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## The Brazilian Startup Ecosystem and the Potential Effects of Regulatory Sandboxes for Fintech Companies

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# The Brazilian Startup Ecosystem and the Potential Effects of Regulatory Sandboxes for Fintech Companies

## Abstract

This thesis examines the impact regulatory sandboxes could have in Brazil by analyzing what are the effects 'Sandboxes' have had in the United Kingdom. First, it adopts a literature review that aims to aggregate information about the current Startup Ecosystem in Brazil, briefly mentioning the introduction of new initiatives such as regulatory sandboxes. Then, it shows what research has found could be the benefits and risks of adopting 'Sandboxes,' with a special focus on developing countries. Finally, there is a case study about the United Kingdom and what are the effects regulatory sandboxes have had there. The analysis compares the UK with France because France do not have 'Sandboxes', but still have similar macroeconomic variables. Through such analysis, the thesis argues that these results can be replicable in Brazil.

## Keywords

fintech, startups, entrepreneurship, Brazil, regulatory sandboxes, investment, United Kingdom.

## Disciplines

Business

**THE BRAZILIAN STRATUP ECOSYSTEM  
AND THE POTENTIAL EFFECTS OF REGULATORY  
SANDBOXES FOR FINTECH COMPANIES**

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An Undergraduate Thesis submitted in partial fulfillment  
of the requirements for Joseph Wharton Scholars

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## **ABSTRACT**

This thesis examines the impact regulatory sandboxes could have in Brazil by analyzing what are the effects ‘Sandboxes’ have had in the United Kingdom. First, it adopts a literature review that aims to aggregate information about the current Startup Ecosystem in Brazil, briefly mentioning the introduction of new initiatives such as regulatory sandboxes. Then, it shows what research has found could be the benefits and risks of adopting ‘Sandboxes,’ with a special focus on developing countries. Finally, there is a case study about the United Kingdom and what are the effects regulatory sandboxes have had there. The analysis compares the UK with France because France do not have ‘Sandboxes’, but still have similar macroeconomic variables. Trough such analysis, the thesis argues that these results can be replicable in Brazil.

*Keywords:* fintech, startups, entrepreneurship, Brazil, regulatory sandboxes, investment, United Kingdom.

## INTRODUCTION

The fintech industry is one of the fastest growing in the world with an average annual growth of over 25%. The industry is expected to be worth \$324 billion by 2026. This growth is mainly driven by an increase in digital banking and digital payments. Fintech companies are becoming a big part of Venture Capital's and private investors' portfolios. In 2021, fintechs represented around 14% of all VC's deals. <sup>1</sup> Fintech will undoubtedly become part of the everyday life of people. However, policy makers are still uncertain about how to regulate these emerging companies. Initiatives like regulatory sandboxes are meant to not only help regulators get a better understanding of how these companies function, but also promote innovation and investments. The idea of 'Sandboxes' is very novel, so there is very scarce literature on the effects that they can have in the fintech industry.

This paper aims to show what are the potential the effects that regulatory sandboxes can have in Brazil by looking at what has happened in the United Kingdom. The thesis will start with a literature review that explain what the current state of the Brazilian Startup Ecosystem is and what has been done to improve it. After the literature review, the paper will analyze a case study in the UK and see what the results of the initiative have been there.

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<sup>1</sup> Carsurance, "Remarkable Fintech Statistics for 2022 & Beyond," Carsurance, February 20, 2022.

## **HYPOTHESIS & REASONING**

This paper's hypothesis is that regulatory sandboxes could increase investment in Brazil's fintech industry. Given that Brazil has invested a lot of money to improve the Startup Ecosystem, adding an initiative like 'Sandboxes' could be the catalyst that leads to more investment. In order to test if this is true, this paper will analyze the effects that regulatory sandboxes have had in the United Kingdom.

## **DATA & METHODOLOGY**

Most of the methodologies in this paper will mainly be from secondary sources. These include, articles, government websites, reports, and academic papers. Although the majority of this paper is about qualitative data, there are some quantitative components especially when looking at macroeconomic factors and investment in the fintech industry. This thesis mainly adopts two methods, starting with a literature review and finishing with a case study. The literature review will be traditional with a special focus on the Brazilian Startup Ecosystem. The case study will look at macroeconomic data and then do a descriptive analysis of the results regulatory sandboxes have had in the United Kingdom.

## LITERATURE REVIEW

This section attempts to aggregate to current literature about what the Brazilian Startup Ecosystem looks like. It will help get a deep understanding of how the ecosystem is set up. It begins with a brief introduction about the topic, followed by specifics about the fintech industry and how entrepreneurs get help from the government and other private institutions. Then, it will into the regulatory sandbox initiative, and finally ending with some weaknesses of the Startup Ecosystem and some final remarks.

### I. Introduction

In the past few years, Brazil has become the one of the best startup markets in Latin America. In just the last decade, more than 13,000 startup companies have been created.<sup>2</sup> This success has been characterized by the entrepreneurs who have developed innovative and efficient solutions to Brazil's problems and inefficiencies. The country also presents immense opportunities for technological startups to arise because of the level of internet penetration.<sup>3</sup> Furthermore, the city of São Paulo has become one of the tech capitals of Latin America with an Ecosystem value of \$49 billion.<sup>4</sup> Brazil's startup success is evident since it is home to 12 unicorns, making it the 8th country with most unicorns.<sup>5</sup> The fintech industry is considered the hottest sector within the Startup Ecosystem. Its rapid rise has been mainly attributed to the large amount of opportunities Brazil presents. The purpose of this literature

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<sup>2</sup> Statista, "Unicorns by Country 2021," Statista, Last modified April 19, 2021.

<sup>3</sup> Heim, Anna, "Fintech and Insurtech Innovation in Brazil Set to Take off on Regulatory Tailwinds – TechCrunch," TechCrunch, Last modified January 14, 2022.

<sup>4</sup> Startup Genome, "Sao Paulo startup ecosystem," Startup Genome, Last modified 2022.

<sup>5</sup> Statista, "Unicorns by Country 2021"



review is to get a deep understanding of the Entrepreneurial Ecosystem in Brazil and the role that regulatory sandboxes have.

## **II. Fintech Industry in Brazil**

Brazil's financial system is dominated by five major banks: Itaú Unibanco, Banco Bradesco, Banco do Brasil, Banco Santander, and Caixa Econômica. In 2018, these five banks had 79% of all bank accounts in the country, 83% of all deposits, 82% of all credit operations, and 80% of all credit cards.<sup>6</sup> Moreover, the interest rate for corporate loans was 52.3%, for consumption loans 120%, and for debt on credit cards 272.42%.<sup>7</sup> Banks blamed these high rates on high taxes and high operating costs. Entrepreneurs saw the poor financial environment of the country as an opportunity to improve the economy through innovative technology.

The fintech revolution could be said that started with one entrepreneur: David Velez, the founder of Nubank. After moving to Brazil to launch Sequoia Capital's wing in Brazil, Velez was surprised by the complexities behind the financial system with banks. He specially noticed how difficult it was to get a credit card and how expensive the fees were. That is when he had the vision to make a change that would facilitate the lives of many Brazilians. Nubank officially launched their first credit card in 2014. Nubank's revolutionary idea was something that was never seen before in Latin America; the entire application process to obtain a credit card was entirely done through a mobile application that notified you if you

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<sup>6</sup> Chu, Larangeira, and Levindo, "Nubank: Democratizing Financial Services," *Harvard Business School*, January 2021.

<sup>7</sup> Chu, Larangeira, and Levindo. "Nubank: Democratizing Financial Services."

were accepted or not in minutes.<sup>8</sup> Nubank changed forever the financial industry in Brazil, opening a lot of opportunities for upcoming entrepreneurs in the fintech industry.

Investment into the fintech industry in Brazil increased from \$52 million in 2015 to \$1.6 billion in 2019. In fact, even Brazil's Central Bank has gotten involved in the fintech space with the launch of a digital payment platform in 2020. This involvement demonstrates the government's commitment towards promoting the use digitized financial services.<sup>9</sup> The rapid growth of fintech shows how the Startup Ecosystem has used innovation to solve the inefficiencies that the financial industry had and to overall improve the quality of life of Brazilians. One can assume that this boom is nowhere near its end as there is no evidence of the industry slowing down. There are still 34 million people who are unbanked which represents a lot of opportunities for entrepreneurs to leave their mark.<sup>10</sup>

### **III. The Government's Role**

The Brazilian Government has been subject of many corruption scandals, with 'Operation Car Wash' being one of the worst in their political history. However, in the last decade they have been actively supporting the startup ecosystem. In August 2021, the government launched a regulatory framework in Complementary Law No. 182 with the idea of creating a friendlier environment.<sup>11</sup> This new law recognized the role of entrepreneurship as a key driver of economic growth. One of the main frameworks proposed by the law focuses on providing legal security for angel investors. It introduced new investing vehicles that limited

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<sup>8</sup> Kauflin, Jeff, and Maria Abreu, "How David Vélez Built The World's Most Valuable Digital Bank And Became A Billionaire."

<sup>9</sup> Trevisani, Paulo, and Jefferey T. Lewis, "Brazil's Central Bank Uses Payment Platform to Spur Competition," *The Wall Street Journal*, March 26, 2021

<sup>10</sup> PagBrasil, "Brazil Has 34 Million Unbanked Adults," Your Payment Gateway to Brazil | PagBrasil. Last modified June 14, 2021.

<sup>11</sup> Terralex, "The Brazilian Regulatory Framework for Startups," Lexology, Last modified September 9, 2021.

their liabilities, such as Loan Agreements, Silent Partnership Agreements and Angel Investor Agreements.<sup>12</sup> This is one of many examples of how the Brazilian government's is committed towards helping entrepreneurs in the country.

Brazil's Central Bank has also played a key role in supporting startups. As said by Mike Packer, a leading investor in Nubank: "For fintech and for innovation, Brazil has the most progressive, the most favorable central banking regulations in the world."<sup>13</sup> The Central Bank took this key role as supporter when Ilan Goldfjan was appointed President in 2016. He had the mentality that embracing innovation would ultimately help Brazil enjoy the benefits of efficiency and competition.<sup>14</sup> Under Goldfjan's leadership, regulations for fintech companies decreased with the goal of allowing them to grow, especially by allowing them to run their own lending and payment services. These regulations have created a highly innovative industry, which has increased the standard of living for the average Brazilian.<sup>15</sup>

The Central Bank has also offered support to startups through the Financial and Technological Innovations Lab (LIFT) initiative. LIFT focused on enabling collaboration between the market, tech companies, and universities to develop innovation and share their knowledge with each other.<sup>16</sup> The program provides financial aid for selected entrepreneurs, providing them with enough resources to build any prototypes. Through the LIFT initiative, the government was able to create another way to create value for startups and for the society in general.

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<sup>12</sup> Terralex, "The Brazilian Regulatory Framework for Startups."

<sup>13</sup> Sreeharsha, Vinod, "Investment in Brazilian Startups Is Booming."

<sup>14</sup> Gray, Kevin, "Brazil's Central Bank Policies Encourage Fintech Startups," Latin Finance, Last modified March 28, 2019.

<sup>15</sup> Sreeharsha, Vinod, "Investment in Brazilian Startups Is Booming."

<sup>16</sup> Banco Central Do Brasil, "BCB and Fenasbac launch partnership with universities to foster innovation within the SFN," Banco Central Do Brasil, Last modified November 28, 2019.

The role of the Ministry of Development, Industry and Foreign Trade (MDIC) has also played an important part towards boosting Brazil's Startup Ecosystem. In 1997, the Brazilian Trade and Investment Promotion Agency or Apex-Brasil was created with the mission of encouraging foreign direct investment and internationalizing local Brazilian companies.<sup>17</sup> Apex-Brasil has offices in 13 states, and also has Business Support Centers (BSC) in several cities across the world with the sole purpose of supporting Brazilian entrepreneurs.<sup>18</sup> The agency has had a crucial role in helping potential foreign investors understand the Brazilian ecosystem and its infrastructure.<sup>19</sup> This initiative has been crucial in the development and promotion of Brazilian startups within the country and across the world.

#### **IV. Entrepreneur's Access to Capital**

Another factor that makes Brazil one of the best hubs for entrepreneurs in Latin America is the great access to capital that they have in the country. Startups in Brazil have not only been enjoying the benefits of being in a booming fintech market and having the support of the government, but they have also benefited from accelerators, venture capital firms, and angel investors. Startup Farm is a great example of this. This accelerator is based in Sao Paulo and is one of the biggest and most active accelerators in the country with around 300 companies operating in 110 countries under their portfolio.<sup>20</sup> Their program focuses on providing startups with direct access to capital, mentorship, networking, and general advising to help them overcome the challenges they face.<sup>21</sup> Besides Startup Farm, there are other

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<sup>17</sup> Apex Brasil, "Who we are," Apex Brasil, Accessed March 4, 2022.

<sup>18</sup> Mello, Juliana, "Introduction to Apex," The Brazil Business, Last modified February 1, 2012.

<sup>19</sup> Report, Mena, "Brazil : Brazilian startups conquer space in the international market," September 2021.

<sup>20</sup> Startup Farm, "Home," Startup Farm, Last modified August 17, 2018.

<sup>21</sup> Startup Farm, "Home."

international accelerators like Wayra that specifically focus on telecommunication technologies across Latin America.<sup>22</sup> There are many more accelerators like this that provide different alternatives for entrepreneurs in the Startup Ecosystem.

Venture capital investing has also grown a lot in the past years. In October of 2021, funding from venture capitals reached an impressive \$6.4 billion.<sup>23</sup> One of the biggest venture capitals in the region is Kaszek Ventures, which mainly focuses on tech companies. They not only provide funding but also mentorship programs and product developing.<sup>24</sup> Kaszek Ventures has raised over \$2 billion and were early investors in Nubank. Brazil has also received support from foreign venture capitals such as Sequoia Capital. The combination of both local and foreign funds has empowered Brazilian entrepreneurs and allowed them to access resources that would have seemed impossible to get a decade ago.

In addition to accelerators and venture capital firms, angel investors are yet another alternative to get access to large sums of capital. Brazil has a particularly interesting culture of successful entrepreneurs reinvesting their money on Brazilian startups. Anjos do Brasil, the largest investor network in the country, is a perfect example of this. They are a non-profit organization that focuses on connecting entrepreneurs with angel investors, ultimately bridging that gap between angel investors and entrepreneurs. They currently have over 300 members in their network.<sup>25</sup> Moreover, Anjos do Brasil provides a lot of training and mentorship for their members. Overall, accelerators, venture capitals, and angel investors have provided a great way for entrepreneurs and startups to get access to capital, as well as other resources.

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<sup>22</sup> Mike Ajnsztajn, "Brazil," Startup Universal, Last modified October 7, 2020.

<sup>23</sup> Sreeharsha, Vinod, "Investment in Brazilian Startups Is Booming."

<sup>24</sup> Kaszek Ventures, "Ethos," Kaszek, Last modified December 15, 2021.

<sup>25</sup> "About Anjos Do Brasil (in English)," Anjos Do Brasil, Accessed March 4, 2022.

## V. Regulatory Sandboxes

Innovation is key for the long-term success of a country's economy. However, with innovation some potential regulatory issues may arise. Regulatory sandboxes offer a potential solution to these regulatory problems. Regulatory sandboxes are defined as testing grounds for a certain period of time for new business models that are not protected by current regulations or supervised by regulatory institutions.<sup>26</sup> The main objective of 'Sandboxes' is to promote innovation and to figure out which regulations need to be put in place.

Brazil announced its plan of launching their own regulatory sandbox in 2019. The initiative is coordinated by the Central Bank of Brazil, the Securities and Exchange Commission, and the Superintendence of Private Insurance. After the announcement of the program, the supervisors received more than 50 applications. The companies ranged from peer-to-peer lending, credit cards, online transactions, and insurance. Out of those applications 7 were selected to participate in the initiative. The 7 companies that got selected are the following:<sup>27</sup>

- Banco Itaucard SA
- Himov Negócios e Participações SA
- Inco Plataforma Eletrônica de Investimentos Participativos Ltda.
- Iupi Mobilecard Serviços de Processamento de Dados Ltda.
- J.P. Morgan SA (Projeto JPM Coin)
- Mercadopago.com Representações Ltda.

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<sup>26</sup> BBVA, "What is a regulatory sandbox?," BBVA, April 26, 2018.

<sup>27</sup> S&P Global, "Brazilian innovators get to play in regulatory 'sandbox'," S&P Global Marketing Intelligence, March 15, 2022.

- SEP Sociedade de Empréstimos entre Pessoas Ltda.

These participating fintechs will receive a special temporary permission to test new solutions in a controlled and supervised environment. Supervisors of the initiative decided to divide the selected companies into cycles depending on their readiness to test out their new products.<sup>28</sup> In late 2021, Banco Itaucard SA and Himov Negócios e Participações SA began operating in the ‘Sandbox’. Banco Itaucard SA focuses on issuing and approving credit cards online, while Himov Negócios e Participações SA provides reverse mortgages to people who are 60 and over. As of March 2022, these are the only 2 companies that participated in the first cycle and are currently operating.<sup>29</sup> It is yet to be seen what the results of regulatory sandboxes in Brazil are.

## **VI. Weaknesses of the Ecosystem**

Even though there are some clear positive factors about the Startup Ecosystem in Brazil, there are still two main challenges that they have to overcome. The first one is that they have been decreasing the budget for education. Education in a third world country is very important because it directly affects the availability of talent. According to a report from the nation’s Chamber of Deputies, spending on education decreased by 56% between 2014 and 2018.<sup>30</sup> These budget reductions mainly affected the availability of scholarships for undergraduate students and doctoral candidates. The second challenge is the lack of infrastructure the country has. Due to its diverse topography, it has been very difficult to

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<sup>28</sup> Banco Do Brasil, “Regulatory Sandbox,” Banco Central Do Brasil, Accessed March 21, 2022.

<sup>29</sup> S&P Global, “Brazilian innovators get to play in regulatory ‘sandbox’.”

<sup>30</sup> Rodrigues, Thuany, “Education in Brazil Suffers from Low Funding and Insufficient Appreciation for Teachers,” D+C, Last modified October 8, 2020.

build a sustainable infrastructure in the more rural areas of Brazil. This mainly presents barriers to access high speed internet and technology in general. This has been a particular challenge for fintech companies as they have struggled to penetrate certain markets in the country. Both of these challenges have to be taken into consideration by entrepreneurs who want to start a business in Brazil, particularly if it is related to fintech. Regarding the regulatory sandboxes, there are some critics who say that it is a limited initiative since the Central Bank only chooses a few projects to participate in the program. These leaves a lot of good projects out just because they did not meet certain aspects of the evaluating criteria.

## **VII. Conclusion**

The Brazilian Startup Ecosystem has become one of the best in the world. It has specifically transformed into the reference point for technology and fintech in all of Latin America. The combination of government's support, access to capital, and the introduction of new initiatives such as regulatory sandboxes have allowed the ecosystem to grow and successfully develop the fintech industry. The Brazilian government and the Central Bank of Brazil have worked to improve and support entrepreneurs through the proposal of different initiatives. Access to capital has never been more accessible in Brazil. Accelerators, venture capitals, and angel investors have invested millions of dollars in Brazilian startups, especially those in the tech and fintech industry. Moreover, the recent initiative about the creation of regulatory sandboxes could present a huge opportunity for fintech startups. Not only could it allow them to test out their products, but it could also benefit the whole country.

Nevertheless, starting a company in Brazil can be very challenging as there are many



infrastructural problems and low investing on education. However, it is clear that entrepreneurship will remain a big part of Brazil's economy.

### **VIII. Gaps in Literature**

There is very limited research that analyzes what are the exact effects of regulatory sandboxes. There needs to be done more research and a proper analysis to measure those effects. Knowing the effects of regulatory sandboxes would be useful because it would demonstrate if they actually work or not.

## **POTENTIAL BENEFITS AND RISK OF REGULATORY SANBOXES IN BRAZIL**

As previously mentioned, research on the effects that regulatory sandboxes are very scarce. Ironically, in order to test the effectiveness of ‘Sandboxes’ there needs to be an analysis of the outcomes the initiative could have. There is however, literature about what could be the benefits and risks of implementing regulatory sandboxes. In the following part I am going to mention what are some of those benefits and risks.

### **Benefits**

- Reduction of Regulatory Uncertainty: One of the main goals of regulatory sandboxes is to remove the regulatory uncertainty that exists around innovative fintech companies. Neither policy makers or entrepreneurs really know what to expect, in terms of policies, when new fintech opportunities arise. The knowledge exchange that will derive from the creation of ‘Sandboxes’ could ultimately lead to regulatory authorities updating outdated frameworks to keep up with the new era of digital innovation. <sup>31</sup>
- Financial Inclusion: Another benefit, specifically for developing countries, is that it might promote financial inclusion. Regulatory sandboxes may open the space for innovations to close the financial gap between the population. Businesses that digitalize money transfers or remittances, alternative credit scoring, and card issuances are some examples of things that would improve inclusion. Innovation can address some of the

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<sup>31</sup> Wechsler, Perlman, and Gurung, “The State of Regulatory Sandboxes in Developing Countries,” *Social Science Research Network*, (2018): 24-27.

barriers that have prevented marginalized groups from enjoying the benefits of financial institutions.<sup>32</sup>

– Increase Investment in the Fintech Industry: Regulatory sandboxes are believed to also increase the amount of investing in fintech companies by making them more attractive to potential investors. By allowing companies to test their ideas under limited regulations, there is a higher chance that those companies develop disruptive technology. Venture Capitals would be particularly interested in investing in fintechs as they would be able to raise more rounds of capital.<sup>33</sup>

## **Risks**

– Limited Number of Companies in the ‘Sandbox’: Only a few companies get selected to participate in the initiative. Even though the criteria to apply for the program is clear, it is still unknown what is the selection process for the companies who fulfilled the requirements. The government might be helping some companies at the expense of other. Regulatory sandboxes could potentially create favoritism between selected firms and regulators.<sup>34</sup>

– Limited Transparency: Since details about sandbox participation agreements are rarely made public, caution should be exercised to avoid reinforcing negative public perceptions. This is especially particular in developing countries where high levels of

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<sup>32</sup> UNSGA, “Briefings on Regulatory Sandboxes,” United Nations Secretary-General’s Special Advocate, n.d..

<sup>33</sup> Cornelli et al., “Digging for gold: How regulatory sandboxes help fintechs raise funding,” VoxEU, February 2, 2021.

<sup>34</sup> Knight and Mitchell, “The Sandbox Paradox: Balancing the Need to Facilitate Innovation with the Risk of Regulatory Privilege,” Mercatus Center, March 26, 2020.

corruption are common. Participants permitted to the sandbox may have advantages over others as a result of special treatment.<sup>35</sup>

There is very limited data and information about the specifics of regulatory sandboxes in Brazil. The main reason is because regulatory sandboxes started operating in late 2021. Hence, there is no available data to see the effects that it has in the country. It is too recent to tell if it will have the predicted impacts. In the next section, the paper will analyze the effects that ‘Sandboxes’ have had in the United Kingdom and use it as reference of what could happen in Brazil. It will specifically focus on the increase of investment in the fintech industry.

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<sup>35</sup> Wechsler, Perlman, and Gurung, “The State of Regulatory Sandboxes in Developing Countries.”

## **CASE STUDY: ANALYSIS OF THE UNITED KINGDOM'S FINTECH INDUSTRY**

This paper argues that analyzing the United Kingdom's fintech industry as a case study could give us a glimpse into what Brazil could look like in the future. What is the rationale behind looking into the United Kingdom? The main reason is that the UK was the first to introduce regulatory sandboxes. They first announced their intentions to launch the initiative in 2014, but it was not until 2016 that the program actually started operating. As of 2021, regulatory sandboxes have hosted 108 different fintech startups.<sup>36</sup> The initiative has been praised as a success in the UK and that is why many other countries started implementing them. To analyze the success of regulatory sandboxes, I am going to compare the UK with France, which is a country who has not implemented 'Sandboxes.'

### **Macroeconomic Characteristics**

The reason why I chose France as the country to be compared with the UK is because they have similar macroeconomic characteristics. The 3 macroeconomic indicators that I used were population, Gross Domestic Product Per Capita, and ICT device penetration. The range of data was taken from 2016 to 2021. The first data collected was in 2016 because that is the year regulatory sandboxes started operating.

#### *Population*

The population between France and the UK has been pretty similar throughout the years. The compound annual growth rate (CAGR) between 2016 and 2021 was 0.18% for France

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<sup>36</sup> FCA, "Regulatory Sandbox," Financial Conduct Authority, March 27, 2022.

and 0.47% for the UK. There has been a slow and steady increase in the population number for both countries. As of 2021, the United Kingdom’s population is 68.2 million and for France it is 65.4 million. Figure 1 below show the population per year of each country starting from 2016.<sup>37</sup> It is important to look at population, so the results are not skewed by a huge difference in people.

Population in millions (2016 – 2021)							
	2016	2017	2018	2019	2020	2021	CAGR
United Kingdom	66.3	66.7	67.1	67.5	67.9	68.2	0.47%
France	64.7	64.8	65.0	65.1	65.3	65.4	0.18%

Figure 1 *Source:* Statista

### *Gross Domestic Product Per Capita*

Gross Domestic Product per capita is a key metric of economic performance. It is a helpful unit for comparing average living standards and economic well-being across countries. In 2021, the UK had a GDP per capita of \$45,811, while France’s was \$44,910. However, even though France’s number is lower, they had a CAGR from 2016 to 2021 of 2.72%, while the UK’s was only 1.96%.<sup>38</sup> This number is relevant as GDP per capita measures the prosperity of a nation according to its economic growth. Figure 2 shows the GDP per capita of both countries since 2016. As we can see, both the UK and France have had similar numbers throughout the years.

<sup>37</sup> Statista, "FinTech," Statista, Accessed April 15, 2022.

<sup>38</sup> Statista, "FinTech."

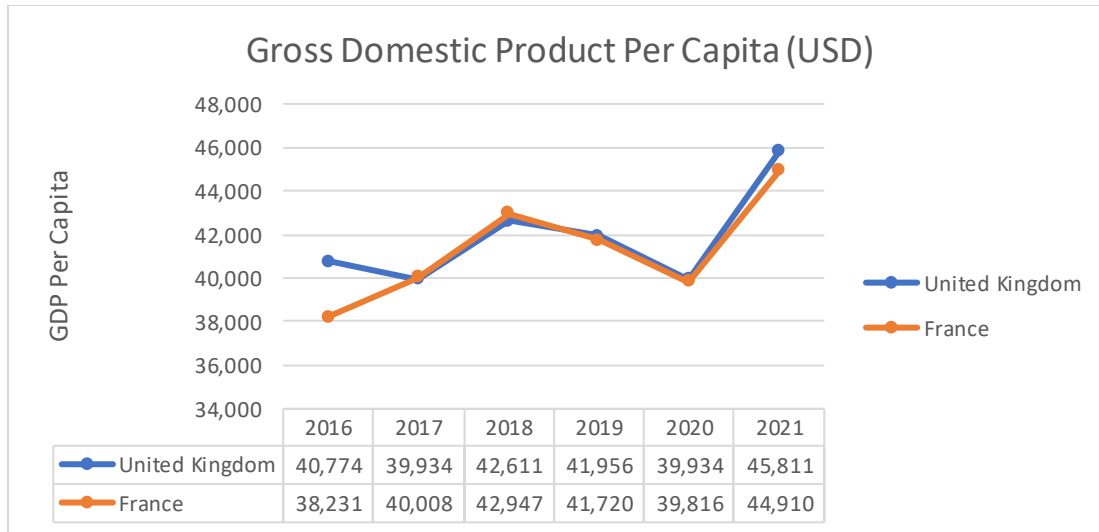


Figure 2 Source: Statista

### ICT Device Penetration

ICT stands for Information and Communication Technology. It applies to any device that receives, stores, manipulates, or transmits data. Examples of these devices are personal computers, smartphones, smart TVs, email, etc.<sup>39</sup> Looking and this statistic is important as it show individual households' abilities to access internet. We look at this data because it demonstrates how many households could have access to fintech services. It is also particularly relevant for the analysis because if the figures between France and UK are largely different, it could affect the results presented. In 2021, the United Kingdom's ICT device penetration was of 25.6 million households and France's was 24.8 million households. Even though the figure was larger for the UK than France, their CAGRs from 2016 to 2021 were 0.07% and 0.69% respectively. The CAGRs show that France has been growing almost tenfold compared to the UK's growth. Figure 3 below has the ICT device penetration per year.<sup>40</sup>

<sup>39</sup> Techopedia, "Information and Communications Technology (ICT)," Techopedia, Last modified August 18, 2020.

<sup>40</sup> Statista, "FinTech."

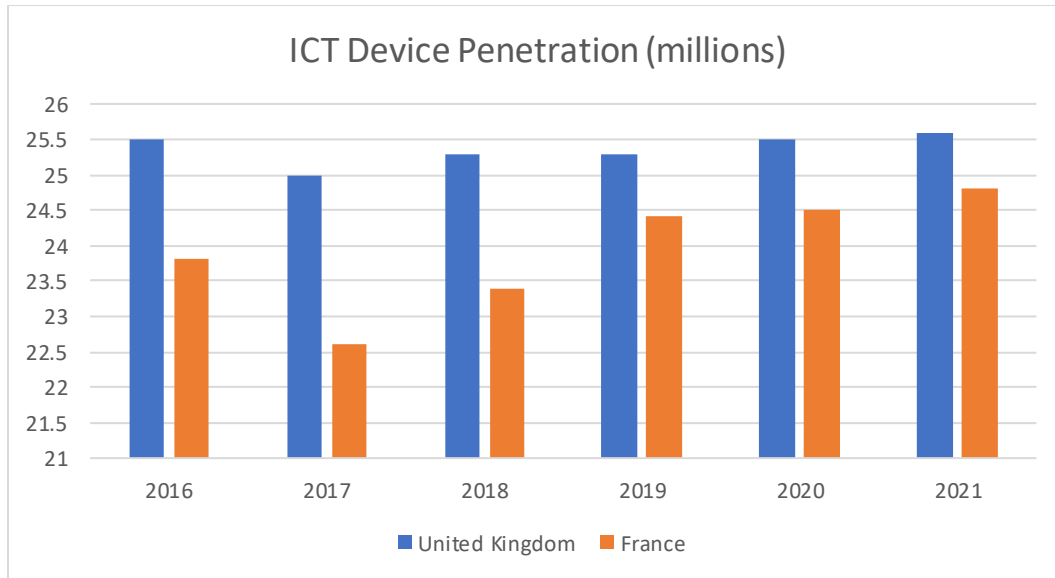


Figure 3 *Source:* Statista

Overall, we can see that the United Kingdom and France have very similar macroeconomic variables. France has even demonstrated more growth in GDP per capita and ICT device penetration than the UK. These similarities should signal that both countries would also have similar amounts of investment in the fintech industry.

### **Analysis**

This section of the case study will observe the changes in the amount invested by Venture Capitals on fintech companies in France and the United Kingdom. The decision to observe specifically Venture Capital investment was because regulatory sandboxes are specifically focused to attract private investors. With the ease of some regulations, more investors are interested in putting their money on innovative solutions. In 2021, the total venture capital



investment in fintech companies in the UK was €4.3 billion, while in France it was only €1.4 billion.<sup>41</sup>

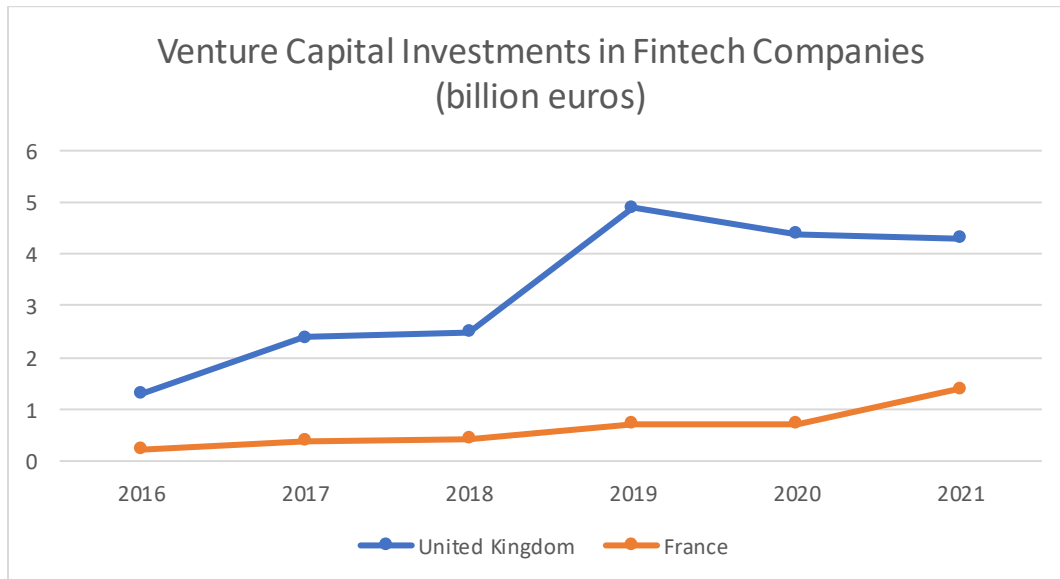


Figure 4 Source: Statista

Figure 4 above shows venture capital investment in fintech companies per year for both countries. The United Kingdom has always had more investment than France. The CAGR on investment from 2016 to 2019 in the UK and France was 39.3% and 34.5% respectively. It is important to highlight three situations in the United Kingdom. First, there is a large increase in the figure from 2016 to 2017, just a year after regulatory sandboxes started operating. Second, investment grew by almost 100% from 2018 to 2019. That increase can mostly be attributed to foreign investors, especially from China, starting to get some interest in UK's fintech industry. Finally, there is a decline in investment of 12.2% from 2019 to 2021. An explanation for this decline is that between 2019 and 2020 the talk for Brexit started to become serious. Another possible explanation is that in 2019, countries like Spain, Turkey,

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<sup>41</sup> Norrestad, Fanny, "Countries in Europe with the highest amount of venture capital (VC) investments in fintech companies from 2016 to 2021," Statista, January 11, 2022.

Denmark, and Hungary started adopting the idea of ‘Sandboxes’.<sup>42</sup> That could just mean that VCs are diversifying their investments across Europe as more countries adopt this initiative. That goes to show that there are many other factors that can affect the results of an initiative.

Regulatory sandboxes have indeed increased the amount of investment from venture capitals into fintech companies. However, there are other factors, such as political issues, that can affect the results. The United Kingdom saw a huge increase until 2019, followed by a decline in investments. On the other hand, France had a steady increase throughout the years without the introduction of regulatory sandboxes. It is hard to tell if the UK would have followed the growth trend they had up until 2019 before Brexit.

## **Discussion**

The analysis demonstrates that there is a big difference in total investment in the fintech industry between the United Kingdom and France. This case study aims to demonstrate that this difference comes from the fact that France has not implemented initiatives like regulatory sandboxes to boost fintech innovation and promote investment. It is important to note that there might be other factors affecting these results, such as political issues.

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<sup>42</sup> The World Bank, "Key Data from Regulatory Sandboxes across the Globe," The World Bank, November 1, 2020.

## CONCLUDING REMARKS

The question of how to develop governmental policies to encourage innovation is still being debated. Policymakers try to encourage financial sector transformation without jeopardizing financial stability, market efficiency, or consumer protection. Sandboxes could be a useful tool for regulators in this process. They might free fintechs' creative potential in a regulated setting, giving regulators time to assess innovative products and services' welfare consequences. The vast number of nations that have implemented or plan to implement their own sandbox demonstrates that regulators see them as a promising idea. Despite its widespread adoption around the world, to the best of my knowledge, there is scarce literature on the effects that regulatory sandboxes have in the fintech industry.

This thesis provides evidence of their effects by showing that the UK sandbox helps fintechs raise capital. It is true that these results are in a first world country, and they might not be replicable in a developing country like Brazil. However, given the current state of the Brazilian Startup Ecosystem and the lack of financial inclusion that the country has, there could be an even greater opportunity to attract more investment. There needs to be further research an analysis in the next few years on what are the specific effects regulatory sandboxes can have in a developing country.

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