11-22-2020

Fintech Disruption in Brazil: a Study on the Impact of Open Banking and Instant Payments in the Brazilian Financial Landscape

Julia Vicente

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In this paper, the goal is to understand the implications of two upcoming policy and technology changes in the Brazilian financial landscape: the launch of PIX, an Instant Payments platform, and Open Banking. This paper seeks to understand the political and economic scenario that led to the development and establishment of these two initiatives by the Central Bank in Brazil, as well as its consequences to stakeholders in the public and private financial ecosystem. For that, it explores early implementation in other countries that inspired the Brazilian authorities, as well as qualitative interviews with forty-three professionals in several different industries. We conclude that these two initiatives have the potential to change the course of financial inclusion in Brazil in the next decade, but it will heavily rely on the action of private players to innovate and create more accessible offers.

Keywords

fintech, financial regulation, Brazil, open banking, instant payments, economic impact, social impact

Disciplines

Banking and Finance Law | Business | Economic History | Finance | Finance and Financial Management | Income Distribution

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Table of Contents

Importance of the Topic

Brazil is the Latin American country with the highest number of fintech startups and the highest number of fintech startups founded every year[1]. In 2019, 20% of all venture capital deals involved fintech startups, and 36% of all venture capital investment in Brazil went towards fintech startups, reaching a total investment of over 863 million dollars[2]. Brazil's prominent fintech players include Nubank, the largest neobank in Latin America with over 25 million customers, Creditas, a digital platform offering secured consumer loans that raised over 300 million dollars in funding so far[3], and Stone, a payment solution provider that is now traded on NASDAQ. These startups have leveraged a highly concentrated and inefficient financial services industry and democratized financial services to segments of the populations that had no access to financial institutions before. Thus, the fintech sector has presented itself as of utmost importance and influence in financial development and socio-economic development in the country.

` To understand how fintech players will further develop and disrupt financial services in Brazil, one must understand how new regulatory frameworks will affect the country. In 2020, Brazil's Central Bank will implement two complex regulatory frameworks: instant payments and open banking. These frameworks have the potential to deeply shape the industry and fintech development in the next decade, and to fully understand them, this research aims to gather and analyze the perspective of several different industry players.

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[1] Inter-American Development Bank, Finnovista
[2] Analysis of Pitchbook data
[3] Crunchbase Creditas Profile

Methodology

In order to understand the impact of recent financial regulation developments in Brazil, forty-three interviews were conducted with professionals that fall broadly in four different areas:

1. **Experts**: financial regulators, partners at Brazilian law firms focused on financial regulation, renowned university professors and consultants focused on financial services. There are eight interviewees in this category.
2. **Fintech**: professionals in different career stages working or who had previously worked at fintech startups and founders. There are thirteen interviewees in this category.
3. **Incumbents**: professionals who had previously worked or are currently working at traditional financial industry players, including large retail banks, investment banks, and acquirers. There are seven interviewees in this category.
4. **Investment**: professionals involved in financial investment, working in venture capital, asset management, M&A boutiques and private equity firms. Their focus and expertise ranged from Brazil, Latin America, United States and United Kingdom. There are sixteen interviewees in this category.

The investigative nature of this research required interviewees to remain anonymous, as to guarantee that they would speak and speculate freely regardless of their professional affiliations.

The questions asked on interviews had three main goals: (1) understanding their primary knowledge of instant payments and open banking in Brazil and abroad, (2) understanding their perceived impact of instant payments in the Brazilian financial landscape, and (3) understanding their perceived impact of open banking in the Brazilian financial landscape. This research paper analyses a series of objective and subjective factors addressed by interviewees to understand the motivations behind new regulatory frameworks in Brazil, as well as measure predicted impact and disruption on different financial players and the industry more broadly.

Definition of Open Banking and Early Implementation

As it stands today, incumbent banks are the exclusive owners of customer data, establishing themselves as the only player in the market with full access to the customer's financial information. Through Open Banking, Central Banks are shifting ownership of data – from the banks, to the customer. Now, data will be portable, and customers would be able to easily give access to their financial information stored in banks to other financial institutions, such as *fintechs*, small banks and payment providers.

Open Banking regulation traditionally mandates that large banks adopt standardized APIs (Application Programming Interface) for their products. That means that one API call, or one single command, allows other financial players to access specific information in any large bank – as long as they have authorization from the client. This information can be used to create better, personalized services and products to consumers.

The information sharing ecosystem outlined above and promoted by Open Banking can be achieved in different ways; in the United States, we have seen the establishment of multiple bilateral agreements of data sharing between financial institutions. Plaid is the largest company enabling the API technology behind Open Banking, and allowing hundreds of financial institutions in the United States to connect with each other. For example, Venmo, the popular American digital wallet, uses Plaid to allow users to verify and connect their bank accounts to the app. Through a very seamless experience, users are able to log into their bank accounts through the Venmo app, and allow it to send and receive money from this account – without ever going through the bank app.

The United States took a market-driven approach to Open Banking, and the magnitude of importance of the network and connections built through Open Banking can be exemplified by the relevance of Plaid – in January 2020, they were acquired by Visa for $5.3 billion dollars, twice its final private valuation[4]. Other governments around the world have recognized the importance and benefits of financial data sharing to the market and the population, and have taken a different approach: obliging financial institutions to share data among themselves through regulation.

The European Union, the United Kingdom and Australia were the first governments to establish extensive open banking regulation. In the EU, the directive is called PSD2. In the UK, it was set up by the Competition and Markets Authority (CMA) in 2018. In Australia, the Australian Competition and Consumer Commission (ACCC) commenced Open Banking in July 2020, with a larger scope than its European peers. While the detailed regulation widely differs, they all have the common goal of fostering competition and efficiency, promoting access to better and fairer banking services to the population when the market fails to do so.

To foster competition, Open Banking regulation reduces market entry barriers drastically. Today, banks have a clear competitive advantage based on data asymmetry, which leads to a lack of transparency in the market, and high switching costs. Open Banking tackles data asymmetry and lack of transparency by mandating the free flow of consumer information between players, and it tackles high switching costs by allowing the customer to easily and freely carry their financial history between banks and other financial players.

[4] Alex Wilhelm, Ron Miller, "Visa is acquiring Plaid for $5.3 billion, 2x its finate private valuation", TechCrunch

With the same goals in mind, another big market authority decided to bring Open Banking into play: Brazil’s Central Bank, known in Brazil as Banco Central; with the benefit of having learned from the European experience.

Open Banking in Brazil

Historical Context

Around the 90s, Brazil lived through hyperinflation, with its price index reaching 80% at its peak. This scenario began to change in 1994 with Plano Real, when inflation was stabilized – which meant traditional banks could no longer generate money through hyperinflation. In the following years, three of the largest private banks in the country went bankrupt, and what followed was a series of consolidation and acquisition movements that helped stabilize the financial system, with over 38 banks merging to form the five large banks that exist today[5].

While this consolidation trend was necessary and greatly strengthened the financial system in Brazil, it also created the oligopolistic environment that prevails nowadays. This trend went on for over 20 years, further stimulated by the 2008 financial crisis, when governments all over the world implemented stronger regulatory barriers to avoid a similar economic collapse in the future. The five large banks in Brazil held even more control over the financial system, concentrating over 80% of all financial assets in the country,[6] and had little incentive to create better services or more accessible products.

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[5] Téo Katar, “Bancos nas Mãos de Poucos”, UOL
[6] Antonio Temóteo, “5 maiores bancos concentram mais de 80% dos depósitos e empréstimos, diz BC”, UOL Economia

In 2015, Banco Central began changing this consolidation mindset, as large *fintechs* like Nubank and Creditas scaled in Brazil bringing financial inclusion to the population. Open Banking is part of this mindset shift, known more broadly as an initiative named Agenda BC#. The goal of Agenda BC# is to promote what Banco Central calls "financial democratization" through inclusion, competitiveness, transparency and financial education to citizens.[7] Since 2016, Banco Central has implemented a series of holistic laws and regulations to promote these goals, such as allowing price differentiation between payment methods, allowing companies to open bank accounts electronically[8], modernizing credit analysis, and including financial education in the national education curriculum[9]. Finally, in the next two years instant payments and open banking will come into play, leading to significant disruption in financial services in the country.

The Potential of Open Banking in Brazil

To assess the potential impact of open banking, interviewees often resorted to speculating potential products and services that would only be possible in Brazil once the new regulatory framework was fully implemented. To provide a better understanding of its potential impact, some of the most disruptive speculations are highlighted in the following section.

Suppose a client has two bank accounts in two different banks: one in Bradesco, a large, very traditional bank in Brazil, and one in Itaú, the incumbent recognized as most innovative and largest retail bank in Brazil. The Bradesco account is where the client receives monthly salary deposits chosen by their employer, and the Itaú account is where his or her preferred financial

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[7] Banco Central do Brasil

[8] Banco Central do Brasil Resolution nº 4.697

[9] Banco Central do Brasil, "Base para o currículo escolar inclui a educação financeira", January 2018

products are, such as credit and debit cards. Now, this client wants to purchase a product or service from a self-employed worker, such as a therapist, that asks for a bank deposit as payment, and the therapist's bank account is Itaú. This client would first have to open the Itaú app to check if they have the money in that account. If not, they would open the Bradesco app, insert all bank account information from the therapist and pay a high fee for the transfer[10], that would only be credited to the therapist on the next day.

With open banking, this client could have a new app – here denominated Universal Bank – that would allow them to skip this long and inefficient process. The client would be able to see all thier bank accounts and financial products in Universal Bank's app, send money from any of these accounts to their therapist with a single identifier (phone number, for example) and no transfer fees, and the money would be credited instantaneously – all without leaving the Universal Bank app.

Another popular example related to car dealership services: with open banking, a car dealer would be able use a single identifier (such as the national identifier number, CPF) to check in the company's system which banks would offer vehicle fot the potential client for me, compare offers, and we would close the deal at the point of sale.

At the very least, open banking makes everyday banking activities much easier and seamless. But it also allows consumers to compare financial product offers in a much easier way, and allows fintechs and banks to offer personalized products with better rates and more accuracy, fostering competition and promoting inclusion of people who are currently not in the traditional financial system.

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[10] Transfer fees in Brazil can take anywhere between a few minutes to the next business day, and have an average cost of R$11,50 paid by the sender. This average was calculated by the Brazilian Central Bank.

So is it as disruptive as it sounds? Not necessarily. To get to the ideal frictionless world we described, there is a lot of work yet to be done. For all this to work perfectly, there is a huge technological lift and mindset shift needed from incumbents, but the technological standards they will have to follow are yet to be defined – even though data sharing regulation comes into effect soon, in May 2021. However, there is another important piece of the equation that will be launched in 2020: PIX – the Brazilian instant payments platform.

The Brazilian Instant Payments Platform: PIX

Launching in November 2020, PIX will be a platform fully operated by Banco Central that allows any person with a bank account and a smartphone to send and receive money instantly at virtually no cost. These payments are made through QR Codes that can be operated by most financial players in the industry. Most of our interviewees believe PIX will be a game-changer for payments in Brazil, and it becomes clear as we dive deeper into the Brazilian payments landscape.

Currently, there are three main methods to send money in a person-to-person (P2P) scenario or person-to-merchant (P2M) where a card is not involved: (1) a bank transfer, which costs an average of R$11.50 per transaction to the payer and could take anywhere from a few minutes to the next business day; (2) Boleto Bancário, which costs between R$ 1.00 and 5.00 to merchants and takes up to three working days; and (3) a digital wallet, such as PicPay, which currently operates through credit cards and has a discount rate of around 3% to merchants. For the first two options, PIX is the clear winner: it is costless and instantaneous. In the third case, digital wallets will now be able to integrate with PIX and offer merchants better rates.

It is almost industry consensus that bank transfers and Boletos will be substituted or fully integrated with PIX, driving margins in these products to zero - and large banks are the first to be affected. But when we think broadly about the retail industry, debit and credit card play a huge role in Brazil - a 2018 research conducted by Brazil's Central Bank reported that 74% of commercial stores in Brazil accept credit cards, and 76% accept debit cards[11].

Debit cards solved two clear pain points: the inconvenience of having to take out cash, and safety concerns of carrying too much cash in your wallet in cities with high crime rates. Once they were widely accepted, they became an obvious substitute for cash. In theory, PIX is just as convenient as a debit card (all that is needed is a phone), but changing consumer behavior can be harder than some players expect. PIX does not solve a pain point, it is simply slightly more convenient than a debit card (and with Apple Pay and similar services already being offered in Brazil, that is also questionable). To have a debit card, you must have a bank account, so technically all debit card owners will automatically be PIX users once PIX is implemented by banks, but unless there is a significant push by merchants and other market players, debit card substitution will be slow and might never fully happen.

On the other hand, credit cards still have two clear advantages over PIX: scheduled payments and rewards programs. In Brazil, customers expect merchants to provide interest-free installment payments in almost every purchase. It is a very common market practice, and has become standard in retail. The Central Bank is launching the PIX software with a capability for scheduled payments, but it will be up to the market to create new services and credit models to take advantage of the tool.

[11] Banco Central do Brasil, “O Brasileiro e o Dinheiro”

Even if market players are able to run a smooth installment payment experience through PIX, credit cards still have the large advantage of offering rewards programs – which are only made possible by Merchant Discount Rate fees charged on credit card transactions. Issuer banks convert most of their rates to rewards, which leads to customer loyalty, and there is little reason for a credit card owner to pay with PIX if they get rewards or cashback through credit cards.

PIX already exists abroad, but Brazil is a unique case

To understand the real impact PIX will have in the country, it is important to study similar systems implemented abroad – more specifically India and the UK.

India launched the Unified Payments Interface (UPI) in 2016, a very similar platform to PIX - a real-time payment system developed by the National Payments Corporation of India that operates between banks through mobile platforms and QR Codes. In 2020, UPI hit 1 billion transactions per month[12], with over 143 banks live on UPI and over 100 million active users. Digital wallets have integrated with UPI, and mobile payments have surpassed card payments in both number of transactions and amount of rupees in 2018.

The broad adoption and success of the UPI platform can be explained by many factors, but the Indian financial landscape before UPI, which greatly differs from Brazil, points to its success: while 80% of the population had access to a financial institution account, only 4% of the population had access to credit cards, with a credit card per capita ratio of 0.64[13]. In a scenario of low penetration of traditional payment methods and high penetration of smartphones, digital

[12] BFSI from The Economic Times, "UPI transactions cross 1 billion in just 15 days

[13] World Bank Findex

wallets were quickly adopted in the country by millions of users, raising billions of dollars from investors and pushing UPI adoption even further.

Looking to a different landscape, the United Kingdom launched Faster Payments in 2008, their instant payments system. Through Paym, a platform built over Faster Payments, users can send money to any bank account by simply typing the receiver's phone number. In 2019, Faster Payments processed 2.4 billion transactions[14], which is significantly low compared to the 1 billion transactions processed by UPI per month. Now, looking at the financial landscape in the UK in 2011, close to Faster Payments launch, 97% of the population had a financial institution account, and 51% of adults had a credit card. In 2018, 65% of adults had a credit card, and debit and credit cards dominated financial transactions[15].

Brazil's path lies somewhere between the two. 70% of the Brazilian population has a financial institution account, and 30% of adults have a credit card[16]. Cash remains the winning payment method in India and Brazil, and the UK just saw its usage drop by half during the pandemic. The Brazilian population has more access to financial products than the Indian population, and cards are widely accepted by merchants, but it is nowhere near the UK.

There is one important factor that is helping close the gap between Brazil and the UK – stimulus checks. Brazil will have a significantly higher rate digital financial inclusion after the pandemic – federal stimulus payments are being distributed through CaixaTem, an app owned by the federal bank Caixa that had over 28 million downloads since March[17]. Once self-employed workers and workers in the informal economy sign up for a stimulus check, they create a bank account, which will automatically have PIX as a functionality in November.

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[14] BACS by Pay.UK, “PAY.UK processes record payment volumes and values in 2019”

[15] World Bank Findex

[16] World Bank Findex

[17] AppFigures data

PIX has a large potential to change how payment transactions are done in Brazil. Although we cannot predict the exact impact, we know the final answer lies somewhere between these opposites.

The big-game changer: Whatsapp Payments

Whatsapp has over 120 million users in Brazil, its second largest market only behind India[18]. In June 2020, Whatsapp announced it was launching its payment functionality in Brazil, partnering with Cielo to create a closed payments system. P2P transactions would be cost-free to users, and businesses would be charged a rate of 4% to receive payments. Months of planning were finally culminating into Whatsapp payments' first launch; but a week after the announcement, Brazil's Central Bank suspended Whatsapp pay to "preserve an adequate competitive environment, that secures an interoperable, fast, safe, transparent, open and cheap payments system".

On an interview with Central Bank executives, they informed that they found out about Whatsapp payments through the media a week before its launch, when Whatsapp should have had conversations with the regulator from the beginning. They also informed that Whatsapp is now in line for the regular authorization process to obtain permission to operate as a payment starter in Brazil. According to Central Bank, as long as the system is interoperable (which was not the case in the initial arrangement), allowing multiple payment players to take part, there is no reason to suspend it, but they have to go through the regular process.

If Whatsapp payments is launched in Brazil, they will have immediate access to 120 million customers, which could threaten the existence of other digital wallets in the market.

[18] Link, Estado de São Paulo, "Whatsapp chega a 120 milhões de usuários no Brasil"

However, that could be good news for PIX – if Whatsapp integrates with PIX, PIX also automatically acquires 120 million users. This would be the largest push to PIX in the country, which could lead to faster widespread adoption.

Since PIX is a national system, integrating with PIX would be a local solution for Whatsapp. Considering the magnitude and reach of Facebook and Whatsapp services, that might not be as interesting as developing a card railing system that can be easily replicated in other markets. It is not clear yet how Whatsapp is planning on reacting to the recent ban, but it has the clear potential to be a game-changer for PIX in Brazil.

Players will have to adapt to a world with PIX, and we can already see big movements in the market

PIX opens endless business possibilities, requiring payment players to review their business models. Companies will now be able to offer free payment transactions, and profit over other adjacent services, such as credit offerings, inventory management software, data interpretation models, advertising, and many others.

To justify high MDRs (merchant discount rate) and operating rates, acquirers will have to offer bundled services, or improved software capabilities, or even offer new products to customers. The first acquirer to make a big move in this direction was Stone – in August 2020, they acquired Linx, the largest software house for retail management systems in Latin America. On the day the acquisition was announced, Stone's stock rose 11% in NASDAQ.

Following the trend, digital wallets are completely pivoting their strategy – their focus is no longer on acquiring merchants, because PIX will give them access to all merchants. Internal resources are now allocated to focus on providing the best client experience possible – which will lead to winning the best customers.

It is important to note that the Central Bank claims they have asked the market to create an instant payment solution for the past six years, but players have failed to step up. Since the market failed to regulate itself, Brazil's Central Bank decided to create the platform that would run this system, PIX, and to allow authorized financial players to integrate with it. However, their goal is for the market to regulate itself. Once the system is in place, the Central Bank is not interfering to drive adoption, but instead letting players drive consumer adoption by creating financial products and offering new competitive services with PIX, which could potentially and most likely drive payments fees to nearly zero.

All of these changes brought by PIX in the next few years will set the scene for the next big wave of disruption: Open Banking. With a larger banked population and better and cheaper payment services, Open Banking will launch in a fast-changing financial market.

The Coexistence of PIX and Open Banking in Brazil

This report started by explaining the excitement surrounding Open Banking in Brazil, and will now dive deeper into what this regulation really entails. Brazil's Central Bank plan for Open Banking hails from the experience in the United Kingdom, the first country to implement extensive Open Banking regulation, back in 2018. To develop the regulatory framework, Brazilian authorities are in close contact with authorities responsible for Open Banking in the CMA in the UK, and we can look to the UK's experience to understand what could happen in Brazil.

As discussed before, the UK's financial market is more developed than Brazil's, with a larger percentage of the population utilizing formal financial services. There are nine large banks in the UK dominating the market, and they became part of the CMA9 – banks who were obliged to implement Open Banking changes and adopt API standards and specifications defined by the regulator.

Since its launch, we have seen slow initial adoption of Open Banking in the UK, with around one million customers using products that required API calls, which equals to only 2% of UK's banked population. Recently, Open Banking usage is starting to pick up, and API calls have grown between 30% to 40% in the first few months of 2020[19].

Now, Open Banking is coming to Latin America in a very different context. Until 2019, only 70% of the Brazilian population had a bank account at a formal financial institution[20]. While the UK has nine large banks, 83% of Brazilian assets are concentrated in only five banks – one of the highest asset concentrations in the world. Brazilian customers have very little option when choosing financial products, and these five banks hold exclusive access to financial information on their clients. The Brazilian financial system in full of inefficiencies created by decades of asset concentration that curbed competition and entrance of new players in the market. Brazilian Open Banking could have a larger potential for impact, as the market desperately requires competition to solve long-standing inefficiencies that did not exist in the UK.

Brazil's Open Banking also has a great advantage: learning from the UK's mistakes. As the CMA developed standards and specifications for Open Banking, banks initially posed huge barriers to the free flow of information. When a customer tried to transfer information between banks, the authentication process could take ten or more steps. Banks could ask clients to confirm that they wanted to give access to a third party as many times as they wanted, creating a terrible customer experience. With that learning in mind, Brazil's Central Bank is creating

[19] Interview with undisclosed CMA authority
[20] World Bank Findex

specific regulation to make sure banks are creating a seamless authentication experience. The CMA is closely tracking and changing Open Banking regulation to create a better experience and ramp up adoption, and Brazilian authorities are taking in all those learnings before finalizing legislation.

While Brazil's Open Banking started with British inspiration, it has become the most comprehensive legislation in the world – and meant to be implemented in the shortest amount of time. As it stands, it will be divided in four phases:

1) In August 2020, banks will have to provide information on all product and services offerings available. This phase should be easy to implement, but requires banks to organize and centralize all offerings in one place.
2) In May 2021, all personal client information should be portable. Bank's clients should be able to share their registration information with authorized third-parties through APIs.
3) In August 2021, banks will be required to structure APIs for payment initiation. In this phase, third parties should be able to authorize bank payments, and clients should be able to move their money without going into their bank account
4) In October 2021, investments and insurance information should be ready to be shared with third parties.

These phases are still only broadly defined, and more specific regulation with API specifications and further details is yet to be determined. To define API specifications and standards, the Central Bank has created a committee with representatives from six different financial players: large banks, medium banks, acquirers, credit and debit card services, and two fintech representatives, along with an independent consultant from the Central Bank. This committee is responsible for voting on proposals and presenting them to the Central Bank, and executives at the Central Bank have veto power over any proposal, making the final decisions. Their first meeting was in July 2020.

While PIX taps into significant short-term impact from the moment it is launched, Open Banking seems to bring more gradual, long-term changes to the market, but they can prove to be just as impactful. There are a lot of details that have yet to be defined to predict the final impact of Open Banking, but we have already seen players strategizing for this next regulatory disruption.

Implications to Key Industry Players

The first to be impacted will be large banks: not only the big five, but all banks in the categories S1 and S2 defined by the Central Bank will be obliged to share client information through Open Banking. This list includes Itaú, Banco do Brasil, Santander, Bradesco, Caixa, BTG Pactual, Banrisul, Banco Votorantim, and Banco Safra.

The largest bank in Brazil, Itaú, is already changing organizational structures to prepare for Open Banking. Most banks have operated with a product mindset since they were founded. Since different products lie under different teams, banks lack a clear vision of the whole client and all products and services they have available or sold to customers. With Open Banking, banks will have to follow a more integrated approach to understand which products will suffer more from the sharing of information, and which products are clear winners and will drive most revenue going forward. To do that, they must have a full vision of the client and understand how to serve them best as one entity.

One way to think about this issue is comparing two different products: insurance and loans. Bank insurances are often already sold through third-party platforms, such as insurance agencies and independent agents. Insurances are offered through multiple channels, and the product has to be competitive in itself to win customers. Loans do not necessarily follow the same rule: the bank with the most information on the client will be able to offer the best rate. If Itaú has all my financial information, it will be hard for other banks to offer me competitive products, so loans are channel dependent. As Open Banking ends information exclusivity, a client would be able to take their financial information to any other bank to receive a similar rate to Itaú's offering. Now, client loyalty lies not only on the best product, but the best channel and best relationship with the bank.

For neobanks like Nubank, this is great news: they already excel at customer experience, and now they will be able to offer credit cards with higher limits by seeing financial information from other banks. For large banks that are popularly known for not having a good customer experience, they have a year to catch up or watch their customers leave.

We are also seeing fintechs positioning themselves to seize the opportunity: Quanto, a startup invested by both Itaú and Bradesco, is specializing in doing the "pumbling", helping players connect with APIs and push and pull information in a seamless way. GuiaBolso, a financial management app, was built based on account scraping, which requires a massive technological effort and constant updates. With Open Banking, the scraping days are over – a simple API call can pull information from banks.

We can speculate endless business models hailing from open banking – the possibilities for data exploration are endless and profit will come from unexpected places. That is the case of Itaú's partnership with large supermarket chain Pão de Açúcar. The legal drinking age in Brazil is 18, but with more customers buying alcohol online for contactless delivery in the pandemic, age check became a challenge for Pão de Açúcar. Itaú found an opportunity there – they are now charging a small fee per transaction to conduct age check based on customers' credit card information. Itaú does not share the customer's age or information, but simply tells Pão de Açúcar if they are of legal age for drinking. Although this example is not directly related to Open Banking, it shows that data monetization opportunities from Open Banking could happen in many forms.

Conclusion

First, both Instant Payments and Open Banking are driving a lot of attention from financial players wishing to understand what the financial scenario in Brazil could look like in the next year and in the next decade. Both initiatives have the potential to deeply alter how financial institutions operate in Brazil, opening space for both new players to find niches in the market, and large players to curb competitors who do not adapt with new market opening policies.

With PIX and Instant Payments, stakeholders believe the future is easier to predict. Bank transfer fees and *Boletos Bancários* will be long gone, and it has the potential to curb many other products like debit cards and digital wallets. Most of all, it opens space for neobanks and smaller players to conduct cost-free transactions and gain market share through best-in-class customer experience. PIX's impact will be seen in the short-term, and the financial landscape in Brazil a year from now will already look different than it does now.

Regarding Open Banking, the future looks much less clear. Important parts of the regulatory framework remain open-ended, and incumbent banks will have to reorganize their structures and massive legacy systems for Open Banking to exist. Furthermore, Brazil does not have extensive data security regulation, which will require a lot of investment from banks on securing their data as they built APIs, and earing client's trust to share their financial information. We can conclude that Open Banking will take over two years to be put fully into effect, and financial players are still struggling to understand how to react and leverage Open Banking. Open Banking has the potential to promote profound, lasting change in the market, but we have to think of a five-year horizon to see its first important changes.

Finally, we must keep in mind the political nature of Banco Central and potential changes in leadership and direction after the 2022 presidential elections, which could lead to a change in the innovation agenda that has been pushed vehemently in the past years. Different industry players reacted optimistically or pessimistically to both initiatives. There is a clear sentiment of excitement surrounding the launch of PIX, and a sentiment of uncertainty surrounding Open Banking. As this paper has explored, these two initiatives have the potential to change the course of financial inclusion in Brazil, but it will heavily rely on the action of private players to innovate and create new, more accessible offers.