasília: Central Bank of Brazil, October 2019; (3) ORNELAS; José Renato Haas, SILVA, Marcos Soares; VAN DOORNIK, Bernardus Ferdinandus Nazar. *Informational Switching Costs, Bank Competition and the Cost of Finance*. Working Paper Series no. 512. Brasília: Central Bank of Brazil, January 2020; (4) ALENCAR, Leonardo; ANDRADE, Rodrigo, BARBOSA, Klenio. *Bank Competition and the Limits of Creditor's Protection Reforms.* XII Annual Seminar on Risk, Financial Stability and Banking. São Paulo: Central Bank of Brazil, 2017; and (5) STANDARD & POOR GLOBAL RATINGS. *Ruptura tecnológica nos bancos de varejo:* bancos brasileiros à altura do desafio (free translation: Technology rupture at retail banks: Brazilian banks up to the challenge). São Paulo: Standard & Poor's Financial Services LLC, February 2020.
[4] PHILIPPON, Thomas. **The Great Reversal:** how America gave up on free markets, *op. cit.*, p. 15 and p. 217.

Second, incentives from the Central Bank of Brazil, which has taken the lead in promoting competition in the financial markets over the last decade[5]. Due to this newfound proactive stance, the regulator is now openly praised for its effort by officers from Cade, authorities from abroad, specialized press, and many a public statement by its own board of executives. Emblematically, in 2019, one of the Central Bank's chief executives (João Manoel Pinho de Mello) pointed out four practical measures: **(i)** legal certainty in the recovery of guarantees and less information asymmetry (i.e., positive record); **(ii)** greater vigilance against anticompetitive conduct; **(iii)** encourage the entry of new competitors; and **(iv)** "*ensuring that the market takes advantage of the huge pro-competitive opportunities that technological advancement [brings]*".

Both technological innovation and pro-competition regulatory action have been structurally reducing barriers to entry in the Brazilian lending markets, creating opportunities for entrants to challenge traditional banks[6]. Chief among these entrants are the startups that have been emerging in the financial systems around the world: these are called fintechs[7]. We shall use to our advantage how many authors have tried to box fintechs' activities in closed definitions over the years to deliver three separate (and complementary) definitions: **(i)** fintechs employ digital innovation to

[5] See (1) SAGOENIE, Yashini, SMITS; Petra, BAKKER, Ernst-Jan. **Fintech in Brazil**. Ministry of Economic Affairs and Climate Policy of the Netherlands. Hague: Netherlands Enterprise Agency, February 2019, p. 5; (2) GRAY, Kevin, Brazil's central bank policies encourage fintech startups. **LatinFinance** (March 28, 2019); and (3) FERRARI, Hamilton. João Manoel Pinho de Mello defende maior concorrência no setor bancário. **Correio Braziliense** (February 26, 2019). Available at: <https://www.correiobraziliense.com.br/app/noticia/economia/2019/02/26/internas_economia,739868/joao-manoel-pinho-de-mello-defende-maior-concorrencia-no-setor-bancari.shtml>. Access on November 13, 2019.

[6] Chief among the pro-competition regulations from the Central Bank, we have the creation of "Agenda BC+" in 2016: a list of concrete measures such as the positive credit scoring bureaus ("*cadastro positivo*"); segmentation of financial institutions by size; stimulating portability for consumers; and regulatory licenses for credit fintechs. All of these measures above were implemented by the Central Bank (and National Monetary Council) between 2017 and 2018.

[7] The term "fintech" was originally coined by Citibank in the 90s to name its open innovation project called Financial Services Technology Consortium. Nowadays, the word is used to describe the most varied of activities. *In* HOCHSTEIN, Marc. Fintech (the word, that is) evolves. **American Banker** (October 5, 2015). Available on <https://www.americanbanker.com/opinion/fintech-the-word-that-is-evolves>. Access on March 9, 2020.

generate new applications/processes/products/business models for financial consumers[8]; **(ii)** fintechs adopt digital means to reach consumers, relativizing the importance of branches for financial distribution and disintermediating FIN[9]; and **(iii)** fintechs adopt agile methodologies to create/test/implement new technology and focus on improving consumer experience[10].

The entry of credit fintechs represents evidence of **(i)** the structural impacts continually generated in the lending sector by both technological innovation and the Central Bank's pro-competition stance (as described above); and **(ii)** many profits to be contested and consumers to be captured in the lending markets, thus generating a relevant economic incentive for entrants.

Meanwhile, with so many changes taking place, incumbent banks are being increasingly called upon to break their inertia and start employing innovation themselves, less they forfeit their dominant positions across the lending markets (both in Brazil and abroad)[11]. As declared by the president of the Central Bank of Brazil in 2019, *"it is not a question of being fintech or being a bank – everyone will have to be digital"*[12]. This state of things lays the groundwork for the two central questions about the Brazilian lending market that we shall try and answer in this paper:

First Question: *does the entry of credit fintechs result in* ***(i)*** *competitors with the capacity and willingness to challenge/overcome the dominant banks in the credit market; or does it*

[8] FINANCIAL STABILITY BOARD. **Fintech and Market structure in financial services:** market developments and potential financial stability implications (published in February 14, 2017), p. 21.
[9] CARMONA, Alberto; LOMBARDO, Agustín; PASTOR, Rafael; QUIRÓS, Carlota; GARCÍA, Juan; MUÑOZ, David; MARTÍN, Luis. **Competition issues in the area of financial technology (FinTech)**. European Parliament. Policy Department for Economic, Scientific and Quality of Life Policies. Dictorate-General for Internal Policies, 2018, p. 17.
[10] HODER, Frank; WAGNER, Michael; SGUERRA, Juliana; BERTOL, Gabriela. **Revolução Fintech:** como as inovações digitais estão impulsionando o financiamento às MPME na América Latina e Caribe. Oliver Wyman, 2016.
[11] THE ECONOMIST. How Singapore's incumbent banks are preparing for competition: the island state is responding fast to the challenges of fintech. **The Economist** (May 2, 2019). Available at: <https://www.economist.com/special-report/2019/05/02/how-singapores-incumbent-banks-are-preparing-for-competition>. Access on July 25, 2020.
[12] FRABASILE, Daniela. "Não é questão de ser fintech ou banco, todos terão de ser digitais", diz presidente do BC. **Época Negócios** (December 2, 2019). Available: <https://epocanegocios.globo.com/Economia/noticia/2019/12/nao-e-questao-de-ser-fintech-ou-ser-banco-todos-terao-de-ser-digitais-diz-presidente-do-bc.html>. Access on February 25, 2020.

*result in **(ii)** an ecosystem in which fintechs become partners with the dominant banks, without actually contesting them?*

***Second Question**: if fintechs do not represent a challenge against dominant banks, what would be the most suitable strategy to foster competition and contestability in the Brazilian credit market?*

To answer both of these questions, we shall employ empirical research on how the Brazilian financial institutions have reacted to the structural and competitive changes to the lending market over the last decade, along with the practical impacts of these reactions to the degree of competition. We present our main findings across the last chapters and conclusion, especially those related to the future of the competitive dynamic between lenders in this new, innovative landscape.

1. Breaking inertia: how financial institutions are reacting to increasing competition

Day by day, technological innovation, pro-competition regulation, and credit fintechs lead many to ask a commonly asked question: will digital entrants bring down traditional banks like Amazon brought down retailers/distributors, Netflix brought down Blockbuster/rental companies; Skype conquered over 40% of overseas calls market; or Uber conquered relevant shares from the taxi markets? In all of these cases, the common denominator was the emergence of a better, more efficient, and cheaper product that won over customers while prevailing against incumbents who were unable to adapt to the digital revolution[13]. Could banks be in for a similar fate?

[13] NAVARETTI, Giorgio Barba, CALZOLARI, Giacomo, POZZOLO Alberto Franco. FinTech and Banks: Friends or Foes? **European economy: banks, regulation, and the real sector**, 2017.02, Europeye Srl, 2017, p. 11.

Several prominent figures have defended that banks would indeed suffer the same fate as those other incumbents[14] (José Alexandre Scheinkman, a professor from Columbia University, said that it would be possible and positive for a "financial Amazon" to be born in Brazil)[15]. At the same time, other prominent figures have also argued that banks would actually survive the digital revolution[16], especially Brazilian banks[17]. The debate became so intensive that the Basel Committee on Banking Supervision (BCBS) joined the fray, proposing a list of five possible outcomes (not mutually exclusive) that may result from the digital revolution and ascension of digital entrants[18].

	POSSIBLE OUTCOME
OUTCOME 1 *BETTER BANK*	Incumbent banks survive the digital revolution – they leverage new technologies to digitize their business models, maintaining their consumer bases and market leadership. Bank partnerships with fintechs and other digital entrants become crucial for the banks to access innovation from the markets.
OUTCOME 2 *NEW BANK*	Incumbent banks do not survive the digital revolution – they are replaced by new technology-based digital entrants ("*full-service and build-for-digital banking platforms*"). This scenario privileges the competition side of the relationship between banks and fintechs, and not the partnership side. In Brazil, the digital entrants that would be viable for his leadership would be Inter, Nubank and C6.

[14] See (1) BRAITHWAITE, Tom. Silicon Valley is eating the banks' lunch: assailed by Apple Card and Revolut, traditional lenders risk having their Kodak moment. **Financial Times** (August 16, 2019). Available at: <https://www.ft.com/content/1b85b012-bf4c-11e9-b350-db00d509634e>. Access on March 19, 2020; and (2) SORKIN, Andrew. Fintech Firms are Taking on the Big Banks, but can they win? **New York Times** (April 6, 2016). Available at: <https://www.nytimes.com/2016/04/07/business/dealbook/fintech-firms-are-taking-on-the-big-banks-but-can-they-win.html>. Access on March 10, 2020.

[15] SCHEINKMAN, José Alexandre. Speech from José Alexandre Scheinkman, professor from Columbia University, at the event "*Competição e Inclusão Financeira*", held by Instituto ProPague on August 14, 2019.

[16] See (1) THE ECONOMIST. Why fintechs won't kill banks. **The Economist** (June 17, 2015). Available at: <https://www.economist.com/the-economist-explains/2015/06/16/why-fintech-wont-kill-banks>. Access on January 6, 2020; and (2) SHEVLIN, Ron. Silicon Valley is eating the crumbs from the banks' lunch. **Forbes** (August 19, 2019). Forbes <https://www.forbes.com/sites/ronshevlin/2019/08/19/silicon-valley-is-eating-the-crumbs-from-the-banks-lunch>. Access on March 19, 2020.

[17] STANDARD & POOR GLOBAL RATINGS. **Ruptura tecnológica nos bancos de varejo:** bancos brasileiros à altura do desafio. São Paulo: Standard & Poor's Financial Services LLC, February 2020, p. 9.

[18] See (1) HERNÁNDEZ, Pablo Cos. **Financial technology: the 150-year revolution**. Basel Committee on Banking Supervision (November 18, 2019); and (2) BASEL COMMITTEE ON BANKING REGULATION. **Sound Practices:** implications of fintech developments for banks and bank supervisors. Bank for International Settlements (February 2018).

OUTCOME 3 *DISTRIBUTED BANK*	Incumbent banks survive the digital revolution – but they lose market share in most financial segments across Brazil and relinquish the absolute dominion that they had before (cease to be the "one-stop shop" business model in which customers buy all financial products they require). The financial market is then further segmented into niches that are competed for by incumbent banks, fintechs, and even bigtechs.
OUTCOME 4 *RELEGATED BANK*	Banks survive the digital revolution – but become providers of back-office infrastructure services (risk management, settlement and custody) while fintechs and bigtechs sell products and services to consumers – much akin to a "commoditization" of banking activity. This dynamic would resemble the role banks already play as "fiduciary administrators" from the investment fund industry (CVM Instruction no. 558), where they are responsible for the bureaucratic parts while another agent – the investment manager – handlers customer service and the funds' portfolios.
OUTCOME 5: *DESINTERMEDIATED BANK*	Banks survive the digital revolution – but become mostly irrelevant due to the strong financial disintermediation carried out by digital entrants, stimulating direct interaction between consumers and financial agents. The best example brought by Bank for International Settlements would be the peer-to-peer lending.

Each of the five outcomes described by BCBS represents a different degree of impact suffered by the incumbent banks by the hands of fintechs: **(i)** the 1st scenario ("*Better bank*") illustrates the most positive hypothetical future for dominant banks, in which they remain leaders in the financial systems of their countries by developing and absorbing technological innovations; **(ii)** the 3rd scenario ("*Distributed bank*") illustrates an intermediate situation in which incumbent banks survive, but lose market share across the financial systems (a more pulverized market arises); and **(iii)** the 2nd, 4th and 5th scenarios ("*New bank*", "*Relegated bank*" and "*Desintermediated bank*") illustrate the most destructive hypothetical futures for traditional banks, in which they are either destroyed or reduced in relevance due to increasing disintermediation of the banking industry.

Speaking of how this debate adapts to the Brazilian banking landscape, we must ponder on which of the five scenarios listed by BCBS the lending markets might be walking into. From the start, it seems valid for us to discard the 2nd, 4th and 5h scenarios. In other words, to dismiss the outcomes that would represent the gravest "disruption" against banks ("*New bank*", "*Relegated bank*" and "*Desintermediated bank*"). The reasons for such dismissal are described below.

First, lending markets are fundamentally different from taxi markets, movie rentals markets, book retail markets, and other markets that were disrupted by the digital revolution. The lending sector bears high levels of product cross-selling, consumer heterogeneity, information asymmetry and heavy regulation[19]. These attributes, which are not as present in the other markets cited above, greatly reduces the level of threat against dominant banks.

Empirical data reflects how low this chance actually is. By the end of 2017, even after years of growth, credit fintechs all over the world still had only 0.4% of all credit stock (considering the sum of all credit granted by banks and non-banks), and 3% of the credit stock held by non-banks[20]. Not only that, but fewer and fewer fintechs are being born. As a result, BCBS itself recognizes that banks are unlikely to be threatened to the point of breaking down or becoming irrelevant in the wake of the digital revolution[21].

Second, the dominant banks (in Brazil and around the world) already dominate the their respective lending markets through **(i)** decades of rising concentration; **(ii)** offerings of products and services from practically all financial segments to consumers, greatly facilitating cross-selling of loans (the "one-stop shop" business model)[22]; **(iii)** well-entrenched branches that serve as distribution networks (digital platforms are good substitutes for branches in distributing financial products, but they are not yet efficient in reaching the more remote areas in Brazil)[23]; and **(iv)** solid

[19] NAVARETTI, Giorgio Barba, CALZOLARI, Giacomo, POZZOLO Alberto Franco. FinTech and Banks: Friends or Foes? **European economy: banks, regulation, and the real sector**, *op. cit*.
[20] FROST, Jon; GAMBACORTA, Leonardo, HUANG, Yi, SHIN, Hyun Song; ZBINDEN, Pablo. **BigTech and the changing structure of financial intermediation**. Bank for International Settlements. BIS Working Papers no. 779, p. 24.
[21] BASEL COMMITTEE ON BANKING REGULATION. **Sound Practices:** implications of fintech developments for banks and bank supervisors, *op. cit.*
[22] STANDARD & POOR GLOBAL RATINGS. **Ruptura tecnológica nos bancos de varejo:** bancos brasileiros à altura do desafio, São Paulo: Standard & Poor's Financial Services LLC, February 2020, p. 9.
[23] CARRASCO, Vinícius. Lecture by Vinícius Carrasco, professor at PUC-Rio and chief economist at Stone, at FGV EPGE's "*Fintechs and Blockchain: oportunidades para os mercados financeiros*" event, held on November 9, 2019.

customer bases that must deal with high switching costs to leave their banks in favor of entrants, even if these entrants offer better products. As (quite precisely) established by The Economist[24]:

> [The banks'] advantages start with sheer firepower: JPMorgan Chase spends $11bn-odd a year on it. They have tens of millions of customers and lots of data on their incomes and outgoings. Their brands are household names. Their funding costs are low, whereas financial-technology companies with no banking [licenses] lack access to cheap, federally insured deposits.

Since incumbent banks wield such "sheer firepower" (capital, locked-in customers, data, regulatory charters), they need only invest in the digital quality of their products and services to ensure that their customers will not migrate to new entrants, thus maintaining their stranglehold on the market[25]. This is where the high profitability of the Brazilian banking market comes in: the annual net profits of the financial system beat records year after year since 2000 (with emphasis on the net profits from the five dominant lenders)[26]. To sum it up, traditional financial institutions have ample conditions to systematically invest in their activities to preserve their customer base before it is overtaken by entrant competitors (even if they must endure reducing profits due to the increase in investment values)[27].

Quite aware of the advantages set forth in the paragraph above, Brazilian banks are putting theory into practice. By 2018, according to research by Deloitte and Febraban, the Brazilian banking sector **(i)** had maintained an average of R$ 19 billion in investments and expenses with

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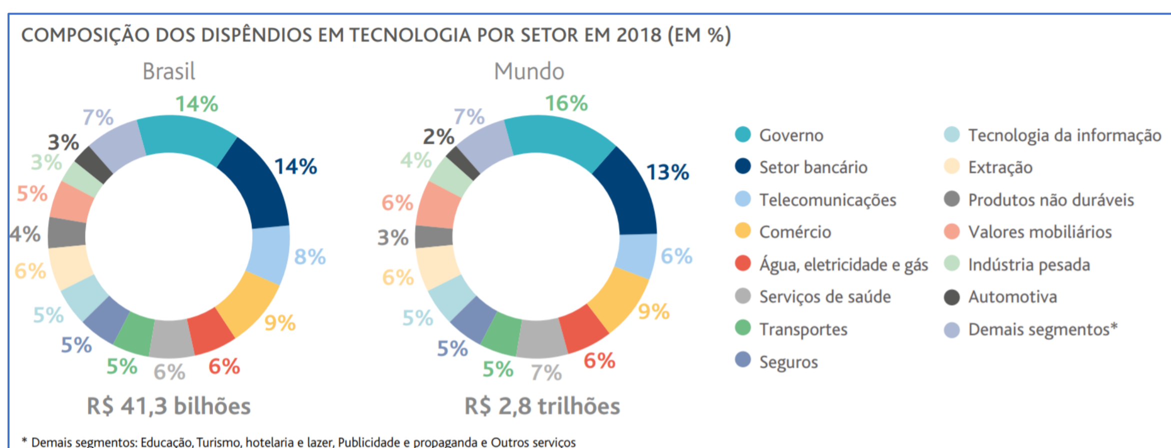
[24] THE ECONOMIST. Digital technology will strengthen America's biggest retail banks. **The Economist** (June 15 2019). Available at: <https://www.economist.com/finance-and-economics/2019/06/15/digital-technology-will-strengthen-americas-biggest-retail-banks>. Access on March 20, 2020.

[25] As a natural consequence of massively investing in Innovation, it is expected that these investments will also reduce profits from the major banks over the next few years. *In* STANDARD & POOR GLOBAL RATINGS. **Ruptura tecnológica nos bancos de varejo:** bancos brasileiros à altura do desafio, *op. cit.*, p. 2.

[26] CAMINHA, Lucas. Concorrência no Mercado de Crédito Brasileiro: dados do Banco Central desmistificam dinâmica de competitividade no setor. **Revista Capital Aberto** (July 24, 2020). Available at: <https://capitalaberto.com.br/secoes/ensaios/concorrencia-no-mercado-de-credito-brasileiro/>. Access on September 12, 2020.

[27] STANDARD & POOR GLOBAL RATINGS. **Ruptura tecnológica nos bancos de varejo:** bancos brasileiros à altura do desafio, *op. cit.*, p. 9.

technology per year since 2015[28]; **(ii)** constantly increased their investments and expenses on software (the most prominent face of modern technology); and **(iii)** was the economy sector with the most expenditures in technology, even on par with the government (whereas governments usually spend more with technology than banking sectors around the world)[29].



Source: Deloitte and Febraban with data from Gartner Consulting.

According to the study above, bank consumers seem to be responding well to the aforementioned investments in technology. Money transfers through mobile/internet banking have been increasing ever since 2014, and already surpass by far the number of money transfers through branches/ATMs. The same has happened to loans in Brazil, which are now mostly granted through internet/mobile banking (445 million loans were granted through smartphones or computers, while

[28] The research indicates that, from the total sum of R$ 19,6 billion in expenditures by banks in technology across 2018, R$ 13.9 billion were expenses and R$ 5.7 billion were investments. *In* DELOITTE; FEBRABAN. **Pesquisa FEBRABAN de Tecnologia Bancária 2019**, p. 18 e p. 28-29.

[29] Notwithstanding the robust methodology presented in the report, and also having been co-authored by Deloitte (a big-four auditor), the existence of a possible conflict of interest in its elaboration is highlighted. Febraban, the entity that hired and led the research, is the largest class association representing banks in Brazil, thus having an obvious incentive to denote a more favorable scenario for incumbent banks. This bias is clearer in sections of the report such as "*[the] investments, in turn, remained at the same level (...), a reflection of the banks' effort to continue to follow the evolution of technology, efficiently, to offer cutting edge user services*" (free translation). *In* DELOITTE; FEBRABAN. **Pesquisa FEBRABAN de Tecnologia Bancária 2019**, p. 28.

only 99 million loans were granted through branches or ATMs)[30]. These numbers reveal how technology investment from incumbent banks is generating value for consumers, thus making them less likely to leave the banks.

Moreover, dominant banks don't just have large amounts of resources to pool on technology. They also have massive amounts of data on their consumers, which is easily one of the most effective competitive advantages in the credit market. With data, lenders are able to surpass the information asymmetry in relation to the borrowers[31]. From the information they gather on clients, banks may determine what products they need and offer it to them. According to Jim Marour, adviser to former President Barack Obama, banks' data troves may be even more valuable than bigtechs' data troves[32]:

> [The] banks, for the time being, are still in a superior position in relation to large digital companies (...). After all, the bank knows where you spent every penny, it knows your behavior and your income better than tech companies. What technology players do best, however, is to process and analyze the data they collect. In the case of banks, I advocate that they ethically collect and analyze data from all lawful sources and in all their relationship channels, in order to create a repository of contextual data. All the account holder's data, such as what they did on the banking app, on the mobile device, at the physical ATM and at the branches must be studied. If this is done well, it will be possible to offer highly personalized service and banks will not only have the ability to know a consumer's financial profile, but will be able to make personalized offers even before consumers realize their need. (Free translation)

Back to the list of possible outcomes estimated by the BCBS: considering the arguments above, it seems logic to discard the "*New bank*" scenario, "*Relegated bank*" and "*Desintermediated*

[30] Id, p. 16-17.

[31] Traditionally, credit institution acquire information on consumers through relationship, especially the client's own background, and, as the relationship goes on, the history of banking operations between them (past loans, deposits, account movements, etc.). Such data acquired through relationship is called soft information. In a scenario where only borrowers' information are only held by the bank that sells them financial products, **(i)** only this bank has the necessary subsidies to determine the risk of default by the costumer, and, from that point, determine loans' interest rates, total volume and maturity dates, and **(ii)** in a grand scale, each bank has an ex post monopoly on its customers' financial data – thus the barrier to entry against entrants who do not have the information necessary to form an adequate portfolio of active transactions.

[32] FEBRABAN. A Virada do Blockchain: uso da tecnologia pelo setor financeiro é realidade e abre novas oportunidades de negócios. **Revista CIAB Febraban**, no. 82, July-August 2019, p. 12.

bank” from the possible futures of Brazilian banks. They will not be destroyed, nor condemned to irrelevance, nor reduced to managing the financial system’s infrastructure. As such, there are two possible scenarios left from the BCBS’ predictions: **(i)** new competitors will overtake relevant market share from the incumbents in the lending markets, thus achieving real deconcentration in the sector (“*Distributed bank*” scenario); or **(ii)** the dominant banks will invest enough in technological innovation to continue on as leaders of the lending markets (“*Better bank*” scenario).

The answer to which scenario is more likely for the Brazilian credit market depends on how much Brazilian financial institutions are able to develop and invest in innovation. As such, an empirical question presents itself: which strategic innovations are the financial institutions building in order to stave off competition? As such, from now on, we begin a series of empirical surveys to map out the banks’ strategies concerning **(i)** technological innovation built by themselves (Closed Innovation); and **(ii)** technological innovation built or acquired in partnerships with fintechs (Open Innovation). The result of these empirical surveys will ultimately assist us in answering the two central questions posed by the Introduction of this paper.

2. Closed Innovation: in-house innovative projects by financial institutions

According to Tim Wu, one of the most legendary business initiatives in Western history was AT&T Bell Laboratories (“Bell Labs”). Founded in 1925 as the research and development subsidiary of AT&T (then monopolist of the United States’ telephone market), Bell Labs was established so that only AT&T could exercise domain over future technological innovations in the

telecommunications system – whatever those might be. The lab's saga is narrated by Tim Wu as part of the history of North American telecommunications monopolies[33]:

> Founded in 1925 with the express purpose of improving telephony, [Bell Labs] did their job well (saving millions for AT&T with simple inventions, such as the plastic insulation of telephone cables) and much more: in the 1920s, Laboratories had already developed a line of its own thinking, taking the work beyond the improvement of the telephone, it deepens in basic research and becomes a scientific corpus sponsored by one of the most important corporations in the world. It was a scientific Valhalla, which hired the best men (and later women), leaving them more or less free to research what interested them. (Free translation)

Throughout its history, Bell Labs has won seven Nobel Prizes, ranging from inventions such as transporters and magnetic tapes (which played a part in the emergence of computers) to programming language "C". The subsidiary also granted its parent company, AT&T, with relevant cost reductions and constant improvements to its telecommunications services (two benefits that perfectly encapsulate the concept of technological innovation, according to Thomas Philippon)[34]. This progress was possible thanks to Bell Labs being entirely driven by technology and innovation, relative independence and massive amounts of capital.

This structure – innovation development by a company – is called Closed Innovation. A category of innovative projects that are developed in-house from the company's own resources and R&D. Since these are projects managed by the company's own managers and employees (without outside interference), and held within its private sphere (without disclosure to competitors and consumers), most innovative projects by traditional companies are born as Closed Innovation[35].

Bell Labs is a great testament to Joseph Schumpeter's opinion on the capacity of large corporations to invest on innovation (that is, large amounts of resources). However, as per Carl

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[33] WU, Tim. **The Master Switch:** the rise and fall of information empires. London: Atlantic Books, 2010, p. 131.
[34] As stated before, technological innovation can be economically explained as an instrument for the company to **(i)** reduce production costs; or **(ii)** offer better products to the market. *In* PHILIPPON, Thomas. **The Great Reversal:** how America gave up on free markets, *op. cit.*, p. 15.
[35] CHESBROUGH, Henry. The Era of Open Innovation. **MIT Sloan Management Review**, spring 2003, p. 35-41.

Shapiro, for innovation to be effectively bred by a company, it must fulfill two key prerequisites: capacity (cited above), and incentive to innovate. The incentive exists only if potential post-innovation profits are higher than pre-innovation profits. Therefore, if a company already holds a dominant position in the market and does not need to invest in innovation to extract maximum profits from that market, the actual incentives for that company to innovate may be considerably low[36].

Incentive to innovate also plays a large role in the second part of Tim Wu's narrative about Bell Labs. In 1982, when AT&T was broken up into several smaller corporations, it was revealed that Bell Labs had developed far more technological innovation than previously disclosed or thought, but AT&T had actively hidden/discouraged them for decades. These "*skeletons in the imperial closet*", as Tim Wu defined it, included the answering machine, fiber optics, cellphones, fax machines, speakerphone, FM radio, and television[37].

The company's motivation (as extensively documented by internal memos) to hide Bell Lab's technological break-throughs was precisely the fear that they could trigger threats to AT&T's dominant position[38]. As such, one could say that the company's status as a monopolist, free from competitive pressure and contestability, resulted in an economic motivation to delay/veto innovations. AT&T had the capacity to innovate, but its incentive was limited to incremental innovations (like the ones that saved the company millions of dollars in costs) and did not cover

[36] See (1) SHAPIRO, Carl. Competition and Innovation: did Arrow hit the bull's eye? *In* **The Rate and Direction of Inventive Activity Revisited**, p. 361-404. Cambridge: National Bureau of Economic Research (NBER), p. 366; and (2) MENEZES FILHO, Naércio. Falta de concorrência desestimula a inovação. **Insper Conhecimento** (May 20, 2014).
[37] Maintained in secret with support even from the regulatory agency, which acted to deter AT&T's competitors from achieving these same innovations. *In* WU, Tim. **The Master Switch:** the rise and fall of information empires, *op. cit.*, p. 130-134, p. 165 and p. 175.
[38] Id, p. 130-134 and p. 236.

“disruptive” innovations (like the ones that were only revealed by Bell Labs after AT&T’s breakup).

AT&T and Bell Labs’ tale also allows for another deduction: while monopolistic corporations (those safe from competitive pressure) have little incentives to innovate, non-monopolistic corporations (which do suffer from competitive pressure) do have incentives to innovate, either to expand to reach new costumers or to protect their current customer bases from competitors. When this incentive is combined with economic capacity, innovation blooms.

This capacity/incentive rule also applies to the financial system. Nowadays, banks in the lending markets have become more encouraged to invest in technological innovation – this is one of their means to face-off against the increased competition brought on by digital entrants and pro-competition rules by the Central Bank. According to the Financial Stability Board, credit fintechs themselves “*can create competitive pressure for incumbents, and force them to streamline their own loan underwriting processes and employ better and faster data analytics systems*”[39].

To survive the digital revolution, almost all traditional financial institutions have taken to investing heavily in technology[40]. According to surveyed European banks, the objectives of such grand-scale investments are to **(i)** respond to digital-based changes in consumer behavior; **(ii)** update internal operating systems (legacy systems); **(iii)** increase efficiency in the allocation of resources (i.e., reducing costs with physical infrastructure); **(iv)** prepare for innovation-based mergers and acquisitions; **(v)** train human resources; and **(vi)** address social issues (mostly financial inclusion and access to credit)[41].

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[39] FINANCIAL STABILITY BOARD. **Fintech and Market structure in financial services:** Market developments and potential financial stability implications, *op. cit.*, p. 11.
[40] PHILIPPON, Thomas. **The Great Reversal:** how America gave up on free markets, *op. cit.*, p. 217.
[41] REID, Neil; NAYLOW, Lindsey; ALLCHIN, Chris; BOUZA, Vicente; SCHNARR, Thomas; ROGERS, Robert; GARDEFJORD, Sofia. **Beyond Restructuring:** the new agenda. European Banking 2017. Oliver Wyman, p. 21-29.

These were the objectives of banks in Closed Innovation. To put them in practice, their projects aim at digitizing their products and systems through new architectures/technologies (especially big data, cloud computing, artificial intelligence and machine learning); radically improving consumer experience; leveraging digital sales channels, adopting new business models in subsidiaries[42] (i.e., Marcus, from Goldman Sachs, and Next, from Bradesco), stimulating intrapreneurship programs; and investing heavily information security[43-44].

Despite its clear potential, Closed Innovation also suffers from certain challenges. For banks, the greatest of these challenges is actually their own internal operating systems. These infamous legacy systems were developed a long time ago and need ostensible updating to be compatible with digital innovations, thus increasing the cost of transaction for innovative projects (capital and time)[45]. Depending on the age of the legacy systems, investment already sunk over an old system can be so high as to lead the company to effectively decide not to innovate[46], and the banking market has already sunk a lot of investment in its systems. We may to define these "legacy systems" as[47]:

> [A] 50-year-old core operating system, which has been added to over the years and is now essentially a maze of interlinked functions, where the failure of one part can bring the entire system crashing. (…) Over the years, rather than upgrade the system, most banks have simply

[42] THE ECONOMIST. "Flanker" banks are seeking to combine the old and new: their aim is to go head-to-head with themselves. **The Economist** (May 2, 2019). Available at: <https://www.economist.com/special-report/2019/05/02/flanker-banks-are-seeking-to-combine-the-old-and-new>. Access on February 6, 2020.

[43] CARMONA, Alberto; LOMBARDO, Agustín; PASTOR, Rafael; QUIRÓS, Carlota; GARCÍA, Juan; MUÑOZ, David; MARTÍN, Luis. **Competition issues in the area of financial technology (FinTech)**, *op. cit.*, p. 19.

[44] Bank for International Settlements mapped out that these ideas are traditionally accompanied by the following banking strategies: offering credit products and means of payment through the bank's own websites/apps; biometrics/video/chatbots to improve the interface; and digital consumer recognition to mitigate fraud risks and prevent money laundering. *In* BASEL COMMITTEE ON BANKING REGULATION. **Sound Practices:** implications of fintech developments for banks and bank supervisors. Bank for International Settlements, *op. cit.*, p. 17.

[45] VAN LOO, Rory. Making Innovation More Competitive: the case of fintech. **U.C.L.A. Law Review**, vol. 65, 2018, p. 241.

[46] See the case of Radio Corporation of America, which slowed down development of FM radio in benefit of the infrastructure that had already been established to commercialize AM radio (which was inferior in quality to FM). In WU, Tim. **The Master Switch:** the rise and fall of information empires, *op. cit.*, p. 159.

[47] PATEL, Manisha. Fintech: David vs. Goliath. **The Fintech Times** (August 24, 2018). Available at: <https://thefintechtimes.com/fintech-david-vs-goliath/>. Access on March 12, 2020.

> been adding elements to it, to supports things like ATM transactions and credit and debit card payments. The result is a bunch of siloed code pockets that do not support AI and machine learning intelligence and that will be very difficult, if not impossible, to take apart and rebuild. We're talking billions of dollars and years of work.

To aggravate the issue, decades of mergers and acquisitions between banks around the world have caused these banks' internal systems to be quite literally stacked on top of each other. As such, these legacy systems, each of them assembled by a different bank, were all rounded up in a few banks (which have acquired all other banks) with limited integration amongst themselves[48].

In addition to being threatened by the high cost of legacy systems, Closed Innovation projects may also suffer from **(i)** high transaction costs faced by the companies to acquire personnel and equipment for the project[49]; **(ii)** conservative corporate cultures that are refractory to innovation; **(iii)** managers with more incentives to hit short/medium-term goals than to invest in long-term innovation[50]; and **(iv)** resistance to investing in projects which, if eventually discontinued, might cause reputational damage to the company (i.e., in 2018, JPMorgan Chase launched a subsidiary called Finn, a digital bank focused on millennials, but which failed the following year)[51].

Regarding Closed Innovation in Brazil specifically, incumbent banks meet the two requirements discussed by Carl Shapiro to produce innovation: capacity (vast resources) and incentives (motivation to protect their consumer base against digital entrants). Not only that, but there are also clear economic advantages on the table consisting of the expansion and cost-cutting opportunities that technology presents. As an example, according to Goldman Sachs' evaluation,

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[48] PHILIPPON, Thomas. **The Fintech Opportunity.** Annual Conference of the Bank for International Settlements. Working Paper no. 655, 2017, p. 15.
[49] LERNER, Josh. **Corporate Venturing**. Cambridge: Harvard Business Review, 2013.
[50] GIROTRA, Karan; NETESSINE, Serguei. **Why Large Companies Struggle with Business Model Innovation**. Cambridge: Harvard Business Review, 2013.
[51] THE ECONOMIST. Digital technology will strengthen America's biggest retail banks. **The Economist** (June 15 2019), *op. cit*.

Brazilian banks may increase their ROE by 3%-6% by cutting physical infrastructure and onboarding customers from physical branches to digital apps[52].

Finally, to quantify the appetite of Brazilian financial institutions to endeavor in Closed Innovation projects, we have searched out projects involving: **(i)** digital reinvention of the conglomerate's brands (building on a digital identity); **(ii)** spin-offs in the form of companies controlled by financial institutions (separate legal entities); and **(iii)** spin-offs in the form of platforms/applications controlled by financial institutions.

BANK	CLOSED INNOVATION PROJECT
ABC	Constitution of ABC Innovation Lab for intrapreneurial projects.
Agibank	Underwent a digital reinvention.
B2S	Underwent a digital reinvention (former Banco Bonsucesso).
Banco do Brasil	Launched the open banking platform called "*BB for Developers*" (open APIs).
	Constitution of Ciclic (private pension distribution platform) in partnership with PFG.
Bradesco	Constitution of: - Banco Next (digital wallet, payments and credit card app); - BIA (*Bradesco Inteligência Artificial*); - Bitz (digital wallets and payments).
Bradesco; Banco do Brasil	Constitution of Banco Digio (former Banco CBSS).
BTG Pactual	BTG Digital: investment platform for regular retail and high net worth retail. BTG+: digital platform aimed for retail banking.
C6Bank	Digital bank constituted in 2018 by ex-controllers from BTG Pactual.
	Partnership with Tim (telecom company) to **(i)** cross-sell financial services and telecommunication products; and **(ii)** eventually receive na investment from Tim as a minor shareholder in C6Bank.
Febraban[53]	Constitution of RBSFM (*Rede Blockchain do Sistema Financeiro Nacional*) to design a new infrastructure for financial operations in Brazil based on distributed ledger technology.

[52] To reach this result of percentage, Goldman Sachs used, as a proxy, Itaú Unibanco's recent trajectory of closing branches and transferring customers from branches to digital apps. The calculation involved how much the bank would save by suppressing physical infrastructure vis-à-vis loans that it would be unable to grant with fewer bank branches, additional costs with digital infrastructure, and eventual outsourcing. *In* GOLDMAN SACHS. **Future of Finance Fintech's Brazil Moment.** Goldman Sachs Global Investment Research, 2017, p. 28.

[53] Febraban, as na association for banks, was driven into this project by the following institutions: Banrisul, Bradesco, Banco do Brasil Itaú Unibanco, JP Morgan, Original, Santander and Sicoob.

Inter	Underwent a digital reinvention (former Banco Intermedium) and now plans to build a super-app similar to the Alibaba model from China.
Itaú Unibanco	Constituion of iti (digital wallet,payments and investments platform).
Modal	ModalMais: investment, credit cards and foreign exchange platform.
Original	Underwent a digital reinvention.
	Partnership with Serasa Experian to, using data intelligence and directed advertising, raise the conversion rate of digital strategies.
Pan	Underwent a digital reinvention.
Santander Brasil	Constitution of the following subsidiaries: **(i)** Sim Empréstimos: digital credit platform ("*Aymoré CFI S.A.*"); **(ii)** BEN: on the business of benefits cards ("*BEN Benefícios S.A*"); **(iii)** emDia: on the business of debt renegotiation ("*Atual Serviços de Recuperação de Créditos e Meios Digitais S.A.*"); **(iv)** Esfera: on the business of fidelity programs ("*Esfera Fidelidade S.A.*"); **(v)** Pi: on the business of open investments platform ("*PI DTVM S.A.*"); **(vi)** Superdigital: on the business of digital wallet ("*Super Pagamentos e Administração de Meios Eletrônicos S.A"*).
	Way: app for card management, payments and wire transfers.
	Empreenda Santander 2019: program for sponsoring startups in the academic scene
	Partnership with Natura to develop an app for dealers to manage digital accounts.
Sofisa	Sofisa Direto: a platform of digital wallets, credit, and other traditional financial products.
XP	First open investment platform in Brazil, and constitution of the fintech DuAgro (agrobusiness financing).

Source: data from CVM, institutional websites and financial statements.

3. Open Innovation: enter the ecosystem of integration between banks and fintechs

The second category of strategies implemented by companies to create innovation was proposed by Henry Chesbrough as a natural evolution to Closed Innovation, and has been christened Open Innovation[54]: innovating by forming partnerships with startups and other institutions[55]. The Open Innovation strategy corroborates **(i)** Carl Shapiro, according to whom the

[54] CHESBROUGH, Henry. The Era of Open Innovation. **MIT Sloan Management Review**, *op. cit.*, p. 35-41.
[55] Open Innovation, according to a research cited by Wharton, has been implemented by most companies listed in the Global 500 index. *In* KNOWLEDGE@WHARTON. **Why Partnerships are the Future for Fintech**. Wharton University of Pennsylvania: September 2019, p. 2.

incentive to innovate may derive from agents that combine complementary assets (the principle of synergies)[56]; and **(ii)** Joseph Schumpeter, according to whom partnerships between startups and incumbents stimulate the capacity for innovation in the market[57].

In practice, through Open Innovation, the company leverages its relationships with universities, scientific institutions, competitor companies, associations, and startups. From these relationships, the company gains the opportunity to access/create relevant innovations, instrumentalize them within its internal structure, and even acquire them – all with the objective of preserving/gaining market share and competitive advantage against competitors[58].

Considering the Brazilian financial system, the Open Innovation initiatives we aim to explore are those employed between banks and startups. Our first step, therefore, is to understand its key incentives (and disincentives).

3.1. Synergies and challenges

Nowadays, financial ecosystems around the world rely on many partnerships between banks and fintechs, ranging from the simplest (contracting services) to the most complex (investments

[56] SHAPIRO, Carl. Competition and Innovation: did Arrow hit the bull's eye? *In* **The Rate and Direction of Inventive Activity Revisited**, *op. cit.*, p. 365.

[57] This rule derives from Schumpeter's most known theses – that incumbents are better positioned than startups to produce innovation. *In* SHAPIRO, Carl. Competition and Innovation: did Arrow hit the bull's eye? *In* **The Rate and Direction of Inventive Activity Revisited**, *op. cit.*, p. 367.

[58] From a macroeconomic point of view, Open Innovation brings excellent opportunities for a country's economic development based on the concept of the "Triple Helix". Proposed in the 1990s by Henry Etzkovitz, the idea of the Triple Helix is that innovations are produced more efficiently in ecosystems that foster integration between the market, academia and public authorities. In Etzkovitz's proposal, educational institutions should carry out (or invest in) scientific research and encourage entrepreneurial education; the market must invest in innovation through an open model (innovation in partnership with other institutions); and the State must foster a favorable ecosystem through pro-innovation regulations and financial/tax incentives. In his view, the Triple Helix would be a real key to economic development. *In* VALENTE, Luciano. **Hélice Tríplice:** metáfora dos anos 90 descreve bem o mais sustentável modelo de sistema de inovação. Interview with Henry Etzkovitz. Conhecimento & Inovação, vol. 6, n. 1. Campinas: Instituto Uniemp, 2010, p. 6-9.

and corporate acquisitions). The greatest incentives for such partnerships are precisely in the synergy between the two groups. Fintechs offer an excellent consumer journey and agile implementation of ideas (especially since they do not carry legacy systems). Banks offer a recognized brand in the market, large amounts of resources, access to cheaper capital (funding), robust bases of data, and a full-scale regulatory license. The union of these two makes sense to overcome the various barriers each of them would face alone. According to American Banker[59]:

> The number of bank and fintech partnerships has been steadily on the rise for the past year or so. What was once perhaps an adversarial relationship has warmed; as banks realize there are ideas coming from outside the industry they should be paying attention to, and fintechs realize the challenge of scaling on their own and see bank partnerships as an opportunity to get their technology in the hands of a ready-made customer base quickly.

In 2018, a survey by the universities of Frankfurt and Münster interviewed bank and fintech managers to quantitatively map out the incentives considered most relevant to establish partnerships. On the occasion, a bank manager gave a particularly emblematic statement: "*[we are] not a tech company nor an IT firm. We are a bank - we are good [at] financial consulting, we are good [at] addressing behavioral finance topics (...). We are not good at writing computer programs*"[60] (for fintechs, this is a great advantage arising from the partnership – they know the technology, but banks know the business)[61]. Here are the search results, as schematized by Revista Capital Aberto[62]:

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[59] YURCAN, Bryan. How Moven Went from 'Breaking Banks' to Breaking Bread with Them. **American Banker** (September 2, 2016). Available at: <https://www.americanbanker.com/news/how-moven-went-from-breaking-banks-to-breaking-bread-with-them>. Access on March 13, 2020.

[60] KLUS, Milan; LOHWASSER Todor; HOLOTIUK, Friedric; MOORMANN, Jurgen. **Strategic Alliances between Banks and Fintechs for Digital Innovation**: motives to collaborate and types of interaction. University of Münster & University of Frankfurt, 2018.

[61] DELOITTE. Closing the Gap in Fintech Collaboration: overcoming obstacles to a symbiotic relationship. **Deloitte Center for Financial Services**, 2018, p. 5.

[62] CAMINHA, Lucas. Efeito Kronos no Corporate Venture Bancário: intensificação nos investimentos de bancos em fintechs estimula debate sobre aspectos regulatórios. **Revista Capital Aberto** (June 19, 2019). Available at: <https://capitalaberto.com.br/secoes/ensaio/efeito-kronos-no-corporate-venture-bancario>. Access on July 2, 2019.

INCENTIVES FOR BANKS	INCENTIVES FOR FINTECHS
Outsourcing (89% of replies) Outsourcing of technological activities to dedicate their own resources to the core business (de facto banking).	**Resources and synergies** (100% of replies) Access to low-cost funding, solid reputation, and, especially, bank data.
Rapid-pace innovation (78% of replies) More agile innovation due to the fact it is outside the bank's infrastructure.	**Trust and credibility** (71% of replies) Benefits from using the traditional brands from the incumbent banks[63].
Evolution of the business model (67% of replies) Reaction to competitive pressure arising from new institutions and to the fear of obsolescence.	**Customer acquisition** (71% of replies) Creating value from the reputation and brands from the banks.
Competitive advantages over rivals (44% of replies)	**Learning** (29% of replies)
Learning (44% of replies)	-

In spite of these relevant synergies, banks and startup partnership face relevant challenges that call into question a future based on Open Innovation[64]:

> For banks, partnerships won't generate the quantum leap they need to move beyond a decades-old, product-centric mentality to deliver next-generation financial services that consumers deserve. At best, they may gain a workable solution that squats awkwardly in the existing infrastructure and brand. At worst, banks will fail to deliver any noticeable difference to customers beyond a flurry of press releases.

The (mostly skeptical) analysis above derives from three major issues that banks and startups face whenever they try to join forces.

First, a culture problem. As discussed, traditional corporate culture is already a problem for banks even when trying to structure Closed Innovation projects internally. As one might expect, when the discussion moves from Closed Innovation to Open Innovation projects and to startup

[63] See a statement by an executive director of Plaid, a globally relevant fintech and recently acquired by Visa, about the startup's partnership with Fannie Mae (incumbent mortgage seller in the United States): "*If we get Fannie Mae's blessing, we're on the map as a credible data source, we're ingrained in the system, (...) If it says in Fannie Mae's guidebook that loans have assets verified by Plaid, there's so much credibility to be gained*". *In* KNOWLEDGE@WHARTON. **Why Partnerships are the Future for Fintech**. Wharton University of Pennsylvania: September 2019, p. 5.
[64] SHEVLIN, Ron. Bank/Fintech Partnerships: the fad is over. **Forbes** (October 14, 2019). Available at: <https://www.forbes.com/sites/ronshevlin/2019/10/14/bank-fintech-partnerships-the-fad-is-over>. Access on March 9, 2020.

partnerships, the culture problem is aggravated further. Many banks are already skeptical about working with other financial institutions[65], and the culture shock runs deeper at the mere mention of fintechs. At the end of the day, bank mentality (product focus, risk aversion, complex governance) is quite different from fintech mentality (consumer focus, risk appetite, agility in projects). For a partnership project to be successful two different profiles must be made compatible, even though they might not even be "speaking the same language" – therein lies the first problem and challenge for Open Innovation in banking[66].

Second, a processes problem. This is the reason for most relevant bottlenecks to bank/fintech partnerships, and it tends to come out after both parties decide to partner up – that is, at the time to make this partnership operational and integrate both systems. According to criticism from fintechs who have worked with banks in the past, startups end up treated like the traditional suppliers that banks are used to, demanding a challenging volume of certifications, information, policies and clauses incompatible with a startup's size[67]. According to the founder of fintech Moven, "*[the] biggest barrier to bank/fintech partnerships is banks' procurement departments. They treat us like small IBMs and hammer us with performance and risk clauses that would kill us if we let them*"[68].

Third, a legacy systems problem (a challenge already present in Closed Innovation projects, as per Chapter 2). Fintechs do not have the burden of legacy systems, since they were able to build

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[65] Id.
[66] As an example from Brazil, the CEO of the bank Santander Brasil spoke during an interview precisely about the difficulties imposed by the conservative mentality of his institution in its attempts to partner with fintechs. *In* CORONATO, Marcos; BOCCIA, Sangra. CEO do Santander: ser desafiado por fintechs é a parte boa do trabalho, para Sergio Rial, difícil mesmo é mudar as cabeças dentro das grandes empresas. **Época Negócios** (February 11, 2019). Available at: <https://epocanegocios.globo.com/Empresa/noticia/2019/01/ceo-do-santander-ser-desafiado-por-fintechs-e-parte-boa-do-trabalho.html>. Access on March 17, 2020.
[67] KNOWLEDGE@WHARTON. **Why Partnerships are the Future for Fintech**. Wharton University of Pennsylvania: September 2019, p. 6.
[68] SHEVLIN, Ron. Bank/Fintech Partnerships: the fad is over. **Forbes** (October 14, 2019), *op. cit*.

their own systems from scratch, without having to build on top of outdated systems[69]. Banks, on the other hand, do not have that luxury – and the partnership suffers for it. For the bank to integrate its systems with the startup's systems, it may need to invest a relevant amount of time and personnel, to the point it might actually discourage the partnership – after all, depending on how long it takes to implement an Open Innovation project, the bank may have incentives to simply dispense with fintech and pursue its innovation goals internally[70].

Considering the three challenges above, one might say the difficulties faced by banks to structure Open Innovation with other entities, especially startups, all come from the factors of legacy: legacy governance/culture, legacy processes, and legacy systems[71]. To mitigate the obstacles and succeed in their partnerships, banks have certain strategies at their disposal: **(i)** having a "sponsor" for Open Innovation projects within the bank's top management; **(ii)** instituting an independent committee/group to run the project inside the bank more quickly; **(iii)** assigning a point of contact and coordination to one or few personnel within the bank (capable of coordinating with the departments of compliance, technology, and others); and **(iv)** objectively defining the key-performance indicators (KPIs) of each Open Innovation project, thus being able to effectively discern successes from failures[72]. As for item "iv", see concrete examples of quantitative and

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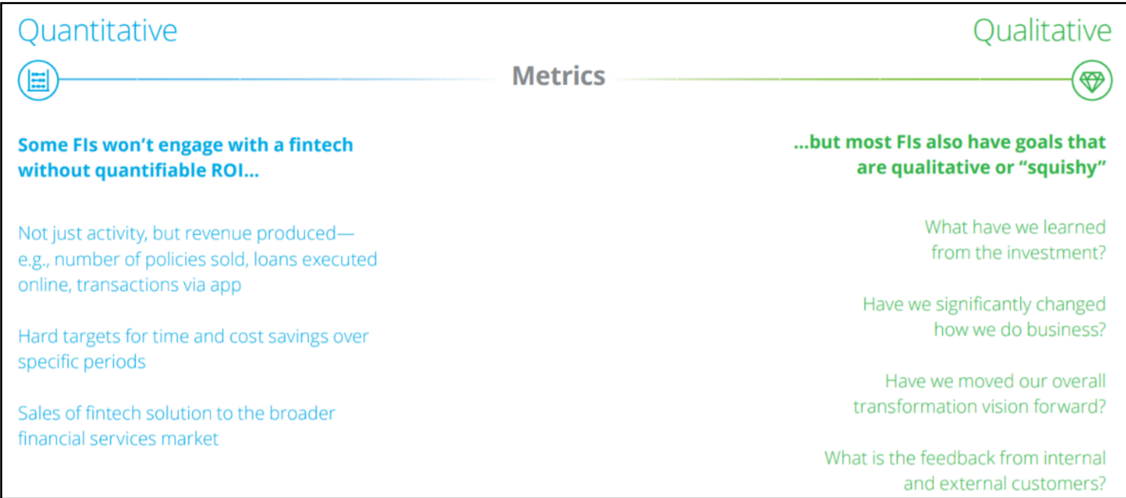
[69] After all, fintechs were able to build their systems from scratch without having to build on top of outdated systems, as opposed to traditional banks. *In* PHILIPPON, Thomas. **The Fintech Opportunity**, *op. cit.,* p. 15.
[70] VAN LOO, Rory. Making Innovation More Competitive: the case of fintech. **U.C.L.A. Law Review**, *op. cit.*
[71] DELOITTE. Closing the Gap in Fintech Collaboration: overcoming obstacles to a symbiotic relationship. **Deloitte Center for Financial Services**, 2018, p. 5.
[72] See (1) KNOWLEDGE@WHARTON. **Why Partnerships are the Future for Fintech**. Wharton University of Pennsylvania: September 2019, p. 4; (2) DELOITTE. Closing the Gap in Fintech Collaboration: overcoming obstacles to a symbiotic relationship. **Deloitte Center for Financial Services**, 2018, p. 10; and (3) SCHAULS, Paul. A vetting guide for banks mulling fintech partnerships. **American Banker** (February 19, 2020). Available at: <https://www.americanbanker.com/opinion/a-vetting-guide-for-banks-mulling-fintech-partnerships>. Access on March 3, 2020; (4) FRASER, Ian. Complicated collaborations between big banks and fintech startups. **Raconteur** (September 27, 2017). Available at: <https://www.raconteur.net/finance/complicated-collaborations-between-big-banks-and-fintech-startups>. Access on March 21, 2020.

qualitative KPIs defined by banks across various Open Innovation projects, as mapped out by Deloitte[73]:



Source: Deloitte.

Now that we have gone over the synergies and challenges of partnerships between banks and fintechs, we shall present another empirical survey on Open Innovation projects. Our results reveal a high volume of (disclosed) partnerships, and mostly aiming to offer credit and digital accounts.

BANK	FINTECHS IN THE PARTNERSHIP
Andbank	Geru: client prospection.
Banco do Brasil	Bxblue: marketplace for payroll credit. Bom pra Crédito: marketplace for credit products. Ciclic: private pension platform (controlled by the bank). ContaAzul: cloud-servicing management for SMEs. Dotz: fidelity programs.
Banco do Nordeste	FNE Startup: program launched to give loans to startups (up to R$ 2,9 million per startup).
BMG	Lendico: peer-to-peer loans.
BNP Paribas	Geru: payroll credit.
BOCOM BBM	Monkey: advancement of receivables.

[73] DELOITTE. Closing the Gap in Fintech Collaboration: overcoming obstacles to a symbiotic relationship. **Deloitte.** Deloitte Center for Financial Services, 2018, p. 8.

CEF	Flexdoc: new process of client registration (management of data received from clients and antifraud procedures).
CBSS (Digio)	Lendico and GuiaBolso: personal credit products.
Cifra	Lendico: personal credit products.
Digio	Guiabolso, Geru, Bom Pra Crédito, FinanZero, WeCash, JurosBaixos, KeroGrana, EasyCrédito, uConecte, e Lendico: partners for client prospection.
Goldman	Nubank: continuous financing to the startup through a receivables securitization sutrcuture (R$ 455 million in 2018, current value non-disclosed).
Morgan Stanley	Geru: financing to the startup of R$ 50 million in subordinated debentures (non-convertible).
Pan	Creditas: client prospection. Lendico: personal credit products. Kitado: debt renegotiation for retail clients.
Pine	Hub Fintech: payments, wire transfers, benefits and digital accounts.
Paulista	Pravaler: client prospection.
Rendimento	Quanto: visualization, on a digital platform, of current account and cash flow management.
Santander	Kitado: debt renegotiation for retail clients. QuiteJá: debt renegotiation for retail clients.

3.2. Incubators and accelerators: channels for banks to approach startups

From the previous Chapter, we were able to ascertain how vast is the number of partnerships between banks and fintechs in the Brazilian market. From now on, instead of analyzing the partnerships themselves, we analyze certain specialized innovation environments in which banks target to leverage these partnerships: incubators and accelerators.

Incubators have been around since the 1950s, however, there have not been many studies on their nature[74]. The semantic definition of an "*incubator*" (*lato sensu*) is a physical space that enables the growth of a being until it is ready to be released into the world. Importing this institute into the corporate world, business incubators incubate startups into their infrastructure and nourish them with assets (tangible and intangible) until they are able to launch themselves on the market[75].

[74] PAUWELS, Charlotte, CLARYSSE, Bart, WRIGHT, Mike, & VAN HOVE, Jonas**.** Understanding a new generation incubation model: the accelerator. **Technovation**, 50, October 2015, p. 13-24.
[75] FERNANDES, Pedro Wehrs do Vale. **A Natureza Jurídica das Incubadoras e Aceleradoras e suas Relações Contratuais com as Startups**. Curitiba: XXV CONPEDI congress, 2016.

In summary, incubators encourage the development of startups and small companies with a range of resources and services, specifically **(i)** physical space compatible with their activities (i.e., clinical laboratory infrastructure for testing, computer network for software production, offices); and **(ii)** mentoring and strategic advice, which may assist with product testing/validation, networking with other entrepreneurs, and training in development/management/sales[76]. In the United States, they are mostly funded by universities or public funds, so they do not charge significant remuneration or equity in incubated startups. In 2011, it was found that most efficient American incubators were non-profit entities[77] – that is, whose objective was economic development and job creation in their respective regions[78].

Accelerators, on the other hand, are institutions that usually represent the next step for incubators: a modified growth program for startups already reasonably mature, ready to receive investment and to sell a minimum viable product (MVP) to the market[79].

Both accelerators and incubators provide infrastructure and mentoring to enable startups to grow, especially help with product development, possible pivots to better reach consumers, preparation to receive investment, preparation to be acquired etc[80]. However, there is a crucial difference: accelerators actually channel capital and become investors in the accelerated startups.

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[76] According to a survey among Brazilian entrepreneurs, the most sought after benefits in incubation by startups are mentorship in management, fundraising, and, mainly, networking. In addition, the surveyed entrepreneurs consider as incubators' good practices to determine key-performance indicators, demand monthly reports, schedule periodic meetings regarding business plans/directions, and establish courses for the startups. *In* FAURY, Thiago Pinheiro; CARVALHO, Marly Monteiro. **Corporate venture capital:** geração e acompanhamento de oportunidades de investimento em empresas inovadoras. Revista Produção, v. 23, no. 4, p. 735-750, October-December, 2013.
[77] LEWIS, Davis; HARPER-ANDERSON, Elvis; MOLNAR, Lawrence. **Incubating Success:** incubation Best Practices that lead to successful new ventures. Institute for Research on Labor, Employment, and the Economy. Ann Harbor: University of Michigan, 2011..
[78] TORUN, Mustafa. **Business Accelerators and their Differences from Incubators**. Multincubadora – Universidade de Brasília. Working Paper. Brasília: CDT/UnB: 2018, p. 8.
[79] LEWIS, Davis; HARPER-ANDERSON, Elvis; MOLNAR, Lawrence. **Incubating Success:** incubation Best Practices that lead to successful new ventures. U.S. Department of Commerce, Economic Development Administration, 2011.
[80] PRICE, Russ. The Role of Service Providers in Establishing Networked Regional Business Accelerators in Utah. **International Journal of Technology Management**, vol. 27, no. 5, 2004.

As mentioned before, Brazilian banks institutions try and enter the world of incubation and acceleration in order to approach startups and facilitate Open Innovation. To that end, they might **(i)** approach one of the 300+ incubators[81] or 30+ accelerators[82] that have already installed themselves in Brazil (especially as sponsors); or **(ii)** set up their own incubation and acceleration programs. As already seen in this paper, these banks aim is to maintain a close relationship with the most promising startups (as filtered through contests), and to stay one step ahead of the market, detecting any technological innovations that eventually add value to their own organizations.

Finally, following this paper's empirical guidelines, we have mapped out the disclosed initiatives by Brazilian financial institutions in the incubation and acceleration environment:

BANK	INCUBATION/ACCELERATION INITIATIVE
ABC Brasil	iDEXO: Constitution, alongsite TOTVS, of an accelerator specialized in connecting companies and startups that may add value to the bank's activities.
Banco Central[83]	LIFT: Acceleration program.
Banco do Brasil	Ahead: Acceleration program in partnership with Startup Farm. Labbs: Program aiming towards coworking, incubation, acceleration and hiring of startups in general (there's an unit in Brasília and another unit in Silicon Valley).
Banco do Nordeste	Hubine: incubation iniative for Northeaestern startups.
BNDES[84]	BNDES Garagem: Acceleration program .
BOCOM BBM	Fábrica de Startups: Hiring of Fábrica de Startups to provide services of prospection and acceleration of startups that may add value to the bank's activities.
Bradesco	inovaBra: Acceleration program.
BTG Pactual	boostLAB: Acceleration program (in March 2020, according to one of BTG's partners, the bank had already formed a partnership with 70% of startups that went through the program)[85].

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[81] ANJOS DO BRASIL. Report "Crescimento Econômico do Investimento Anjo: pesquisa 2018". **Anjos do Brasil**, 2019.
[82] Id.
[83] Even though the Central Bank of Brazil is not a bank, the work of the banking regulator could not be overlooked.
[84] Even though BNDES is legally a development agency, and not a bank (despite its name), it is worth the presence here for its relevance in the innovation market.
[85] According to Frederico Pompeu, a partner at BTG Pactual who is responsible for the initiative. On the same date, BTG Pactual's CEO also said: "*We set up boostLAB to support entrepreneurship. It was born as a mentoring program for startups and today it is an area of disruption and business in the bank. Our expectation is that entrepreneurs leave*

C6Bank	Oppc6: Incubation and acceleration program..
CEF	"*Desafio de Negócios de Impacto Social*": Acceleration program for startups with high social impact.
Itaú	Cubo: Relevant incubator constituted by Itaú Unibanco and Redpoint e.ventures[86].
Santander	Radar Santander: Acceleration program.
SICOOB	FINTECH.Rio: Acceleration program.
Votorantim (BV)	Labbs: BV is a partner of Banco do Brasil's in the Labbs initiative (as described above).

Fontes: CVM, institutional websites and financial statements.

3.3. Banking Corporate Venture: corporate investment in fintechs

Since the 1960s, large corporations around the world have been investing in startups in order to stand out in their own markets, gain visibility and achieve broader profit margins – a practice that has been conventionally christened Corporate Venture[87]. Nowadays, this movement seems to be at one of its highest points – the participation of corporations in investments in startups went from 1/5 in 2015 to 1/3 in 2018[88]. At the end of the day, Corporate Venture is a subtype of Open Innovation project – one that consists of actually investing in startups of interest to the company, and not just partnering with or incubating them.

There are clear advantages to this model. When compared to Closed Innovation projects, Corporate Venture strategies provide the company with the advantages of **(i)** responding faster, more flexibly and less costly to changes in technology or in business models; **(ii)** monitoring the

boostLAB with the conviction that this is the best program for startups they have gone through, with new contacts and relationships with the market, and, if there is a fit, with a partnership with BTG Pactual Group" (free translation).

[86] In 2015, Itaú Unibanco joined Redpoint e.ventures (a Venture Capital investment fund) to launch Cubo, an incubator specialized in technology startups. To attract the best startups, Cubo also does not demand them to hand over equity (and only monthly payments). Today, Cubo is also sponsored by Amazon, B3, BrMalls and Kroton.

[87] KAUFFMAN FOUNDATION. **Corporate Venture Capital (CVC)**, Ewing Marion Kauffman Foundation, 2016.

[88] See (1) PWC; NATIONAL VENTURE CAPITAL ASSOCIATION. **Money Tree Report Q4 2018**; and (2) NVCA 2017 Yearbook: the go-to resource on the venture ecosystem. **National Venture Capital Association**, 2017.

emergence of competitive threats in a more versatile way; and **(iii)** being able to shut down unsuccessful projects more quickly[89].

It is clear that the primary role of Corporate Venturing is strategic: to prospect and acquire innovations developed by startups. Subsidiarily, Open Innovation projects based on Corporate Venture may also bring reasonable returns to the company if it decides to sell its equity in the startup later down the road (in other words, should it choose to divest from it)[90].

Naturally, the banking sector has joined the economic sectors that have adhered to the Corporate Venture phenomenon. As such, Banking Corporate Venture may be defined as banks investing and becoming shareholders in startups with the strategic purpose of adding their innovations to their own business and transforming them into a competitive advantage (in addition to investing capital, the company also mentors the startup's founders)[91].

Banking Corporate Venture has become quite popular **(i)** abroad, in which UBS, Deutsche Bank, Societe Generale, BNP Paribas and HSBC have already invested in dozens of fintechs[92]; and **(ii)** in Brazil, as evidenced by the following empirical survey published in Revista Capital Aberto (based on data from CVM, institutional websites, financial statements, and news from specialized vehicles)[93]:

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[89] LERNER, Josh. Corporate Venturing. **Harvard Business Review**, 2013.

[90] Id.

[91] See (1) CAMINHA, Lucas. Efeito Kronos no Corporate Venture Bancário: intensificação nos investimentos de bancos em fintechs estimula debate sobre aspectos regulatórios. **Revista Capital Aberto** (June 19, 2019), *op. cit.*; and (2) CHEMMANUR, Thomas J.; LOUTSKINA, Elena; TIAN, Xuan. **Corporate Venture Capital, Value Creation, and Innovation**. Boston, 2013.

[92] The fintechs preferred by banks for Corporate Venture purposes had digital bases in blockchain, data analysis, financial planning, wealth management, credit, payments, infrastructure, and regulation. *In* KNOWLEDGE@WHARTON. **Banks and Fintechs:** adversaries or partners? Wharton University of Pennsylvania, abril de 2018, p. 9-10.

[93] CAMINHA, Lucas. Efeito Kronos no Corporate Venture Bancário: intensificação nos investimentos de bancos em fintechs estimula debate sobre aspectos regulatórios. **Revista Capital Aberto** (June 19, 2019), *op. cit.*

BANK	CORPORATE VENTURE INITIATIVE IN BRAZIL
Banco C6	Acquisition of IDEA9.
Banco do Brasil	Limited partner in the fund BR Startups (portfolio with the fintechs Olivia, QueroQuitar!, Tbit, Taranis e Covercy).
Nubank	Acquisition of Plataformatec, Cognitect, and Easynvest.
Banrisul	Limited partner of the fund Fintech Ventures (still in pre-operational stage).
BNDES[94]	Constitution of the investment funds Criatec, Primatec and angel coinvestment.
Bradesco (inovaBra Ventures)	Shareholder in Semantix, Cuponeria, MarketUp, AgroSmart and DirectOne (D1).
Brasil Plural	Acquisition of EscolherSeguro.
BTG Pactual	Acquisition of Resale and participation in Digesto, Finpass, Agronow e CredPago.
Itaú	Acquisition of Zup, and participation in XP Investimentos, and Pravaler..
Goldman Sachs	Participation in Melhortaxa and iugu.
Máxima	Participation in BBNK.
Nubank	Acquisition of Cognitect and PlataformaTec.
Original	Acquisition of PicPay by the controlling group of Banco Original, which was already a minority shareholder[95].
Santander (InnoVentures)	Participation in Creditas, a55, and fintechs abroads.
Votorantim (BV)	Acquisition of Just; participation in Olivia, Weel, and a limited partner in the fund BR Startups (portfolio described above).
XP	Acquisition of Antecipa, DM10, e Fliper, and participation in Olivia.

3.3.1. Kronos Effect: strategic acquisition and the (silent) regulatory response in Brazil

Greek mythology states that the titan Kronos, father of Zeus, used to devour his own children in an attempt to escape Gaia's prophecy, according to whom one of them would lead a rebellion to end the golden age of the Titans. Much like Kronos in the mythological legend, traditional corporations may also have an incentive to acquire/“consume” innovations and innovative

[94] Even though BNDES is legally a development agency, and not a bank (despite its name), it is worth the presence here for its relevance in the innovation market.

[95] As per Concentration Act no. 08700.003290/2019-86, approved without restrictions at Cade's Plenary on October 16, 2019. According to Cade’s *Superintendência Geral*, “*the acuisition of PicPay by JFP presents itself as an investment opportunity in an innovative market niche and with growth prospects in the future that will promote synergies between companies, in order to optimize the growth of its results through the new technologies developed by PicPay and the know-how in the banking sector of Banco Original*” (free translation).

companies before they can grow to become competitive threats in their markets – Tim Wu christened this incentive the "Kronos Effect", and some call these moves "killer acquisitions"[96].

A smaller scale manifestation of the Kronos Effect has already been studied in this paper – AT&T's role in discouraging innovations from Bell Labs that might challenge the company's dominant position[97]. However, this effect is at its foremost when companies are actively acquiring/"consuming" innovative entrants before they become a future threat. Nowadays, this very discussion is present in the Brazilian financial sector – banks are investing more and more in fintechs, and some may argue that these are preparations for future attempts to annihilate competitors early on[98].

For the Kronos Effect to materialize, from a competition point of view, incumbents are motivated by the opportunity to internalize **(i)** the competitive pressure (the so-called "business-stealing effects") exerted by the entrant at the moment of the acquisition (static competition); and **(ii)** the competitive pressure that the entrant might exert in the future should it continue to grow independently (dynamic competition). As such, acquisitions of innovative entrants motivated by such drive may be harmful to innovation itself, since they actually tend to preserve the incumbents' more profitable status quo[99]. According to certain authors, such potential damages to future

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[96] See (1) CAMINHA, Lucas. Efeito Kronos no Corporate Venture Bancário: intensificação nos investimentos de bancos em fintechs estimula debate sobre aspectos regulatórios. **Revista Capital Aberto** (June 19, 2019), *op. cit*; and (2) WU, Tim. **The Master Switch:** the rise and fall of information empires, *op. cit.*, p. 134.

[97] Id, p. 134.

[98] "*The big banks, so powerful and yet so anxious about the possibility of being disrupted by the upstarts, will gobble [the fintechs] all up in a spate of mergers and acquisitions that puts the disrupters squarely inside the institutions they were supposed to overtake*". *In* SORKIN, Andrew. Fintech Firms are Taking on the Big Banks, but can they win? **New York Times**, *op. cit*.

[99] SHAPIRO, Carl. Competition and Innovation: did Arrow hit the bull's eye? *In* **The Rate and Direction of Inventive Activity Revisited**, p. 361-404. Cambridge: National Bureau of Economic Research (NBER), p. 42-43.

competition from killer acquisitions might not be adequately captured by analyzes of competition authorities when approving the acquisition of "knowledge-based startups"[100].

In summary, the acquisition of innovative entrants by incumbents may slow the competitive process, and some fear that the Kronos Effect may be manifesting in the acquisition of innovative fintechs by incumbent banks (in other words, a Kronos Effect manifestation from Banking Corporate Venture). This concern is reflected by Thomas Philippon, according to whom fintechs should be strengthened and encouraged to structurally build more up-to-date and efficient financial systems, and not encouraged to have their technological innovations acquired by the "*oligopolistic and over-leveraged*" incumbents"[101].

On the other hands, some argue that prohibiting mergers and acquisitions between incumbents and startups for fear of the Kronos Effect might be a bad idea, since: **(i)** it might not be feasible to prevent mergers and acquisitions based on unknown variables (i.e., whether two future products made by the merging parties would be substitutes or not)[102]; **(ii)** preventing startups from being invested in/acquired by startups would deprive them of several advantages, such as cheaper capital (funding), economies of scale, and a distribution network of much greater reach[103]; and **(iii)** it is not known yet whether banks that have allied with fintechs have increased revenue, or whether banks that have competed with fintechs have lost revenue (thus questioning the competitive relevance of fintechs and the need for intervention in partnerships).

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[100] GONZALO, Manuel, LYRA, Marcos Puccioni, PIRES-ALVES, Camila. **Knowledge-based startups or small companies' takeovers in Latin America**: an antitrust issue? Recent cases from US, EU and Brazil. Discussion Paper 20/2017, Instituto de Economia, UFRJ.
[101] PHILIPPON, Thomas. **The Fintech Opportunity**, *op. cit.,* p. 17.
[102] FEDERICO, Giulio; MORTON, Fiona Scott; SHAPIRO, Carl. Antitrust and Innovation: welcoming and protecting disruption. *In* **Innovation Policy and the Economy**. Vol. 20, p. 125-190, University of Chicago Press., *op. cit*.
[103] VAN LOO, Rory. Making Innovation More Competitive: the case of fintech. **U.C.L.A. Law Review**, *op. cit.*, p. 246-247.

In Brazil, to this day, there has been no regulatory prohibition to any acquisition of startups by a bank, either from the Central Bank or from Cade. However, there has already been an emblematic case that has triggered much discussion over killer acquisitions: the famous Itaú/XP transaction. In summary, the deal provided Itaú Unibanco with a stake in XP's equity, which would grow over time until the bank eventually achieved full control over the platform.

Itaú/XP was indeed a very clear manifestation of the Kronos Effect in the Brazilian financial markets: the largest private bank in the country was interested in acquiring the largest fintech in the country, concentrating over 32.9% of the asset distribution market[104]. This, of course, turned Cade into a stage for intense discussions about whether an incumbent was trying to halt the ongoing processes of innovation and disintermediation.

In 2018, Cade's Commissioners decided that the horizontal overlaps and vertical integrations resulting from the operation presented few relevant risks. As such, they approved the deal, but subjected it to certain restrictions imposed by a concentration control agreement between Cade and the parties (*acordo em controle de concentração – ACC*). In summary, the Commissioners carried out a static analysis of the competitive scenario and concluded that consumer welfare was not harmed, notwithstanding XP's status as a maverick[105], and imposed an agreement consisting of only behavioral obligations[106].

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[104] CENTRAL BANK OF BRASIL. **Relatório de Economia Bancária 2018**, May 2019, p. 179.

[105] The definition of a maverick and its effects in concentration act analyzes are well contemplated in Cade's merger guidelines, and also in the Horizontal Merger Guidelines from Department of Justice and Federal Trade Commission: "*The Agencies consider whether a merger may lessen competition by eliminating a "maverick" firm, i.e., a firm that plays a disruptive role in the market to the benefit of customers. For example, if one of the merging firms has a strong incumbency position and the other merging firm threatens to disrupt market conditions with a new technology or business model, their merger can involve the loss of actual or potential competition*". *In* Horizontal Merger Guidelines. **U.S Department of Justice; Federal Trade Commission** (August 19, 2010).

[106] Commissioner Paulo Burnier's vote in Concentration Act no. 08700.004880/2017-64 which approved the acquisition of a minor shareholder position in XP Investimentos by Itaú Unibanco in March 14, 2018.

However, as it is known, Cade's approval of Itaú/XP was not unanimous – Commissioner Cristiane Alkmin and a minority of others voted against the operation, arguing that allowing the union of the largest private bank and the largest investment platform would be detrimental to consumer welfare. Their arguments were that **(i)** the other Commissioners approved the transaction based on static analysis, and not on dynamic analysis and effects on competition in the long term; **(ii)** the deal would go against the disintermediation process that is being led by Brazilian fintechs; and **(iii)** it would be a signal for banks to start acquiring any fintechs that might eventually become a competitive threat – to use the Commissioner's words, any "*annoying competitors*"[107].

After the operation was authorized by Cade and subject to approval by the Central Bank of Brazil, the matter became even more intriguing: the prudential regulator included even more restrictions to the structure, removing almost all of Itaú's perspectives of acquiring future shares. In a public statements, the Central Bank classified the deal as a "*defensive operation*" from Itaú to protect its customer base (1 out of 4 XP customers had migrated from the bank), and further stated that the deal held a high risk of resulting in price increases in the long run[108].

The changes to the deal structure were reflected in a second agreement (a new ACC) signed specifically between the Central Bank and the parties, which **(i)** increased the duration of certain obligations first created by the first ACC, signed with Cade; and **(ii)** created new obligations

[107] Regarding the possible mitigators created by the ACC, the Commissioner stated that **(i)** it would be difficult to believe that Itaú would not have a relevant influence on XP, given the factual context and its more than twenty veto rights in the shareholders' agreement (even on matters like compensation of XP strategic executives); **(ii)** the behavioral obligations of the ACC were difficult to verify, with some of them doing little more than replicating obligations already existent by legislation (especially those regarding non-discrimination); and **(iii)** its 5-year term would be too short (expiring on 2023), not even lasting until the XP controllers' put options became valid. *In* Commissioner Cristiane Alkmin Junqueira Schmidt's vote in Concentration Act no. 08700.004431/2017-16.

[108] See (1) CASTRO, Fabrício; RODRIGUES, Lorenna. BC avaliou como 'defensiva' compra da XP pelo Itaú e viu risco de altas taxas. **Estadão** (September 12, 2018). Available at: <https://economia.estadao.com.br/noticias/geral,bc-avaliou-comodefensiva-compra-da-xp-pelo-itau-e-viu-risco-de-altas-taxas,70002499648>. Access on September 30, 2019; and (2) CENTRAL BANK OF BRAZIL. **Relatório de Economia Bancária 2018**, *op. cit.*, p. 178.

altogether[109]. Most relevant among them was the obligation in which the Central Bank prohibits Itaú from accessing data held by XP on its customers and operations. The restriction further defines how the Central Bank values the competitive relevance of data – much in line with its initiatives to support credit scoring bureaus (*cadastro positivo* and *cadastro negativo*) and open banking.

The Central Bank's pro-competitive position is particularly interesting because **(i)** it was more interventionist than Cade itself, even when one might expect the opposite; **(ii)** it demonstrates how the prudential regulator may stimulate competition in the financial system without giving up financial stability; and **(iii)** it demonstrates how both the Central Bank and Cade are aware of the risk possibly posed by the Kronos Effect, and, as such, how dear is the issue for the financial markets in Brazil.

Ironically, Commissioner Cristiane Alkmin said XP was "*a small Terrier: small, but barking like it was big (...) and ended up being swallowed up by a huge German Dog named Zeus*" (free translation). In Greek mythology, Zeus was the first of Kronos' sons to escape his father, and, from then on, he led the resistance that freed his brothers (the gods) and brought down the titans. In contrast, the acceptance of Itaú's offer by XP's shareholders seems more like an alliance between gods and titans – and, indeed, it shows how are relevant economic incentives for this fintech and for others to desire a similar fate of being "devoured".

It is not within the scope of this paper to provide a definitive answer about the risks of the Kronos Effect or killer acquisitions (as insistently repeated in literature, the issue is complex and depends on each particular case)[110]. However, it is within our scope to say the following: up to this day, from what has been reported, no investment made by a bank in a startup has ever been

[109] Available at: <https://www.bcb.gov.br/pre/acordos_e_convenios/ACC-Itau_Unibanco_XP.pdf>. Access on September 30, 2019.

[110] VAN LOO, Rory. Making Innovation More Competitive: the case of fintech. **U.C.L.A. Law Review**, *op. cit.*, p. 246.

prohibited by the Central Bank or by Cade. As such, it is assumed that banking institutions will continue to be able to acquire "*annoying competitors*" that hold the potential of becoming structural threats to the Brazilian credit market, thus reducing the probability of a disruption in the same proportions as Amazon, Netflix, Uber and the like.

4. Answer to the First Question: are fintechs a threat against traditional financial institutions?

From now on, we finally begin address the two main questions presented in the Introduction of this paper:

> ***First Question:*** *does the entry of credit fintechs result in* ***(i)*** *competitors with the capacity and willingness to challenge/overcome the dominant banks in the credit market; or does it result in* ***(ii)*** *an ecosystem in which fintechs become partners with the dominant banks, without actually contesting them?*
>
> ***Second Question****: if fintechs indeed do not represent a challenge against dominant banks, what would be the most suitable strategy to foster competition and contestability in the Brazilian credit market?*

The First Question will be addressed first: we shall ascertain whether fintechs are competitors or partners to traditional banks. Throughout this paper, it was observed that financial institutions are **(i)** directing massive amounts of capital in technology investments/expenses; **(ii)** creating partnerships with fintechs aiming to increase revenue and reduce costs; **(iii)** creating/sponsoring incubation and acceleration structures to approach fintechs; **(iv)** acquiring minority participation in fintechs; **(v)** acquiring majority participation in fintechs; and **(vi)**

constituting their own fintechs to directly compete in the credit market (controlled companies or wholly-owned subsidiaries). By comparing this empirical survey with the credit market conditions mentioned in the Introduction, it is already possible to extract certain considerations.

Preliminarily, the paragraph above validates how, as stated in the Introduction, technological innovations and pro-competition regulatory measures from the Central Bank are changing the structural conditions of the Brazilian credit market. After all, these robust initiatives by the incumbents demonstrate that they are indeed suffering some sort of competitive pressure, and, as such, are being forced to break inertia and pursue new advantages.

After this (re)validation, the survey of interactions between banks and fintechs is relevant to answer the First Question: to understand whether fintechs have sufficient potential to contest the market to the point of being interpreted as a threat against the incumbents. The answer is fairly objective: none of our findings raise reasonable suspicion that Brazil is heading towards a scenario where traditional banks will be replaced or condemned to irrelevance by fintechs. In other words, a rupture similar to Amazon, Netflix, Skype and Uber is unlikely[111].

The reasons for this statement are reviewed below.

First, banks have **(i)** extremely large customer bases that would face high switching costs to substitute them for entrants; and **(ii)** large capital reserves and high profitability in the credit market, creating the capacity to invest massively in technological innovation[112]. The large customer bases (item "i") mean that banks need only offer products with digital quality similar to fintechs in order to preserve these customers. The available resources (item "ii") mean that banks are financially able to reach a sufficient level of digital quality in their products before credit

[111] NAVARETTI, Giorgio Barba, CALZOLARI, Giacomo, POZZOLO Alberto Franco. FinTech and Banks: Friends or Foes? **European economy: banks, regulation, and the real sector**, *op. cit.*, p. 11.
[112] STANDARD & POOR GLOBAL RATINGS. **Ruptura tecnológica nos bancos de varejo:** bancos brasileiros à altura do desafio, *op. cit.*, p. 9.

fintechs can achieve a sufficient scale/distribution necessary to take customers[113]. The innovation projects built by banks (as mapped out in Chapter 2) ratify their strategy of investing high sums in reinventing themselves before their consumer base.

Second, the number of partnerships and investments between banks and fintechs reflects an increase in the strength of the Brazilian open innovation ecosystem. Considering that **(i)** fintechs are no longer seen by incumbents as competitors capable of breaking them (Chapter 3), and **(ii)** thanks to technological innovation and the pro-competitive stance of the Central Bank, an increase in overall competition in the credit sector is likely; banks are interested in accessing fintechs' innovations through partnerships/investments to gain competitive advantage against other competitors, thus distancing the idea of them being actual threats. Although a few fintechs continue to aggressively challenge the incumbents' profitability and market share, positioning themselves as competitors[114], banks generally still seem to be more targeted by fintechs with "pitches" than with competition.

Third, even if there is an emergence of credit fintechs capable of effectively challenging the dominant banks, they still have full financial and regulatory conditions to buy these *startups* before they become threats in the future. As evidenced by the Central Bank and Cade authorizing all investments and acquisitions of startups by banks, including the Itaú/XP deal, incumbents are

[113] According to Carl Shapiro, if an entrant is producing innovations, such as fintechs, and the incumbent banks also start producing innovations that allow them to maintain the market share they have always maintained, the entrant has fewer incentives to enter the market and compete. *In* SHAPIRO, Carl. Competition and Innovation: did Arrow hit the bull's eye? *In* **The Rate and Direction of Inventive Activity Revisited**, *op. cit.*, p. 361-404.
[114] V. (1) DELOITTE. Closing the Gap in Fintech Collaboration: overcoming obstacles to a symbiotic relationship. **Deloitte Center for Financial Services**, 2018, p. 12; e (2) KNOWLEDGE@WHARTON. **Banks and Fintechs:** adversaries or partners? (April 30, 2018). Wharton University of Pennsylvania.

mostly guaranteed to be allowed to acquire fintechs that hold high competitive potential (to quote Commissioner Cristiane Alkmin, "*annoying competitors*" that emerge in the credit sector)[115].

For these reasons, we do not believe that fintechs are capable of such structural impact as to bring the incumbent banks down from their dominant positions in the Brazilian lending markets. As stated by the Basel Committee for Banking Supervision, and reinforced by what we demonstrated in Chapter 1, the incumbents are unlikely to be replaced or condemned to irrelevance by fintechs (discarding the "*New bank*", "*Relegated bank*" or "*Desintermediated bank*" scenarios assumed by the BCBS).

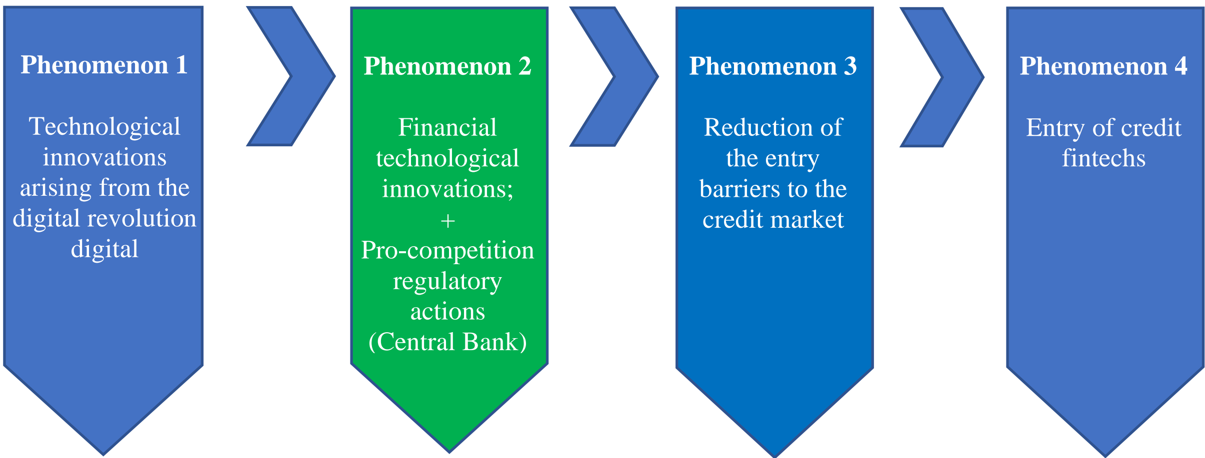
The conclusion thus allows us to answer the paper's First Question as follows: considering the concentration, profitability, market power and lock-in effects in the banking sector, the entry of fintechs alone **(i)** is not enough to generate a structural impact against the market power of the incumbents of the lending markets; but **(ii)** it generates incentives/opportunities for incumbents to innovate their own products and internal systems (on their own and through partnerships and investments in fintechs).

5. Answer to the Second Question: the pro-competitive effects of innovation and regulation go (far) beyond credit fintechs

Moving on to the Second Question: considering that credit fintechs will hardly be able (by themselves) to fundamentally impact the market power of incumbent banks in the lending markets, which would then be the best instruments to stimulate the competitive process of the sector?

[115] The situation in the United States seems similar. According to a statement by JP Morgan's CEO, there would be little concern about the threat posed by fintechs, since, if any were to emerge outside the curve representing a real risk, the bank could just buy it. **Forbes** (August 19, 2019), *op. cit*.

This question reveals only how many papers may end up with a "short-sighted" vision that, by focusing only on startups, does not appreciate the whole. In fact, however relevant the rise of credit fintechs may have been to the innovation ecosystem and to starting up competition, it is only a byproduct of the real key players of the competitive process in the credit sector: the continuous technological and regulatory innovations described in the Introduction. To further illustrate this point, we show the diagram below.



The above is a chronological (and causal) schematization of the events narrated throughout this paper, indicating how one phenomenon led to another. The fundamental point to realize is that Phenomenon 4 (entry of credit fintechs) is just another one of the competitive impacts that may be born out of Phenomenon 2 (technological innovations and the pro-competition measures by the Central Bank). Therefore, the crucial points here are that **(i)** other phenomena besides credit fintechs may also be born out of Phenomenon 2 – phenomena with the joint potential to increase the contestability potential of the credit market; and **(ii)** the focus of competitive analysis and stimulus should not be on the credit fintechs themselves, but rather, taking a step back, on the

structural impacts that allowed them to bloom. This would then be the real key to unlocking the competitive potential of the credit market.

Below, we list the most relevant of these new pro-competition phenomena which may be born out of Phenomenon 2 to stimulate the competition in the sector.

5.1. Niche commercial banks and cooperatives: incentives to expand their operations in the credit market

First, technological innovations and regulatory incentives make it easier for small/medium commercial banks and cooperatives to expand their scopes of activity and offer credit beyond the target audience with which they are already accustomed (niched, as it is). As institutions that already possess all the necessary regulatory licenses, the technological and regulatory facilitations (with special attention to the overcoming of information asymmetry via open banking) create excellent opportunities for expanding the customer base, especially private individuals and small/middle enterprises.

To speak of concrete cases, Inter, BS2 and Original are banks that have reinvented themselves as digital competitors to reach out to new consumers (small and medium banks have clear incentives to reinvent themselves, since they are the most vulnerable financial institutions to break under competitive pressure from entrants)[116].

The potential of cooperatives, on the other hand, is evidenced by the Central Bank's specific regulatory efforts to foster cooperativism, even expressly including the sector in the BC# Agenda

[116] STANDARD & POOR GLOBAL RATINGS. **Ruptura tecnológica nos bancos de varejo:** bancos brasileiros à altura do desafio, *op. cit.*, p. 2.

as a development focus. Over the past few years, the regulator has sought to improve the rules of governance and fundraising by credit cooperatives to "*clean the house*"[117], and is now stimulating the increase of cooperativism's market share in the Brazilian total credit stock[118]. Nowadays, cooperatives have a relevant presence in the countryside, since they are well-positioned geographically to offer loans. The advantages for competition here are evident, considering how **(i)** over half of the Brazilian municipalities have only one bank[119]; and **(ii)** the distribution of credit products through digital platforms (without physical branches) is still hampered in the countryside.

5.2. Entrants from related financial segments: the "*Trojan Horse*" strategy

Second, encouraging players from related/adjacent financial segments to enter and compete in the credit segment (i.e. institutions from other sectors of the financial system). Over the last decade, many fintechs have specialized in only one of the many segments in which the traditional banks are present (a process called "unbundling"). Now, these players are beginning to expand their operations into other segments besides those in which they have entered and gained a foothold (a process called "rebundling").

The greatest emblem of this phenomenon is the payments sector, where competition has been encouraged by the Central Bank ever since 2010, thus motivating the ascension of giants like PagSeguro and Stone in the sector. Now, with expansion in mind, successful startups take advantage of their success to attack the credit segment, engaging in the <u>cross-selling of loans with</u>

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[117] CENTRAL BANK OF BRAZIL. **BC# Agenda**: a guideline for the financial system of the future. Institutional presentation of the Central Bank on January 9, 2020, p. 54-58.
[118] Statement by João Manoel Pinho de Mello, an executive from the Central Bank, at FGV EPGE's "*Fintechs and Blockchain: oportunidades para os mercados financeiros*" event, held on November 9, 2019.
[119] JOAQUIM, Gustavo; VAN DOORNIK, Bernardus. **Bank Competition, Cost of Credit and Economic Activity:** evidence from Brazil. Working Paper Series no. 508. Brasília: Banco Central do Brasil, October 2019.

other financial products. PagSeguro already offers credit products through PagBank and is the controlling shareholder of Biva, a peer-to-peer loan platform. Stone has set up its subsidiary to offer credit and anticipate receivables. Nubank offers personal credit through Nu Financeira and is the creditor for the revolving credit lines of the cards it issues[120]. XP Investimentos, after establishing itself in the adjacent market of financial asset distribution, has since obtained a regulatory license to become a bank and grant loans to small and medium businesses[121].

According to Vinícius Carrasco, Stone's chief-economist who has already confirmed the company's intention to expand into the credit markets, this is called the "*Trojan Horse*" strategy: startups enter a financial sector, and, after gaining a foothold in that sector and establishing themselves in the financial system, go on to compete in another sector (in this case, lending)[122]. This also seems to be the will of the Central Bank, since **(i)** officer João Manoel Pinho de Mello has publicly stated that it was expected by the regulator that entrants to the payments sector would eventually move on to attack the credit sector[123]; and **(ii)** according to the Report on Banking Economy of 2018, entry into the credit market from players of related/adjacent markets has been on the regulator's radar for some time:

> The industry is prone to competitive pressures from other related markets, such as credit and debit card transaction accreditation, credit card receivables discounting and the fund industry in credit supply. Both the liability side – deposits – and the asset side – credit – banking products markets can be challenged by these competitive pressures in related markets. (free translation)

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[120] All the information about these institutions comes from their financial statements for 2019.
[121] In the Central Bank's very decision approving XP's partial acquisition by Itaú Unibanco, the regulator already mentioned the platform's entry into the banking market as a "*natural step*" (also referring to XP's bank license application, which was already under analysis at the time). See (1) ALVES, Aluísio. XP começa a oferecer crédito a empresas por meio de fundo. Reuters (March 4, 2020). Available at: <https://br.reuters.com>. Access on March 18, 2020; (2) BANCO CENTRAL DO BRASIL. **Relatório de Economia Bancária 2018.** Published in May 2019, p. 180.
[122] CARRASCO, Vinícius. Lecture by Vinícius Carrasco, professor at PUC-Rio and chief economist at Stone, at FGV EPGE's "*Fintechs and Blockchain: oportunidades para os mercados financeiros*" event, held on November 9, 2019.
[123] Statement by João Manoel Pinho de Mello, an executive from the Central Bank, at FGV EPGE's "*Fintechs and Blockchain: oportunidades para os mercados financeiros*" event, held on November 9, 2019.

The message behind this ever-growing cross-selling of loans by companies from other financial segments (i.e., payments, investments) is that competitors from any segment of the financial system may be willing and able to expand into the credit market – a strategy that should be actively encouraged by the regulator to further stimulate competition in the sector.

5.3. Bigtechs: leveraging data and confidence

Third, encouraging bigtechs to enter the credit market. Technology giants hold **(i)** databases so colossal that they can barely be measured[124]; and **(ii)** consumer platforms with high potential of distribution of financial products (possibly more efficient than banking branches). Pursuant to studies and market sources, entry by technology giants in the financial system is more worrisome for incumbent banks than the entry of fintechs (it is actually worrisome for fintechs as well)[125].

In practice, bigtechs have already entered the financial markets several years ago and continue to expand on it today. Amazon offers financing to buyers and sellers of its marketplace[126], in addition to controlling a relevant share of the financial infrastructure of e-commerce in the West through its dominant position in the sector[127]. Google has announced that it will offer checking account services in 2020[128]. Apple already offers credit cards. Amazon, Google, Apple and Facebook all offer digital wallet services and payments via smartphones (on platforms creatively

[124] FINANCIAL STABILITY BOARD. **Fintech and Market structure in financial services:** Market developments and potential financial stability implications, *op. cit.*, p. 19.

[125] THE ECONOMIST. Big Tech takes aim at the low-profit retail-banking industry: Silicon Valley giants are after your data, not your money. **The Economist** (November 21, 2019). Available at: <https://www.economist.com/finance-and-economics/2019/11/21/big-tech-takes-aim-at-the-low-profit-retail-banking-industry>. Access on March 19, 2020.

[126] For a complete list of Amazon's activities in financial segments, see CBINSIGHTS. Everything You Need To Know About What Amazon Is Doing In Financial Services. **CBInsights**, research report, December 2019.

[127] KHAN, Lina. Amazon's Antitrust Paradox. **Yale Law Journal**, vol. 126, p. 710-805. New Haven: Yale University, January 2017, p. 795.

[128] RUDEGEAIR, Peter; HOFFMAN, Liz. Next in Google's Quest for Consumer Dominance: Banking. Search giant plans to partner with banks to offer checking accounts. **Wall Street Journal** (November 13, 2019). Available at: <https://www.wsj.com/articles/next-in-googles-quest-for-consumer-dominancebanking-11573644601>. Access on March 19, 2020.

called Amazon Pay, Apple Pay, Google Pay and Facebook Pay)[129]. Even Uber launched the Uber Money platform with digital wallet services and payments for drivers, perhaps offering credit in the future[130]. In China, Alibaba and Tencent dominate virtually all segments of the financial sector.

Specifically speaking about the lending markets, bigtechs already held 0.2% of the global credit stock by the end of 2017[131]. Given the pace by which they continue to announce their expansions into finance, recent structural impacts in the Brazilian credit market may generate incentives for their entry here[132]. Among these changes, we have the standardized open banking infrastructure proposed by the Central Bank, which, according to Carlos Jourdan (CTO at Banco BOCOM BBM), will help bigtechs "plug in" their payment/digital portfolio services more easily into the system, similarly to how it happened in India[133] and how it is happening in Brazil (plans already announced by WhatsApp to install resource movement in the application).

5.4. Triggering price reductions in the lending markets: from quality competition to price competition

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[129] THE ECONOMIST. Big Tech takes aim at the low-profit retail-banking industry: Silicon Valley giants are after your data, not your money. **The Economist** (November 21, 2020), *op. cit*.

[130] SHEVLIN, Ron. Uber's Fintech Strategy: a conversation with Peter Hazlehurst, head of Uber Money. **Forbes** November 4, 2020). Available at: <https://www.forbes.com/sites/ronshevlin/2019/11/04/a-peek-into-ubers-fintech-strategy-a-conversation-with-peter-hazlehurst-head-of-uber-money>. Access on March 19, 2020.

[131] FROST, Jon; GAMBACORTA, Leonardo, HUANG, Yi, SHIN, Hyun Song; ZBINDEN, Pablo. **BigTech and the changing structure of financial intermediation**, *op. cit.*, p. 24.

[132] For a complete view of how bigtechs around the world are entering into financial intermediation (credit and deposits), plus such entry's effects and challenges, see FROST, Jon; GAMBACORTA, Leonardo, HUANG, Yi, SHIN, Hyun Song; ZBINDEN, Pablo. **BigTech and the changing structure of financial intermediation**. Bank for International Settlements. BIS Working Papers no. 779.

[133] In India, a standardized open banking infrastructure project called UPI (Unified Payments Interface) has been implemented similarly to what the Central Bank plans to implement. This standardization enabled the strong advance of bigtechs in the country. *In* JOURDAN, Carlos. Lecture by Carlos Jourdan, Chief Technology Officer of BOCOM BBM Bank, at FGV EPGE's "*Fintechs and Blockchain: oportunidades para os mercados financeiros*" event, held on November 9, 2019.

Fourth, the incentives for all credit institutions (whether they are large banks, small and medium banks, cooperatives, fintechs or bigtechs) to take a step beyond merely offering digital quality in their lending products – since they are increasingly becoming commonplace – and start lowering their interest rates as a viable competitive advantage.

The logic for these incentives is as follows: innovative and high-quality digital products have been leveraged by startups to take off ever since the beginning of the digital revolution. However, after years of investment in technological innovation by both incumbents and entrants, high-quality financial products are ceasing to be a competitive advantage and turning into a real must-have for competitors in the credit market (again, whether they are fintechs, large banks, small banks, cooperatives, or bigtechs). In a sector where it is commonplace to have digital platforms, pleasant consumer journeys, customer-focused products, and plentiful access to data (especially via open banking, as we see below), it becomes harder and harder for the consumer to identify differences between one product and another, since they are all offered with similar quality in equilibrium.

However, this does not necessarily mean that the competitive process loses out. The quality of any product, according to Thomas Philippon, is only one side of the coin – the other side being price[134]. If the quality levels of credit products indeed converge and become similar in equilibrium, all players will need to seek out other competitive advantages outside merely improving quality (entrants will seek them out in order to challenge traditional banks, and traditional banks will seek them out in order to protect their own customers). If rivalry is sufficiently stimulated among all lenders, the competitive advantage they will find may finally be an effective reduction in prices in

[134] PHILIPPON, Thomas. **The Great Reversal:** how America gave up on free markets, *op. cit.*, 19.

the Brazilian lending market, thus making room for the classic benefits of competition: consumers and businesses buying more, investing more, producing more and hiring more.

Further reinforcing how technology and regulation may result in less expensive loans, we also have the open banking initiative under the Central Bank[135]. When fully operational, all competitors will gain access to the troves of data usually hoarded by traditional banks, thus effectively reducing the barrier to entry that is formed by information asymmetry between lenders and borrowers. In practice, competitors will be able to muster this data to **(i)** efficiently separate low-risk borrowers from high-risk borrowers; and **(ii)** track down low-risk consumers from other financial institutions and offer them lending products at more advantageous conditions than the ones they are currently being offered. As a practical example: if a low-risk costumer is close to borrowing from an overdraft line in their bank ("*cheque especial*"), a competing lender may offer them a credit line with lower interest rates, virtually taking this costumer from his original bank. Aware of this growing threat, incumbent banks shall also employ efforts to please their own costumers as a way of keeping them from leaving. Quite possibly, the net result of this competition shall be better conditions overall for costumers in the Brazilian lending market.

Recent studies by Ornelas, Silva, and Van Doornik sum up our arguments on open banking's competitive benefits, especially how they may actively improve the local lending market[136]:

> [Policy] responses related to foster information sharing may help to decrease switching costs and alleviate the holdup problem. Open banking initiatives can make information held by incumbent banks to flow towards other financial institutions so that firms can get better interest rates by

[135] Open banking is, essentially, the sharing and leveraging of customer-permissioned data by banks with third-party developers and firms to build applications and services, such as those that provide real time payments, greater financial transparency options for account holders, and marketing and cross-selling opportunities. Its greatest competitive feat is to reduce information asymmetry between lenders and borrowers, thus stimulating entry and rivalry between financial institutions. *In* BASEL COMMITTEE ON BANKING SUPERVISION. **Report on open banking and application programming interfaces.** Bank for International Settlements, November 2019, p. 19.
[136] ORNELAS; José Renato Haas, SILVA, Marcos Soares; VAN DOORNIK, Bernardus Ferdinandus Nazar. *Informational Switching Costs, Bank Competition and the Cost of Finance*. Working Paper Series no. 512. Brasília: Central Bank of Brazil, January 2020, p. 45.

> outside banks, thus enhancing competition. Another policy initiative is to reduce entry barriers to new competitors, like the credit fintechs. These institutions usually have a transactional lending approach, instead of relationship banking, so that an open banking initiative can enhance their ability to obtain information about firms and provide better loan conditions.

Overall, there seem to be recent cases of countries in which competition is decreasing lending prices. In his influential paper from 2015, Thomas Philippon mapped out that the prices paid by the productive sector to take credit from the financial system in the United States (measured as a percentage of the GDP) remained more or less the same from 1886 to 2012[137]. However, in 2020, Philippon publicly stated that the average price seems to be finally falling after these two centuries, and that "*in many cases, you can trace [the price decrease] back to the impact of competition from fintech entrants into financial services*"[138].

Notwithstanding, decreases in lending prices due to competition have not yet arrived in Brazil. In these six years since credit fintechs began operating, many relevant gains in consumer welfare were achieved in terms of quality, but not yet in terms of credit price – not beyond what was made possible by the decreases in marginal costs (Selic rate and default rates). To illustrate how quality has increased, but price has not decreased, here is an example: Next and Digio are both subsidiaries of dominant banks created to offer digital financial products. While their products have excellent levels of digital quality (rivaling those of independent fintechs), the prices charged for loans by these subsidiaries are mostly similar to the prices of the dominant banks that control these subsidiaries[139].

In addition to the price reductions, lending institutions (especially traditional banks) may be stimulated to create new strategies to generate value for the consumer. According to The

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[137] PHILIPPON, Thomas. **The Fintech Opportunity**, *op. cit.*, p. 15.

[138] PHILIPPON, Thomas. Lecture by Thomas Philippon, professor at New York University, at the event "*Fintech, Financial Stability and Regulation*", held by the American Economic Association, on January 3, 2020.

[139] As per the Central Bank of Brazil's periodic list of interest rates charged by financial institutions Available at: <https://www.bcb.gov.br/estatisticas/txjuros>. Access on April 3, 2020.

Economist, this is precisely the greatest achievement of the "digital banking revolution": to encourage financial institutions to go beyond just offering loans, and to actually identify (and offer) whatever will make their clients actually happier or richer[140]. As a practical example, banks may integrate into value chains from the real economy, offering mortgage products on real estate platforms, or offering account financing on telecommunications platforms[141].

To stimulate competitive pressure that effectively reduces prices and enables new value generation strategies, especially in a scenario of commoditization of credit products, it seems necessary to stimulate the "*Financial Technological Innovations and Pro-competitive Regulatory Actions"* (Phenomenon 2 at the beginning of this Chapter). They are capable of going beyond just enabling the rise of credit fintechs, and may also enable competition from/between banks, cooperatives, startups from related markets, bigtechs, and other entrants in the credit market. In short, incentivizing the competitive process and (re)aligning the incentives of lenders is the right stimulus for prices decreases and new ways of generating value[142].

For all these reasons, we now answer the Second Question of this paper: Considering the relative inefficiency of credit fintechs in promoting contestability against the dominant banks of the credit market (as answered to the First Question), the best strategy to stimulate competition in

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[140] THE ECONOMIST. The banking revolution is great for customers. **The Economist** (May 2, 2019), *op. cit*.

[141] In Brazil, there are already concrete examples of this integration of value chains: C6Bank (a bank/fintech) constituted a partnership with Tim Brasil to **(i)** offer financial services to telecommunication clients; and **(ii)** welcome Tim as a minority shareholder of the financial institution. *In* MELO, Alexandre. Tim faz parceria com C6 e pode se tornar acionista minoritário do banco. **Valor Econômico** (March 26, 2020). Available at: <https://valor.globo.com/empresas/noticia/2020/03/26/tim-faz-parceria-com-c6-e-pode-se-tornar-acionista-minoritario-do-banco.ghtml>. Access on April 24, 2020.

[142] According to The Economist, this is exactly the greatest achievement of the "digital banking revolution" – to encourage financial institutions to go beyond just offering loans, and to actually identify (and offer) whatever will make their clients really happier or richer. In this sense, "*[banks] must do more than sell products that are affordable, or even at the keenest rates: [they] must sell them what they actually need. The most formidable challenge the newcomers pose to the rich world's banking incumbents is not their lower costs or greater technological prowess. It is that their business model requires them to put customers' needs first. In* THE ECONOMIST. The banking revolution is great for customers. **The Economist** (May 2, 2019), *op. cit*.

the sector, and thus contribute to price decreases in loans, is to incentivize the continuity of technological innovations and the pro-competitive regulatory measures from the Central Bank of Brazil.

Conclusion

For a long time, and to this day, the Brazilian credit market has held high levels of concentration, profitability, and low contestability prices. In response to this scenario, two major phenomena are altering the structure of the market: continuous technological/digital innovation, and regulatory measures by the Central Bank of Brazil to stimulate competition. Acting together, these two phenomena are attacking the traditionally high barriers of entry to the credit market, allowing for an increase in the entry rate and contestability.

Among the entrants to the credit market, the ones taking the spotlight have been the credit fintechs. Their main strategies for winning over clients and attacking the sector are **(i)** innovation and digital focus to offer an excellent journey to the consumer; **(ii)** quantitative credit assessment with more focus on hard data than on information obtained through client relationships; **(iii)** lean digital infrastructure not delayed by outdated systems (legacy systems), reducing administrative costs; and **(iv)** offering loans to the underserved populace and small and medium enterprises.

Although fintechs are relevant to the “new” lending markets, they do not seem to represent a large threat to incumbent financial institutions. This is due to the sheer advantages that these incumbents hold: large consumer bases locked in by high switching costs; business models that favor cross-selling of credit with products and services from other segments (the "one-stop shop" model); well-entrenched distribution networks across Brazil; and high potential for investment in

technology based on profit reserves and constantly growing profitability. Not only that, but fintechs are increasingly establishing themselves as partners rather than competitors to the traditional financial institutions – some of them also become the targets of strategic acquisitions.

Considering that credit fintechs are likely to be more incremental than threatening in the credit market, the true focus for incentivizing competition must be through the two phenomena that allowed fintechs to emerge in the first place: technological innovations and pro-competition regulatory actions by the Central Bank. In the same way that they have enabled digital competitors to enter the credit market, they may also enable: **(i)** increase of competition among traditional financial institutions (large banks, small and medium banks, cooperatives etc.); **(ii)** entry of competitors from segments that are related/adjacent to the credit segment, especially the payments and investments segments (the "*Trojan Horse*" strategy); **(iii)** expansion of bigtechs into financial activities, thus mustering their extensive data and consumer bases; and **(iv)** effective interest rate decreases by stimulating lenders to compete by lowering their prices – a byproduct of the ongoing "commoditization" of the digital lending sector and of the implantation of open banking.

When all of these phenomena are considered together – including the presence of credit fintechs –, it finally becomes possible to foresee structural transformation in the lending markets in the long run. As such, technological innovations and pro-competition regulatory measures (responsible factors for allowing the phenomena above to bloom) are the real key to stimulating the competitive process in the credit market and bringing down prices, thus contributing to the financial system's role in the development of Brazilian economy.

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