

Build Alipay Ecosystem in Brazil

By

Peipei QIU

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Signature of Author: _____

Signature redacted

MIT Sloan School of Management
May 11, 2018

Signature redacted

Certified by: _____

Simon Johnson
Ronald A. Kurtz (1954) Professor of Entrepreneurship
Thesis Supervisor

Signature redacted

Accepted by: _____

Jacob Cohen
Senior Associate Dean for Undergraduate & Master's Program
MIT Sloan School of Management



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ABSTRACT

Digital payment has proven to be an effective tool to narrow the gaps in financial inclusion. In this area, China has outperformed most developed countries, with Alipay taking the leading role. After achieving critical mass in the domestic market through building a comprehensive ecosystem, Alipay, like many other Chinese tech giants, is also considering expanding its reach into the global market. Among emerging countries, Brazil stands out as being an ideal target for many reasons. Currently, large portions of Brazilian population and a significant number of small businesses are underserved by a concentrated and highly profitable banking system. Additionally, the domestic Brazilian FinTech market is still nascent and fragmented. By building up an Alipay-like payment ecosystem in Brazil, Alipay could create synergy with the local financial system and enable players and users to capture more value from it.

This study analyzes the dynamics and structure of Alipay's ecosystem, decodes the key drivers of its success in China and reviews some of its first experiments in the global market. This study also assesses the FinTech market in Brazil by evaluating opportunities Alipay could capture, and risks and challenges it has to take into consideration. This study also includes an analysis of Alipay's Artificial Intelligence development domestically and internationally. Finally, this study develops strategic suggestions for Alipay to enter the Brazilian market.

Thesis Supervisor: Simon Johnson

Title: Ronald A. Kurtz Professor of Entrepreneurship

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1. Background

1.1 Digital payment has proven to be an effective tool to narrow the gaps in financial inclusion

According to a report of G20, globally there are still 2 billion adults who do not have access to formal financial services and are excluded from opportunities to improve their lives. While remarkable development in digital financial services has already been achieved, digital payments have been proven to be an effective way, especially in poor communities, to narrow down and even close the remaining gaps in financial inclusion, through opening up new economic opportunities and markets for individuals and small and micro businesses. The capacity of digital payments to improve lives has been endorsed by G20 Heads of State and Government with the signature of the High-Level Principles of Digital Financial Inclusion (HLPs) ¹at their meeting in Hangzhou, China.

1.2 Business ecosystem creates synergy and new competitive advantages

Deloitte identified business ecosystem as *dynamic and co-evolving communities of diverse actors, who create and capture new value through both collaboration and competition*. Business strategist James Moore was imported the concept of Ecosystem from the natural world to the increasingly dynamic and interconnected world of commerce. Deloitte systematically analyzed the evolution of this concept in commercial context and also revealed its powerful influences. Before the digital era, these transformative capabilities were primarily embraced by communities or industries through internal connection and collaboration. But over the last decade, some vertically integrated companies are able to create their own organic ecosystem to capture the competitive advantages, value created through synergy. Benefitting from the connectivity and resource exchange, ecosystems create new ways to address fundamental human needs and accelerate learning and innovation. ²

1.3 China outperforms most developed countries in digital payment development with Alipay taking the biggest piece of the cake

China is already a major player in digital economy domestically and globally, and it has enormous growth potential. In 2017, China represents 42 percent of global e-commerce, and processes 10 times more mobile payments than the United States. Mobile payment penetration among China's internet users has grown rapidly, from merely 25 percent in 2013 to 77.5 percent in 2017.

¹ Global Partnership for Financial Inclusion. (2016). G20 High-Level Principles for Digital Financial Inclusion

² Eamonn Kelly. (2015). Introduction: Business ecosystems come of age. *Deloitte Insights*. Retrieved from <https://www2.deloitte.com/insights/us/en/focus/business-trends/2015/business-ecosystems-come-of-age-business-trends.html>

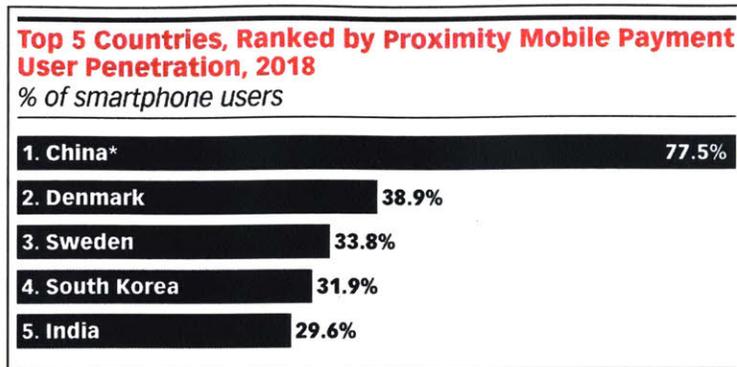


Figure 1: China has the highest mobile payment penetration. Source: eMarketer.

Among the numerous players, Alipay and WechatPay take the biggest 2 pieces of the cake, accounting for 53.73% and 39.35% respectively, by the third quarter of 2017.³ Following Alibaba's steps of going global, Alipay also works on its global expansion plan, primarily through partnership with local players.

2. Decoding the success of the Alipay ecosystem

Alipay and Ant Financial. Launched in 2004, with the purpose to solve payment trust issue between merchants and customers on Alibaba's e-commerce platform, Alipay was originally deemed as China's equivalent of Paypal. As evolving with Alibaba's ever-expanding ecosystem, Alipay has grown from "Paypal", payment solution only, into a one-stop shop for comprehensive financial services. In 2014, to consolidate its various financial services into one basket, and also due to Central Bank's pressure of restricting foreign capital from playing in domestic payment market, Alibaba, with Softbank being one of its main voting shareholders, established Ant Financial. Since Alipay is the core of Alibaba's new finance affiliate, in this report, Alipay ecosystem is considered equal to Ant Financial, or Ant ecosystem. Thus, decoding the success of Alipay ecosystem could also be interpreted as decoding the success of Ant Financial.

The structure of Alipay ecosystem, in summary, includes three layers and several supporting pillars, as illustrated in Figure 2. At the center of this structure is a solid foundation composed of various payment options, covering all possible scenarios including e-commerce, offline shops, utilities and transportation, in an attempt to make cities smart and cashless. Benefitting from huge user base and datasets generated from payment solutions, Alipay got to offer in-house comprehensive financial services, ranging from credit score, small loans to wealth management. In this layer, Alipay especially dedicates to become CFO for small and micro businesses. Furthermore, Alipay identifies itself as a TechFin platform, rather than a FinTech, in this way emphasizes its efforts of enabling other financial players to better serve the market.

³ Pengbo Wang. (2017, November 27). China's third party payment market size of 2017 Q3. Retrieved from <https://www.analysys.cn/analysis/22/detail/1001110/>

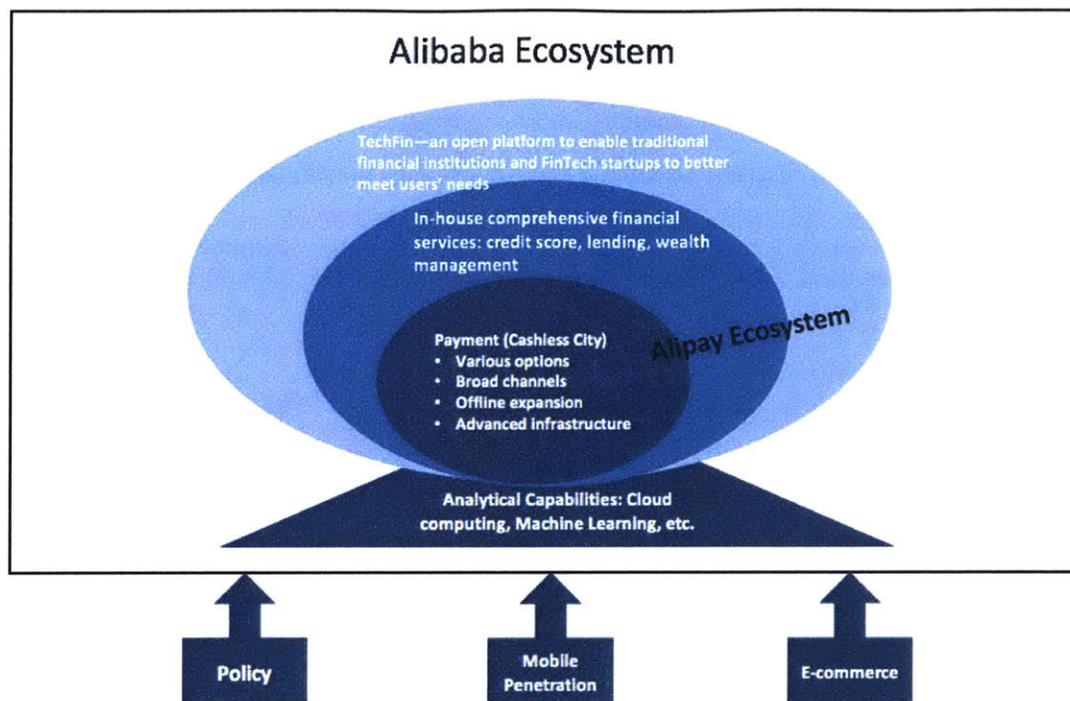


Figure 2: Alipay ecosystem composed of payment, in-house financial services and TechFin platform

2.1 A solid payment foundation is the core of the ecosystem

2.1.1 Alipay provides various payment options derived from e-commerce activities

For long Alipay has been deemed as a copy of Paypal, however, it has left its American competitor far behind in providing exhaustive payment solutions, with a deep understanding of users' needs.

As a consumer, there are so many options to PAY on the platform: **Scan**. To make a payment, transfer or collect money, you can scan the QR code of the merchants, person who you are paying for or collecting money from. **Payment Code**, only for offline payments. To make a payment, you need to open Alipay app and show the QR code (or bar code) to merchant so that he/she can use a code scanner or a camera to complete the transaction. The QR code and bar code will be automatically updated every minute, and will expire shortly after they are generated. The security system will intercept or verify suspicious transactions. **Transfer**. You can easily transfer money to other Alipay accounts and bank cards. For transfers and withdrawals from account to bank card, there is a fee-free lifetime allowance of 20,000 RMB. When the allowance is used up, a transfer fee will be charged for the excess amount at a percentage of 0.1%. **E-Wallet**. Money collected could be kept in the E-wallet without connection with any bank accounts, while users tend to put the short-term liquidity into Alipay's money market fund.⁴

⁴Alipay platform function description.

For merchants, there are both basic and advanced functions. Basic functions include integrating the Payment approach into your APP and website if you have online business, and providing code scanner or money collecting **QR code** if you are running offline businesses. Advanced functions include pre-authorization, installment, membership payment, supply chain payment, etc. Corporate users are also encouraged to transfer money to suppliers via Alipay's platform with benefits of no withdrawal fee for a long term. QR code is becoming the trend since it does not require any terminal device, such as scanner or POS terminal, thus making it affordable to most offline small businesses.

2.1.2 Alipay leverages diversified channels, such as food delivery, ride-hailing, and bike-sharing for its customer acquisition strategy

To win the battle of achieving more user traffic with Tencent and Baidu, Ali partnered with so many services as its user acquisition channels, among which Transportation and food delivery are two of the ideal application scenarios. For instance, Alipay partnered with Kuaidi ride-hailing app before Kuaidi merged with Didi. Together with Alibaba, Alipay became the biggest shareholder, taking 10% of the shares after the merger.

2.1.3 Alipay achieved remarkable growth in offline payments and is converting cities to be cashless

From breakfast trucks to farmers' market, from parking lots to entertainment theme parks, from retailers to restaurants, Alipay made great efforts to expand offline payment scenarios. In only one year of 2017, Alipay partnered with more than 40 million small and micro businesses across China's streets and digitalized the traditional cash-collection process. In the same year, more than 200 million people used Alipay to cover payment across all the aspect of daily life, including purchasing, public transportation, utility and hospital and medicine. ⁵

⁵ Alipay finally gave up competing in social network. (2017, March). *Huxiu*. Retrieved from <https://m.huxiu.com/article/184271.html>

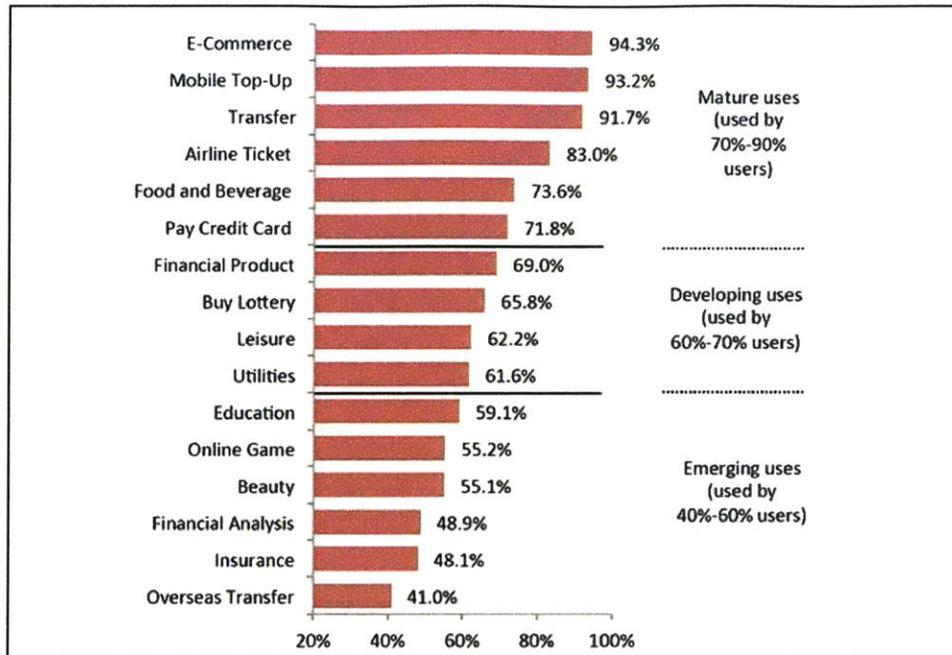


Figure 3: China: Mobile payment use by category and share, 2014. Source: iResearch.

2.1.4 Alipay backed payment services with advanced infrastructure and technologies

Although China fell behind in terms of the traditional payment infrastructure, which was led by large banks and national financial administrations, it has leapfrogged in development of digital/mobile payment technologies and infrastructure.

2.2 Alipay provides comprehensive financial services to individuals and small and micro businesses

For consumers: consumers can purchase products both online and offline, and transfer money easily on the platform. If they have extra short-term and long-term money, they can invest in **Yu'E Bao** and **Ant Fortune** accordingly. On the other hand, if they run short of money, they can either use the digital credit card **HuaBei**, or borrow from the platform **JieBei**. The amount they can take depends on their credit score, calculated by **Sesame Credit**.

2.2.1 Wealth management: Ant Financial established the world's largest money market fund to manage the ever-growing cash balance in its customers' E-wallets

Alipay moved into wealth management naturally after it spotted the ever-growing piles of cash in its customers' accounts. **Yu'E Bao**, or leftover treasure, product of cooperation between Ant Financial and Tianhong fund management limited, is short-term money management service product, and at the same time, a money market fund by nature. Consumers could move their money from E-wallet to Yu'E Bao to

gain higher interest rate. Compared to traditional deposits in banks, Yu'E Bao offers easier redemption and higher annualized yield.

Yu'E Bao surpassed JPMorgan's US government money market fund at its 4th year of establishment, with \$165.6 billion under management, in 2017. The information of individual accounts they have and the scale of the fund gave Ant negotiation power to achieve better interest rates from banks, allowing it to pay surplus rates to its customers⁶, with annualized yield ranging from slightly above 2% to 6.7%. It became so attractive that the fund's management company had to adopt a series of restriction measures, such as total amount limit and daily limit to control its expanding scale, and finally got it flattening since the end of 2017.⁷

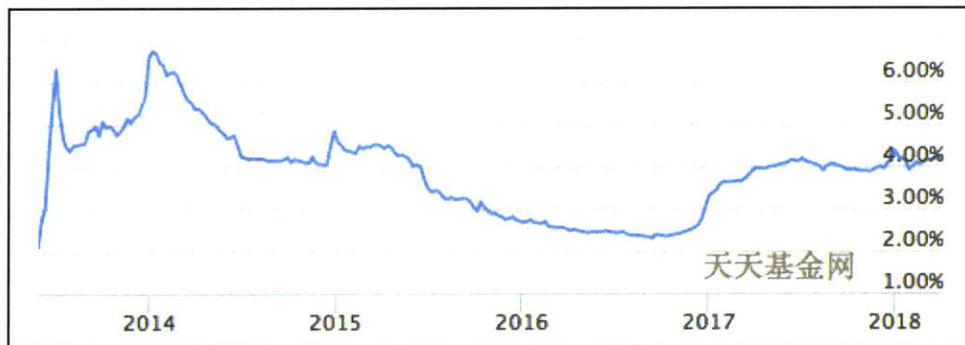


Figure 4: Trend of annualized yield of Yu'E Bao. Source: eastmoney.

2.2.2 Credit system: consumers' credit scores are bundled with various benefits, economically and socially

Chinese government has been willing to build up the national credit system for long, and hopes to leapfrog US FICO system by adopting the latest big data and AI technologies. In June 14, 2014, the State Council published an ominous-sounding document called "Planning Outline for the Construction of a Social Credit System". At the first stage, the government took a watch-and-learn approach, authorizing a license to 8 tech and finance companies to try out business models and algorithms, among whom, ⁸Ant Financial's Sesame Credit was undoubtedly the best-known experiment. Mainly within the Alipay platform, Sesame Credit established its rating logic and standards:

⁶ Louise Lucas. (2017). Chinese money market fund becomes world's biggest. Retrieved from <https://www.ft.com/content/28d4e100-2a6d-11e7-bc4b-5528796fe35c>

⁷ Stella Yifan Xie. (2018, Feb 6). Yu'e Bao's asset growth slowed remarkably. *The Wall Street Journal*. Retrieved from <https://cn.wsj.com/articles/CN-FIN-20180206101809>

⁸ Rachel Botsman. (2017, Oct 21). Big data meets Big Brother as China moves to rate its citizens. Retrieved from <http://www.wired.co.uk/article/chinese-government-social-credit-score-privacy-invasion>

Table 1: 5 key rating factors of Sesame Credit (Individual)

Credit History	Personal characteristics	Fulfilment Capacity	Behavior preference	Interpersonal Relationship
<ul style="list-style-type: none"> • Credit card repayment • Utility payment • Phone bill • ... 	<ul style="list-style-type: none"> • Biographic information • Mobile number and Permanent address • Profession • Marriage 	<ul style="list-style-type: none"> • Pay the rent on time • Return the rent car on time • Fewer cancelation of ride-sharing 	<ul style="list-style-type: none"> • Wealth management • Shopping habits <p>e.g.</p> <p>1)Someone who plays video games for ten hours a day would be considered an idle person</p> <p>2)Someone who frequently buys diapers would be considered as probably a parent, who on balance is more likely to have a sense of responsibility</p>	<ul style="list-style-type: none"> • Friends' credit rating • Interaction with friends • Money transfer history

(Source: China Merchants Bank and Bigdata.com)

Users on Sesame Credit are rated by a score ranging between 350 and 950 points. If a user's score reaches 600, he or she can take out a **HuaBei (Just Spend)** loan of up to 5,000 yuan to shop online and borrow up to 300,000 yuan from **JieBei (Just Borrow)** without any collateral; reaching 650 points or above, the user may rent a car without leaving a deposit. A score of 700 equals to applying for Singapore Visa without supporting documents.

“Access is better than ownership” as Kevin Kelly repeated in many occasions, to draw a comprehensive credit profile of users, Sesame Credit also partnered with other data-generating platforms, such as DiDi, the biggest e-hailing company, Baihe, China's largest online matchmaking player, and some game programs.

It does not only investigate users' behavior, but also shapes it. For instance, to improve the credit history, customers are encouraged to repay their credit card on time via Alipay's platform, to borrow and pay back more from Ant's financing products, fulfil their agreements with ride-sharing service, to check in hotels as agreed on reservation, and even to manage their social network to be more connected and interacted with those who have good scores in the system and “positive energy” providers in many ways.⁹

2.2.3 Consumer credit: younger consumers are incentivized to spend more via digital credit cards

HuaBei (Just Spent), Alipay's virtual credit card product, was originally created to finance the spending on its own e-commerce platform, successfully allowing users to spend an extra RMB 2200 on average at the last Singles Day, China's Black Friday. But now it is used in more scenes, so long as Alipay's payment

⁹ Rachel Botsman. (2017, Oct 21). Big data meets Big Brother as China moves to rate its citizens. Retrieved from <http://www.wired.co.uk/article/chinese-government-social-credit-score-privacy-invasion>

function covers. Although the repayment rate by far has been very high, with less than 1% bad debt, concerns come arising around fraud. In January 2018, Mr. Du, who set up fake online stores to help customers withdraw millions in cash from their virtual credit cards has been sentenced to more than two years, marking the first case of its kind in mobile payment.

For small and micro businesses: Ant has the ambition to become CFO of 20 million small and micro businesses. If you are a merchant on T-mall or Taobao, or an offline business, you can easily collect money from various payment options, from which basic data analysis provided can help you better understand and manage your business. Your short-term cash surplus could be invested in Yu Libao. If there is liquidity problem, you can 1) borrow from MYBank, with your interest rate determined by your Sesame Corporate score, 2) get early payment collection before consumer confirmed his/her purchase, or 3) use credit to pay your procurement. As your business grows bigger, more professional operation and management services will be available, including marketing, customer service, logistics, warehouse and supply chain optimization, etc.

2.2.4 Wealth management: merchants could simply put their short-term money into Yu Li Bao for higher interest rates than what banks offer without any withdrawal fee

Yu Li Bao, or leftover profit, is the money management tool for merchants. Except for similar benefits as Yu'E Bao for consumers, Yu Li Bao can help merchants to reduce tax payment, as no corporate income tax is levied on capital gain from securities investment funds, a policy aimed to incentivize the development of securities investment funds.

2.2.5 Corporate credit system: Ant strengthens the concept that creditworthiness can be translated into collateral commitments among small and micro businesses interested in taking out loans

In September 2017, Sesame Credit got integrated into Alibaba's small business platform and offered credit rating for more than 22 million middle-and-small businesses, accounting for one fourth of the total. For these small and micro businesses, higher credit score could be translated into access to easier and cheaper loans without requirements of any collateral or guarantee, to more quota of sales on credit and paying rent fees of office and equipment quarterly or even monthly without deposit and intermediary agencies' charge.¹⁰ Accordingly, corporate Sesame also has 5 key dimensions to rate the players:

¹⁰ Xiaoming Lu. (2017, Sep 11). More than one fourth of the small and micro businesses have Sesame Credit score. 36 Kr. Retrieved from <https://36kr.com/p/5092544.html>

Table 2: 5 key rating factors of Sesame Credit (Corporate)

Basic information	Operation Behavior	Fulfilment History	Relationship	Legal representative
<ul style="list-style-type: none"> • Complete and accurate corporate name • Business administration registration info • Scale 	<ul style="list-style-type: none"> • Default records 	<ul style="list-style-type: none"> • Payment on time to the suppliers • Pay the office rent on time • Legal dispute 	<ul style="list-style-type: none"> • Partners • Suppliers • Related business 	<ul style="list-style-type: none"> • Credit rating • Behavior analysis

(Source: Ant Financial)

2.2.6 Corporate credit: As of December 2016, Ant Financial has lent cumulative RMB 800 billion (US\$~120 billion) to more than 5 million small and micro businesses and entrepreneurs, with lower delinquency than conventional banks¹¹

1) **MYbank, or Ant Bank**, based on the financial cloud computing platform, has the ability to handle high-concurrent financial transactions, massive data, and flexible expansion. MYbank is positioned as the preferred financial service provider, internet bank explorer, and inclusive finance practitioner. Compared to traditional loan application in banks, this platform allows small and micro businesses to get their application, as little as 1 yuan, approved within 3 mins and to arrange the repayment term flexibly. The rate varies dependent on the merchants' credit score and operation efficiency and no collateral or guarantee is required.¹²

2) **Mayi Xiaodai, or Ant Small Loan**, is the star product among Ant's various lending options, using 3 models analyzing borrowers' capability, risk and wiliness to pay, to make the business successful. Big data and real-time risk management contribute to Ant's low delinquency rate. As at April 2017, Ant's NPL (overdue by more than 90 days) stood at 0.48%¹³, while the overall delinquency rate kept less than 1%.

Table 3: 3 models of Ant Small Loan

Capability Model	Risk Model	Pricing Model
<ul style="list-style-type: none"> • Traditional operation data • Non-traditional data e.g. correlation between client response time and sustainable revenue growth 	<ul style="list-style-type: none"> • Traditional credit record in formal banking system • Un-traditional credit score based on behavior analysis 	<ul style="list-style-type: none"> • Based on capability and risk analysis. (Average daily rate is around 0.05%. Reliable client could get a daily rate as low as 0.016%)

¹¹ Shike. (2017). Ant Financial approved RMB 800 billion loan to boost small and micro businesses. *36 Kr*. Retrieved from <http://36kr.com/p/5061083.html>

¹² About MYbank. Retrieved from <https://www.mybank.cn/about.htm>

¹³ Georgina Lee. (2017, Nov 28). Ant Financial keeps loan delinquency low on a diet of big data, exercise in risk management. *South China Morning Post*. Retrieved from <http://www.scmp.com/business/banking-finance/article/2121925/ant-financial-keeps-loan-delinquency-low-diet-big-data>

	<p>e.g. game behavior, correlation between responsibility and gamers' decision as to leave or to stay, when he/she fails but could still help other team members to win</p>	<ul style="list-style-type: none"> • Willingness to pay • Algorithm updates weekly vs traditional loans' model update annually
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(Source: MIT lecture of Yuli, VP of Alibaba, April 16, 2018)

3) Early payment collection or receivable loan. Usually for e-commerce, the sellers could not get the payment until consumers have confirmed their purchase. However, if the seller face cash flow pressure, it has an option to get early payment or take a loan with customers' orders as collateral. If the merchants choose to take money by early payment, a fee equal to a fixed percentage of the order's value will be charged, versus, an annualized interest if you choose the later approach. However, both loans will be paid back once the consumer confirmed their purchase.

4) Procurement credit. 1688 is the biggest B2B platform, the procurement arm of Alibaba. Reliable sellers could delay their payment transactions to suppliers to gain more cash flow flexibility. ¹⁴

2.2.7 Combination of different financing tools for different industries

According to interviews with merchants and Ant Financial experts, sellers could get tailored financing structures based on different industrial characteristics and individual operating performance. For instance, apparel sellers usually have less cash flow pressure since fixed cost, or upfront investment, only takes a small percentage of the total cost. Thus, they usually don't need mid or long-term loans so long as their business is economically feasible. Only during big promotion period, such as the Singles Day Promotion (11.11), they may need some short-term support, which could be covered by early payment loan or procurement credit. However, agricultural businesses might require larger upfront investment and need to wait long before generating income. More mid and long-term loans are expected to take place in this industry. Interest rates also change among different industries and players.

2.2.8 Extended services

After so many years' indirectly helping sellers manage their accounts, Alipay has been playing an increasingly important role by providing full array of direct operation and management services, including marketing, customer service, warehouse, logistics, business advisory and administration management. For quickly growing businesses, the funders might not be prepared or capable to run a thousand-million base

¹⁴ About 1688. Retrieved from <https://www.1688.com/>

business, such as the best-known apparel shop Qianfuren, the platform could connect them with professional management companies, to whom the sellers could outsource daily operation.

2.3 Ant Financial identifies itself as a TechFin company to empower other financial service providers

2.3.1 Strategically, Ant Financial identifies itself as a TechFin company, instead of a FinTech one, to establish an open tech platform and enable finance institutions to improve their services

TechFin was first coined by Jack Ma during the China Conference organized by the South China Morning Post, arguing that China does not lack a financial institution and Ant is not willing to be one of the hundreds of thousands, and has been considered the key proposition and strategy of Ant Financial.¹⁵ Shortly after, Peng Lei, Executive Chairwoman of Ant Financial, made speech in Harvard China Forum, stating that the problem of huge percentage of underserved population by traditional formal financial channels is not limited to the failure of financial institutions, but rather, limited to technology development and business model innovation. Ant Financial, with its Chinese name directly translating as Ant Finance servicer, defines itself as a TechFin company, instead of a FinTech company, to enable both traditional financial institutions and innovative FinTech startups to better serve the unserved.¹⁶

During its conference of partners in August 2016, Ant Financial announced the decision to comprehensively open up 12 main capabilities covering the entire business value chain. In the same conference, Ant launched Spring Rain Plan, offering 1 billion RMB in 3 years to support its partners, with the goal of empowering at least 1 million developers and serving more than 10 million small and micro businesses.¹⁷

2.3.2 Ant Financial launched Ant Fortune as a marketplace for other online financial products and opened its AI capability to these financial institutions

Positioned itself as a TechFin companies, Ant Financial has carried forward several specific initiatives: Withdrawing from social network and financial business to be more focused, **Launching Ant Fortune** as a market place to enable financial institutions to better approach customers. Instead offering financial products by itself, Ant Financial launched Ant Fortune as a B2C intermediary, allowing financial institutions to set up shops on its platform. Not limited to providing a marketplace, Ant Financial also

¹⁵ Zen Soo. (2016, Dec 2). TechFin: Jack Ma coins term to set Alipay's goal to give emerging markets access to capital. *South China Morning Post*. Retrieved from <http://www.scmp.com/tech/article/2051249/tech-fin-jack-ma-coins-term-set-alipays-goal-give-emerging-markets-access>

¹⁶ Peng Lei. (2017, Apr 24). Lecture in Harvard China Forum: How does Ant execute TechFin strategy? Retrieved from <http://cooperations.wallstreetcn.com/flipboard/node/301667>

¹⁷ Ant Financial will spend 1 billion RMB in 3 years to support its partners to grow. (2016). Retrieved from <https://www.antfin.com/newsDetail.html?id=57be8ba4cf561a7eddd0a0f9>

enables its financial institution clients to better market their products, targeting potential customers more accurately and acquiring traditionally untapped customers through its strong capability of big data analysis. On June 14, 2017, Ant Financial announced that it had opened AI capabilities to the first 10 financial institutions. This means that Alipay ordinary users can also have their own exclusive financial advisors like rich people. The difference is that these consultant work 24X7, never mix self-interest when recommending financial products. Ant also plans to further open up its financing platforms and credit systems, including **Sesame Credit** and **HuaBei**.

One of the main applications of Ant AI algorithm model is **intelligent financial advisor**. The IFA starts from the user's real investment decision-making process, taking into consideration the user's own preference, understands the user's risk tolerance level, and matches the product with the user through multi-dimensional features and algorithms. This can effectively help users make more rational investment. For organizations, AI also help them identify reliable clients and avoid recommending too risky products to low risk-tolerance and low-credit-score users. According to the official data provided by Ant official website, for the first month of opening AI capability for intelligent wealth management, the average daily transaction volume of the cooperative financial institutions increased by 243%.

2.3.3 Ant enables traditional financial institutions to optimize their operations, strengthen risk control and expand service radius

Credit card approval-Ant applied its credit system in China Everbright Bank to facilitate credit card approval. China Everbright Bank has announced strategic cooperation with Sesame Credit integrating the latter into its own risk control model as a complementary assessment approach, covering the whole lending process, including pre-lending approval, in-process loan monitoring, and post-loan recovery, which has enabled the agency to increase the card approval rate by 2-3 percentage. The bank has also launched one-day credit card approval service with the Sesame Credit score, which usually took 2 weeks with the Bank's in-house assessment system.

Shared QR payment system-China Construction Bank established strategic cooperation with Alibaba and Ant Financial. According to the agreement and the business cooperation memorandum, the two parties will jointly promote CCB's credit card online card-opening business, integrate offline online channel business cooperation, strengthen electronic payment service cooperation, share QR payment code, and use shared communication systems.¹⁸

¹⁸ China Construction Bank and Ant Financial signed agreement of strategic cooperation. (2017, Mar 29). Retrieved from http://www.ccb.com/cn/cbctoday/news/3/20170329_1490772759.html

Insurance claim assessment-On June 27, 2017, Ant Financial launched “Insurance claim assessment” to the traditional insurance industry. At the first stage, it was mainly applied in usage based insurance (UBI), using AI to stimulate the manual operation process of auto insurance claim assessment, it helped insurance companies achieve simple and highly efficient automatic damage assessment. Through the deep learning image recognition technology, this product has solved the problem of identifying irregular vehicle damage. This tech enabled auto insurance companies to deal with growing claims more efficiently and accurately.

2.4 Alipay relies heavily on AI capabilities to develop its ecosystem and has started exporting some technologies and solutions

2.4.1 Alibaba has the ambition to build an AI ecosystem

Alibaba group has the ambition to build an ecosystem covering image recognition, voice recognition, natural language processing (NLP), full array of algorithms, and even chip R&D and manufacturing, through a wide partnership network, based on Ali Cloud.¹⁹ Being the system’s financial arm, Alipay has its own focus on creditworthiness evaluation, risk control, security and service improvement.²⁰

There are already a bunch of examples of applying AI capabilities in Ant’s products. As introduced in the section of Sesame Credit and Ant Small Loan, Ant combines traditional banking credit data and non-traditional and unstructured behaviour and operation data to do real-time analysis of clients’ creditworthiness and further to decide how much to lend and what rate to charge, with a less than 1% bad loan rate. For risk control and systematic security, Ant employs weak supervised learning to detect potential threats and attacks, which could be applied in scenarios such as anti-money laundering and identifying spam users. In terms of improving service experience and efficiency, Ant works on accurate customer profile, and tailored and differentiated solutions by deploying deep learning and reinforcing learning. Based on these tools, Ant introduced advanced services such as tailored marketing and intelligent assistant. Learning from the correlation between screen crack and wearing slim jeans, Ant promotes the screen insurance product, available on Alipay Platform, to those young ladies who have just purchased slim jeans. Transformed from Dian Xiaomi, Alibaba marketplace’s client service assistant, Ant Financial’s intelligent assistant is able to serve its clients in a more efficient and accurate way.

2.4.2 There are some key drivers behind this AI boom

¹⁹ Ali Cloud announced first time its AI plan. (2017, Dec 20). Retrieved from <https://yq.aliyun.com/articles/296132>

²⁰ Qi Yuan. (2018, Mar 09). How to apply AI in finance? Open class in Pekin University. Retrieved from http://www.sohu.com/a/225197881_610300

First of all, Alibaba group **invests heavily in R&D**, especially for fundamental technology development. It forked out \$2.6 billion in 2017, in the context that China spent \$412 billion in R&D in 2016, only slightly less than US's \$464 billion. To maintain sustainable tech progress, last October Alibaba announced that it would spend \$15 billion over the following 3 years on a research institute named Damo Academy, dedicated to fundamental and emerging technologies with AI as the biggest focus. Secondly, both Alibaba group and Ant financial put emphasis on building an **open platform** and empowering its partners to maximize the ecosystem's synergy. Ant's financial cloud platform modularized and opened models and algorithms to its partners. Developers do not need to know how a formula is derived. Clients can start directly from AB testing, monitor the effect along the whole process and collaborate across teams and partners.²¹ Thirdly, Ant Financial enjoys the advantage of **government's commitment** to AI, making it easier to train their models in large scale. For instance, China's "social credit system" that would track and rate citizens' behaviour is expected to be launched in 2020, and face recognition software apps are being used to track criminals with a wide instalment of video cameras. All these initiatives provide Chinese AI developers solid infrastructure which many of their foreign competitors can hardly dream of. Fourthly, in China, tech firms have **access to vast amounts of data**, benefiting from both the huge population and relatively fewer restraints on data usage.²²

2.4.3 AI is also an important part of Alibaba's globalization strategy.

Alibaba Cloud is already the fifth largest cloud computing platform, after AWS, Google Cloud, Azure and IBM Cloud, and it better fits emerging countries with a notoriously cheaper price. With this infrastructure, Alibaba is already exporting AI solutions, one of which is the City Brain initiative, a smart city platform. On January 29, it launched the first overseas City Brain project in Malaysia, in cooperation with the country's digital economy development agency and the city council in Kuala Lumpur.²³ The first steps will be helping the city to optimize the transportation system, pulling in and processing all kinds of data, including video camera, traffic information and social media. This project has been progressing smoothly, which should at least partially be attributed to a close partnership between Alibaba and the local government. Ant Financial also did some experiments in exporting AI technologies to Paytm, one of its most successful investments in India. Ant only planned to be a strategic investor at the beginning. However, after several

²¹ Qi Yuan. (2017, Jul 22). Ant Financial opens its modularized service platform. Retrieved from <https://juejin.im/post/59745f076fb9a06bab3d6464>

²² Will Knight. (2018, Mar 7). Inside the Chinese lab that plans to rewire the world with AI. *MIT Technology Review*. Retrieved from <https://www.technologyreview.com/s/610219/inside-the-chinese-lab-that-plans-to-rewire-the-world-with-ai/>

²³ Alibaba Cloud today announced the launch of its Malaysia City Brain initiative. (2018, Jan 29). Retrieved from <https://www.alibabacloud.com/zh/press-room/alibaba-cloud-launches-malaysia-city-brain-to-enhance-city-management>

systematic security accidents, Paytm’s weak system failing to detect and stop defaults and frauds with some technical bugs, Ant Financial started to input modularized technology solutions to the local platform. Although Ant brought a big group of engineers to work onsite in Paytm, it made remarkable efforts to train local engineers and build up Paytm’s in-house technological capabilities.²⁴

3. Opportunities and challenges of building Alipay ecosystem in Brazil

Brazil is one of the most unique and interesting place to invest in financial solutions, given the contradictory combination of a highly developed and profitable banking system, with a substantial portion of population and small businesses being underserved.

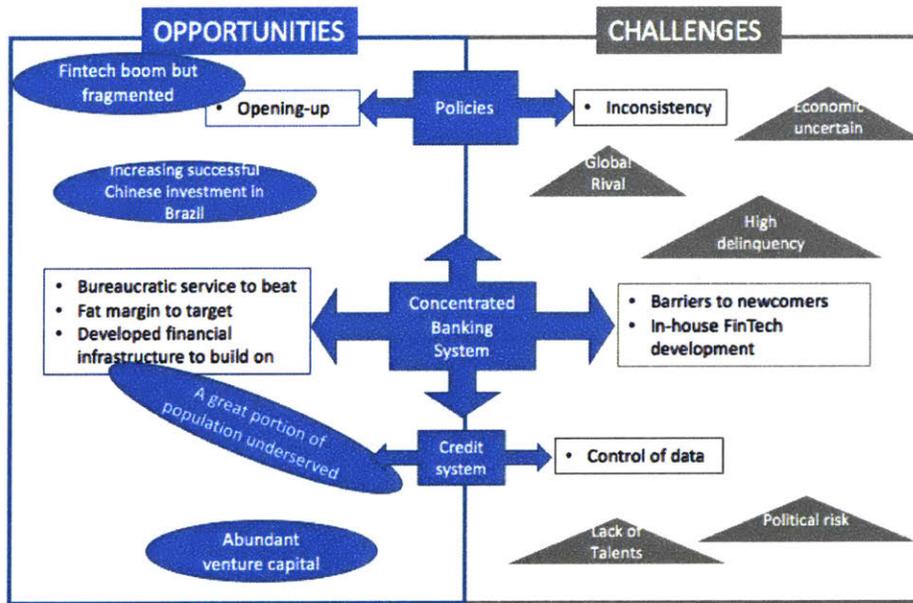


Figure 5: Alipay’s opportunities and challenges in Brazil

3.1 Brazil’s current banking and credit system fail to meet the needs of a significant portion of the Brazilian population, leaving Alipay the opportunity to enter.

3.1.1 Brazil’s current oligopolistic banking system is too bureaucratic and has been widely criticized

Brazil survived the global financial crisis remarkably well as its GDP growth recovered immediately after the crisis to 7.5% in 2010, outperforming most of its counterparts. Brazilian banks were especially resilient and went through the destructive crisis relatively unwounded, thanking to a robust financial regulation framework. However, such a level of stability came at a price of an oligopolistic banking structure and an

²⁴ Yiming Liu. (2017, Jun 1). Ant Financial aims at building a global payment system. Retrieved from <http://tech.sina.com.cn/i/2017-06-01/doc-ifyfuzny1943187.shtml>

unevenly distributed margin to giant players, which further leads to high cost of credits for both individuals and businesses.

Brazil's banking system is extremely concentrated with 5 main players, three listed groups, Itaú Unibanco, Banco Santander and Bradesco, and state-controlled Banco do Brasil and Caixa Econômica. There are too many statistics that could back this conclusion, for instance, the assets of these five largest banks represent more than 80% of the total commercial banking assets in 2015, increased remarkably from that of 2000, slightly lower than 50%. The top five banks also hold 84 percent of total loans. In retail, the top five banks dominated 90% of total branches.²⁵

3.1.2 There are huge gaps to target between high profitability for big banks and unaffordable interest rates for borrowers

Such a highly concentrated structure guaranteed the top banks' super negotiation power, thus without any surprise, Brazilian financial industry becomes one of the world's most lucrative. Brazilian banks' average return on equity was above 12% for the 7 years period right after crisis, higher than American Banks' 9%, according to World Bank and Federal Financial Institutions Examination Council (US) respectively, with financial giants as Itaú hitting 18%. Where does the fat margin come from? In 2016, Brazil surpassed Malawi, offering the highest interest rate of 52%, on bank credit to private sector. Brazil's Central Bank lowered its target interest rate to 7 percent in 2017. That's still high by global standards, but it is already the lowest key interest rate in the country's history.

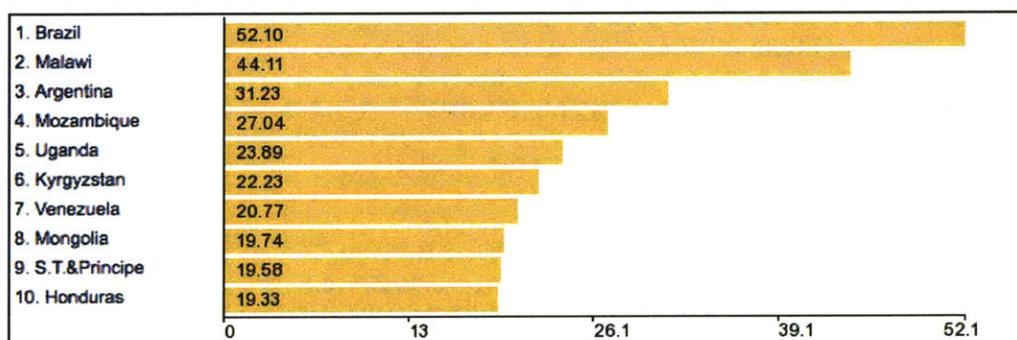


Figure 6: Interest rates on bank credit to the private sector, 2016. Source: The Global Economy.

²⁵ Vinod Sreeharsha. (2017, May 15). Goldman Sachs Sees Big Potential for FinTech in Brazil. *New York Times*. Retrieved from <https://www.nytimes.com/2017/05/15/business/dealbook/goldman-sachs-sees-big-potential-for-FinTech-in-brazil.html>

3.1.3 A large portion of Brazil's population are un- and under- served by the formal financial system

Even though the Latin American giant has lifted a great amount of people from extreme poverty in the last decade, the progress has been slow, and it is still listed as one of the most unequal countries in the world, with a GINI index of 51.3 (World Bank estimate). Among the social problems, financial inclusion is one of key factors that drag the overall economic development. While the top banks taking the biggest chunks of the cake, they have not been able to give access to a substantial portion of the total population: nearly 35% of people above the age 18, representing around \$200bn in financial transactions, do not have a formal bank account.²⁶

3.1.4 Small and micro businesses find it difficult and expensive to borrow

According to the Central Bank of Brazil, for corporate transactions, the average interest rate reached 17.9%. While in the non-earmarked segment, the rate hits 22.2%.²⁷ Borrowers in Brazil could pay an average 250% a year for the riskiest type of unsecured rollover credit, the highest among the world's 20 major economies.²⁸ Small and micro businesses find it expensive and challenging to borrow from the traditional financial market and showed less wiliness to borrow, which was not a good signal for economic recovery. A survey conducted last year by Brazils' credit protector (SPC Brasil) and Confederation of Managers (CNDL) revealed, 86% of small and micro firms surveyed had no intention of taking out finance. About a third of business owners said it is difficult to access finance against 25% that said it is easy. Most mentioned excessive bureaucracy at banks and high interest rates as key factors making it difficult to access finance.²⁹

3.1.5 Current credit system, Serasa Experian, could neither meet the needs of the low-income population nor the small and micro businesses.

Founded by a consortium of banks in 1968, the FICO equivalent of Brazilian financial industry, Serasa provides rating services to individuals and companies and collects data from the formal credit system. Most banks and financial institutions take Serasa score as the main reference while evaluating borrowers. Individuals enter their unique tax number to check the Serasa score report, which is calculated based on

²⁶ Bruno Ramos. (2017, Jul). FinTech and payment methods in Brazil – challenges and opportunities. *Financier Worldwide*. Retrieved from <https://www.financierworldwide.com/FinTech-and-payment-methods-in-brazil-challenges-and-opportunities/#.WtJemJM-fOR>

²⁷ Monetary and credit statistics. (2018, Mar). Retrieved from <https://www.bcb.gov.br/ingles/notecon2-i.asp>

²⁸ Aluisio Alves. (2017, Jul 3). Fintechs seek slice of Brazil's small business loan market. *Reuters*. Retrieved from <https://www.reuters.com/article/us-brazil-banks-tech/FinTechs-seek-slice-of-brazils-small-business-loan-market-idUSKBN19O2H9>

²⁹ Stephen Timm. (2017, Aug 24). Brazil launches \$6bn working capital line for SMEs. <https://www.smallbusinessinsight.org/blog/brazil-launches-6bn-working-capital-line-for-smes>

credit history. A bad score could exclude you from lending system, or you might not be able to rent an apartment with an unpaid loan outstanding. For companies, Serasa could help financial institutions to find the right clients and prevent fraud, which has been a key problem constraining the economic development and health.

However, it could not meet the needs of the low-income population and small businesses. Firstly, a great portion of low income population are excluded from the credit system as they don't have bank accounts, or they intentionally escape from the system as it brings more disadvantages than benefits, such as exposure to tax supervision. Secondly, those who once fall into the blacklist can hardly find their way out, as conservative big banks, with enough profitability, avoid touching the grey area, even though there are various reasons behind the overdue debts, meaning some in the blacklist could still be potentially reliable borrowers.

3.1.6 Brazilians are expecting Chinese investment in technology and infrastructure

China invested \$20.9 billion in Brazil in 2017, the highest since 2010, shifting its focus from resource only to energy, logistics, agriculture, manufacturing and even tech, as the economic recession helped push down asset prices.³⁰ Brazilian Uber's biggest rival, Didi acquired Brazilian ride-hailing leader, 99 Taxi in \$1bn deal, which could be considered as a milestone of Chinese capital entering Brazilian tech sector.³¹ According to a survey by Pew Research Center, there is a high positive opinion of China in Brazil, with a favorability of 65% of the total population.³² Thus, we probably could conclude that both public and private sector are expecting more Chinese investment in infrastructure and tech.

3.2 Brazil's FinTech market is developing fast but stays fragmented, giving Alipay huge space to fully execute its competitive advantage as an integrator

³⁰ Jake Spring. (2018, Jan 18). China investment in Brazil hit seven-year high in 2017. *Reuters*. Retrieved from <https://www.reuters.com/article/us-brazil-china-investment/china-investment-in-brazil-hit-seven-year-high-in-2017-idUSKBN1F7387>

³¹ Eric Newcomer. (2018, Jan 3). Didi Buys 99 Taxis, Igniting Fight with Uber in Latin America. *Bloomberg*. Retrieved from <https://www.bloomberg.com/news/articles/2018-01-03/didi-buys-99-taxis-igniting-fight-with-uber-in-latin-america>

³² Chapter 3. Attitudes toward China. (2013, Jul 18). *Global Attitudes & Trends*. Retrieved from <http://www.pewglobal.org/2013/07/18/chapter-3-attitudes-toward-china/>

3.2.1 FinTech in Brazil has been developing at a remarkable speed with notoriously high transaction volume and value

Brazil started embracing FinTech since 2016 and achieved notorious accomplishment in the same year with creation of hundreds of new businesses and organizations. By 2017, Brazil ranked 4th in terms of FinTech usage, after China, India and UK, with 40% of its internet users using digital financial services. Besides high volume of transaction, the value of the market is also tremendous. According to Statista, total transaction value in the "FinTech" market amounted to US\$35,799m in 2016, of which digital payment, alternative financing, alternative lending and personal financing took US\$ 35,655m, \$10.1m, 40.5m and 93.3m respectively. The total transaction value is expected to grow steadily in the future, with payment remaining as the dominant driving factor. A recent report from Goldman Sachs estimates that Brazilian FinTechs should generate a potential revenue pool of about \$24bn in the next 10 years.³³

3.2.2 Gradually opening-up regulation has contributed to a favorable environment for FinTech growth

The well-known conservative Brazilian Central Bank has recognized the advances in the use of new technology in different areas of the financial industry and has taken several steps in recent years to change the current situation and to stimulate competition in the market, in a way that allows products to be affordable, as increasing financial inclusion is also one of its main missions. Thus, it carried forward several robust actions. In 2010, the Brazilian Central Bank eliminated the exclusivity that Cielo and Rede had to operate the brands of Visa and Mastercard, respectively.³⁴ In 2011, it authorized banks to offer exclusively digital accounts to their clients, reducing costs and bureaucracy. In 2016, clients were authorized to open bank accounts remotely. These and other new legislations indicate the regulatory bodies' determination to boost innovation in the financial industry. More norms and researches around further opening up the market are also under discussion to better prepare itself to deal with supervision challenges coming with the transformation.³⁵

³³ Bruno Ramos. (2017, Jul). FinTech and payment methods in Brazil – challenges and opportunities. *Financier Worldwide*. Retrieved from <https://www.financierworldwide.com/FinTech-and-payment-methods-in-brazil-challenges-and-opportunities/#.WtJemJM-fOR>

³⁴ FinTechlab Report, Brazil 2017. www.ntechlab.com.br

³⁵ Bruno Ramos. (2017, Jul). FinTech and payment methods in Brazil – challenges and opportunities. *Financier Worldwide*. Retrieved from <https://www.financierworldwide.com/FinTech-and-payment-methods-in-brazil-challenges-and-opportunities/#.WtJemJM-fOR>

3.2.3 The incumbent banks are investing heavily in FinTech, however legacy problems have impeded their progress.

As introduced above, Brazil has one of the most developed and powerful banks, who are also investing heavily in the FinTech, unlike Chinese big banks swimming against the tide at the rise of FinTechs several years ago. For instance, Itaú launched FinTech accelerator to nurture FinTechs and further to benefit from their innovative outcomes. However, the legacy problems and current profit structure are impeding them from doing things effectively and efficiently. A lot of digital products provided by traditional banks are not user friendly. The banks have to build up a user-centric mindset, which they were not motivated to spend efforts on due to strong bargaining power in the market, to better serve the young generation. *Some of the most notable usability issues, among others, are difficulties in linking payment receipts with transactions, in choosing and comparing investment options and a lack of tools for the integrated tracking of personal finances. In the B2B (business-to-business) market the scenario is much the same, with small and medium sized businesses always having had problems concerning the offering of products, high prices as well as operational difficulties, such as financial agreement.*³⁶

The big banks still heavily rely on their broad network of branches in terms of revenue generation. It is nothing easy to convince stakeholders who have a vested interest in previous structure to cut the revenue generators, who will definitely lose their dominant position since the FinTech functions will undoubtedly take away their pieces of the cake, ranging from normal banking services and credit cards to lending and wealth management. Furthermore, traditional powers are also setting up obstacles to new comers, such as increasing bureaucracy when the new service providers need to close their product circle connecting to the clearance system.

3.2.4 A loose ecosystem and the current fragmented landscape do not allow any player to make the most out of innovation.

By 2017, more than 200 FinTechs registered in Brazil and more could be expected in near future. However, they are very fragmented and thus could not enjoy the economics of scale and synergy from an organic ecosystem. Taking the payment chunk, contributing the most to the current transaction volume and value, as an example, more than 80 companies are competing in this sector, without a dominant player. This structure caused many problems to the FinTechs to achieve growth horizontally and vertically. Firstly, they can neither fasten the transaction process nor cut the transaction fee as they don't have the bargaining power when negotiating with big banks and E-commerce platforms, without enough traffic. Secondly, they are not

³⁶ FinTechlab Report, Brazil 2017. [www. ntechlab.com.br](http://www.ntechlab.com.br)

able to fund themselves for customer acquisition or extending to other more profitable services with little money in E-wallet pool. Thirdly, their data analytical capability is limited by small dataset to train their algorithm. Fourthly, they fail to attract more users given the above reasons.

In lending area, more accurate credit rating and cheaper capital are key factor for FinTech startups to win over the traditional institutions. One the side of data input and analysis, it is relatively integrated in B2B with 3 major players, TOTVS, SeMor and SAGE, who own 60-70 of the available data in the market; while 65-70% of the personal data is still concentrated in Serasa's system, which means FinTech data input players, mainly from payment sector, are adding limited value to optimizing personal credit system, and naturally the microloan FinTechs may not be able to provide superior loan products with notable lower fraud rate. And also, the value of cash payment and transfer activities could not be captured by the system, thus reliable and valuable clients might be undertaken. On the other side of capital input, availability of affordable loans is the main bottleneck for the whole value chain. Current microloan providers' nature of being an intermediary, without in-house capital pool, struggled a lot to find affordable loans from traditional financial institutions without scarifying too much equity.³⁷

Lack of an organic ecosystem, within which data, capital, analytical capability and talents are efficiently shared, could stop stakeholders from making the most out of the technological and business model innovation. A more interactive structure with strategic high-level design could benefit all players, especially the new businesses.

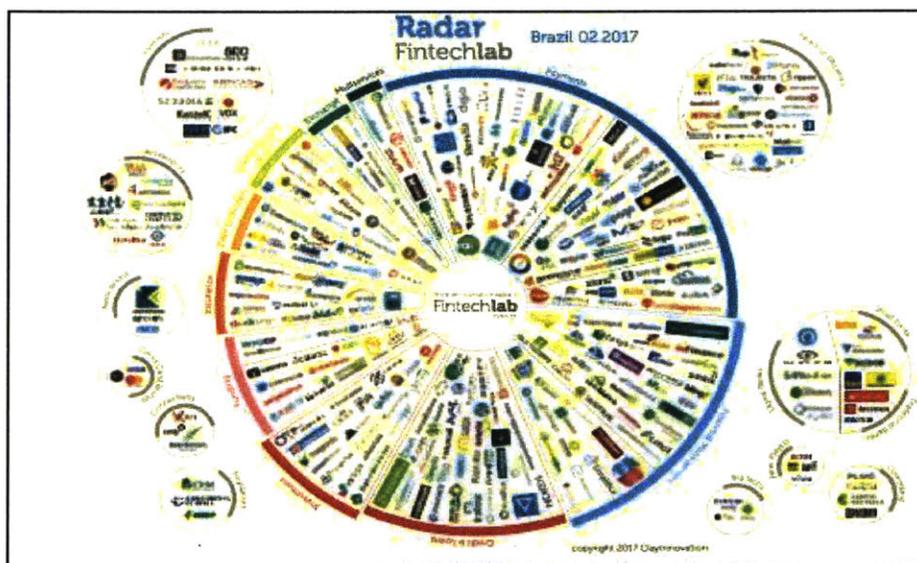


Figure 7: Brazil FinTech ecosystem. Source: Fintechlab.

³⁷ Interview with the founder of ADIANTA

3.3 Alipay faces numerous challenges and risks entering the biggest market in Latin America

3.3.1 Given political and economic uncertainty, predictability might only come after the big election

Although Brazil's recession appeared to recover since last year. It still faces a lot of political and economic challenges. Brazil suffered deep recession since 2013, with GDP growth dropped from 3% in 2013, to -3.7% in 2015, according to World Bank Data. The recession was triggered by economic factors, such as falling commodity prices, and was exacerbated by political crisis. IMF expected Brazil's GDP growth to return positive in 2017 and 2018. However, financial distress, high inflation level, and political uncertainty pose more risks to further reform and recovery.³⁸ A key water-shed would be the coming general election, scheduled to be held in October 2018. Given complex governmental landscape and current political situation, partnering with a strong local player, who has deep government relationship and network, has been more than suggested by several interviewees.

3.3.2 High credit level and delinquency rate increase systematic risk

Different from when Alipay set off in China with a low credit card penetration, Brazil now has relatively high credit level and default rate, which might increase the potential systematic risk. Pay-later card penetration in Brazil measured 83.5% in 2016, higher than most of its peers in Latin: Argentina 87.0%, Chile 74.4%, Colombia 30.4% and Mexico 25.1%. The increasing lower- and middle-class populations have fueled the growing trend.³⁹ At the same time, there are records of relatively high delinquency rate and non-performing loan rate of Brazil. According to IMF analysis, Brazilian banks suffer more lost given default. Risk control against lending to small and micro business and consumer delinquency should be one of the main concerns if Alipay would like to enter the market. It could be extremely challenging to achieve its domestic less-than-1% default rate in Brazil.

³⁸ IMF Executive Board Concludes 2017 Article IV Consultation with Brazil. (2017, Jul 13). Retrieved from <https://www.imf.org/en/News/Articles/2017/07/13/pr17279-imf-executive-board-concludes-2017-article-iv-consultation-with-brazil>

³⁹ The Cards and Payments Industry in Brazil: Emerging trends and opportunities to 2020. (2017, Aug). Retrieved from <https://www.prnewswire.com/news-releases/the-cards-and-payments-industry-in-brazil-emerging-trends-and-opportunities-to-2020-300504207.html>

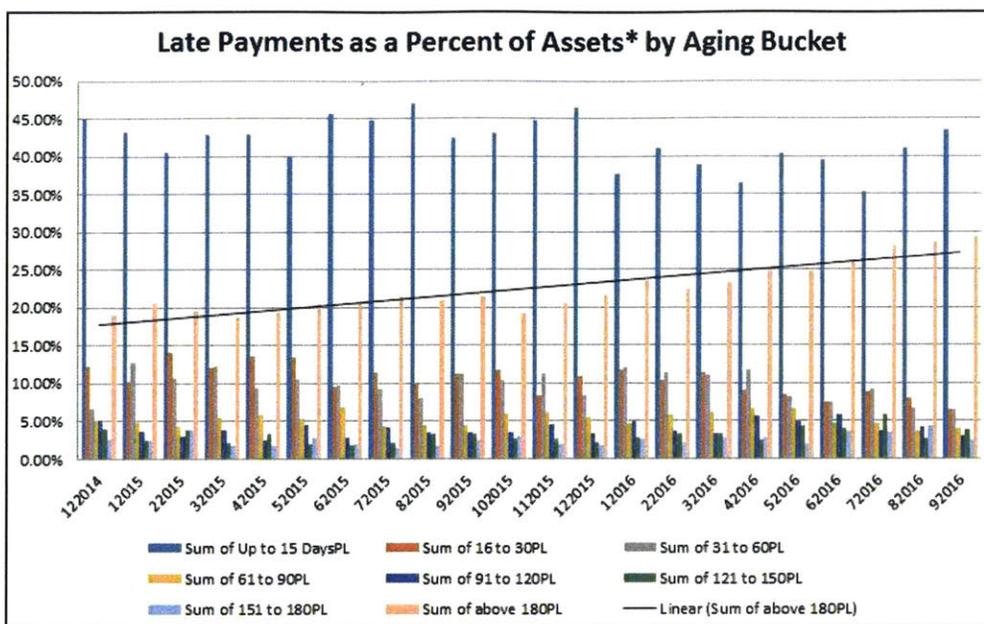


Figure 8: Late payment as a percent of assets by aging bucket. Source: Serasa Esperian.

The bar graph shows the percentages based on total risk-adjusted assets (delinquent loans in the bucket divided by total assets). Lenders put non-paying creditors through an aging process. Central Bank of Brazil (BCB) classifies loans greater than over-due 180 days as worthless. We can see that the total value of the loans in the “greater than 180 days” bucket was growing and hit 29% in September 2016.⁴⁰

3.3.3 Policy inconsistencies restrain a sustainable scaling up

As in most countries, FinTech related regulation is far away from mature. If we simply put FinTech companies into traditional financial regulatory category, it could be too expensive and complex for them to acquire all the licenses that most of them could not afford. Introduced as favorable condition for FinTech growth, the Central Bank’s collaborative attitudes and approaches towards the nascent market sometimes shows worrisome inconsistencies.⁴¹ What’s more, the rise of safety problems and default scandals, have been followed by tightened and more prudential supervision in other markets, such as in China and UK. This trend might pose pressure to Brazil’s financial regulatory bodies to impose monitoring in a relatively earlier stage of the new market’s development, leaving the pioneers less space to navigate compared to their counterparts in the same stage. Policies for foreign investment entering in financial sector could be even more complex and stricter.

⁴⁰ Vernon H. Budinger. (2016, Dec). Analysis: The worst is past for brazil’s credit cycle. Retrieved from <http://www.bondsloans.com/news/article/1133/analysis-the-worst-is-past-for-brazils-credit>

⁴¹ Bruno Ramos. (2017, Jul). FinTech and payment methods in Brazil – challenges and opportunities. Financier Worldwide. Retrieved from <https://www.financierworldwide.com/FinTech-and-payment-methods-in-brazil-challenges-and-opportunities/#.WtJemJM-fOR>

3.3.4 As a newcomer, Alipay could face competition from both local players and global tech giants

When Alibaba launched Alipay in 2003, China's big banks had to wait for another 2 years to start their initial public offering, regardless of development of digital financial services. This timing allowed Alipay to grow without too much competition, and it got to scale up accelerated. However, predictively, neither the top banks nor the FinTech startups will watch by when a stranger comes into town, potentially taking away their piece of cake and they have the capability, and advantages as local players, to say no. Big banks could set up obstacles in terms of transaction fee and clearance time, while first-mover advantages have already been taken by the local disruptors.

Speaking of competition with global tech giants, Google Pay and Apple Pay took a step ahead of Alipay to launch their payment services consecutively this spring, partnering with Banco Bradesco SA and Itaú, respectively.⁴²

3.3.5 Alipay faces the dilemma of whether to choose strong banks or open-minded disruptors as their strategic partners.

Given current highly concentrated banking system, Alipay could find itself in big troubles if they would like to ignore the top 5 banks as how it started in China. Thus cooperating with one of them or all of them becomes a natural question for the next step. However, big players are usually inclined to have exclusive partnership rather than to share data and valuable information on an open platform, which is the key concept of an ecosystem. Without openness, synergy could not be created and captured. Then how about cooperate with innovative disruptors? They are willing to share, but might not be capable of solving mentioned problems such as navigating in a complex system and dealing with regulatory bodies. Alipay has to find an exit for this dilemma, successfully tackling the controversial interests of embracing openness and gaining strong support.

3.3.6 Alipay could be struggling with issues ranging from lack of appropriate infrastructure, qualified manpower and access to datasets, to export its AI capabilities to Brazil.

Although Brazil embraces Artificial Intelligence in general, it is not well prepared to undertake the technologies and solutions from Alibaba group. First of all, this country does not offer enough funding for research and development, which accounted for 1.1676% of total GDP in 2014, especially for revolutionary

⁴² Aluisio Alves. (2018, Apr 4). Apple Pay arrives in Brazil, partnering with Itaú Unibanco. *Reuters*. Retrieved from <https://www.reuters.com/article/us-apple-Itaú-unibco-hldg/apple-pay-arrives-in-brazil-partnering-with-ita-unibanco-idUSKCN1HB189>

areas.⁴³ Furthermore, it could be extremely difficult to find enough local qualified engineers. To transport talents from headquarter to Brazil is neither realistic, since it could be too expensive to pass through all the barriers ranging from language, high compensation, local labor resistance, working visa issue, etc. Last but not least, Alipay could not get easy access to data from either banking system or non-traditional data generators. Big banks and the credit bureau own the majority of available data and have little motivation to share. Most of Alipay's algorithms got trained in Alibaba's marketplace first, and incorporate a lot of behavior data into the creditworthiness calculation, which datasets its Brazilian counterpart faces way more restraints to use.

In summary, Brazil is an attractive destination to build Alipay's ecosystem, since 1) the concentrated banking system's extremely large margin is not sustainable, 2) more availability of low-cost credit options is needed especially for individual consumers and small and micro businesses, 3) potential needs of a large portion of the population excluded by formal financial system could be translated into the extended market, 4) FinTech in Brazil has developed exponentially with favorable policies, and 5) current fragmentation has been impeding the local FinTech market from making the most out of innovative technologies and business models. However, if Alipay considers entering the market, there are many risks and challenges that have to be accessed and tackled with, including macro-political and economic uncertainties, policy inconsistency, relatively high credit delinquency risk, limited access to data and competition with local players as well as global rivals.

4. Recommendations

After analyzing all the opportunities and challenges, Alipay should follow a strategy of becoming a synergy creator and an enabler to maximize its competitive advantage and to avoid drawing too much hostile attention. To be more specific, it should build wide partnership with diversified stakeholders, collect data from non-traditional financial system, target unwanted customers of the big banks at the first stage, enable the traditional financial institutions to increase their business and help disruptors to scale up.

⁴³ Brazil - Research and development expenditure (% of GDP). (2015). Retrieved from <https://tradingeconomics.com/brazil/research-and-development-expenditure-percent-of-gdp-wb-data.html>

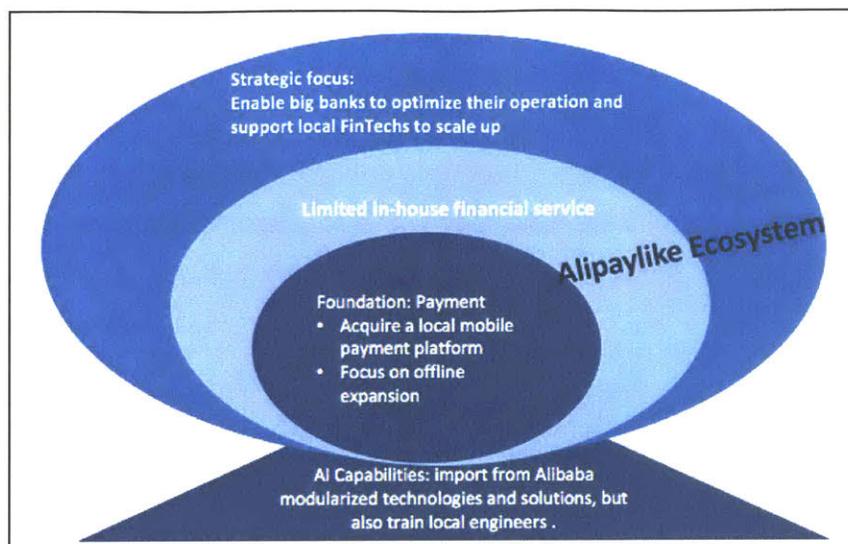


Figure 9: Strategy of building Alipay ecosystem in Brazil.

4.1 Acquire the dominant E-commerce player, MercadoLibre (MELI) and develop its payment arm Pago to lay the foundation for the ecosystem

Alipay started as the payment department of TaoBao, Alibaba’s E-commerce platform. E-commerce is one of the most natural scenarios for digital wallet and mobile payment, and also the main data source for the whole system. MELI is the dominant player in this market with its 2017 revenue in Brazil amounting to USD 20 billion. Similar to an early version of TaoBao, MELI has built up a primary ecosystem composed of marketplace, payment, shops, advertising and logistics. By acquiring MELI, Alibaba could take advantage of this incumbent ecosystem and further enrich it with its diverse analytical and operation capabilities. Alibaba has just closed its acquisition of Southeast Asian e-commerce firm Lazada Group, with total investment of USD \$4 billion.⁴⁴ Experience and lessons learnt from these deals make Alibaba more mature in processing similar deals in Brazil. Since MELI is also a leading player in Latin America, Alibaba could further expand to other countries in this region if its experiments in Brazil work well.

As it could be extremely complicated for a foreign entity to pass through the whole process to gain necessary licenses in order to offer full array of payment services, in some cases a presidential decree is required in Brazil⁴⁵, Alipay should follow its strategy in other markets to lay this payment foundation by acquiring a local licensed platform. In this case, Pago, the payment arm of MELI, could be a proper candidate to

⁴⁴ Cate Cadell, Aradhana Aravindan. (2018, Mar 18). Alibaba doubles Lazada investment to \$4 billion in aggressive Southeast Asian expansion. *Reuters*. Retrieved from <https://www.reuters.com/article/us-alibaba-lazada-funding/alibaba-doubles-lazada-investment-to-4-billion-in-aggressive-southeast-asian-expansion-idUSKBN1GV09W>

⁴⁵ Highlights on licensing procedures for foreigners. *Banco Central do Brasil*. Retrieved from https://www.bcb.gov.br/ingles/SFN/archive/Highlights_on_licensing_procedures_for_foreigners.pdf

replicate and localize some of Alipay's practices aiming to build up cashless cities. As an efficient and effective method to reach untapped users, proven successful in China and India, the first suggestion for PAGO would be to concentrate the fire to acquire small and micro offline shops and apply the cheap and easy QR code payment. Subsidies in early stage, customer education and sales channels (such as gas stations and grocery stores) are decisive factors in scaling up.

4.2 Ally with Banco Santander Brasil

Although setting up exclusive relationship with big banks is against the ecosystem spirit, it is inevitable to partner up with top banks for clearance and government relationship. Once bundled with a big local player, Alipay could save itself from trouble of dealing with Brazil's complex political environment. Itaú and Banco Bradesco SA have just launched cooperation with Apple Pay and Google Pay, respectively. Banco do Brasil and Caixa Economica Federal are controlled by the Brazilian government, meaning partnership with these two could attract more attention from the regulatory bodies. Thus, Banco Santander Brasil naturally becomes the best candidate. Besides, Santander Group, the parent conglomerate of Banco Santander Brasil, is an international player, making it easier for Alipay to further cooperate in international money transfer, withdrawal and currency exchange. Furthermore, Santander holds a relatively open attitude towards the wave of disruptive innovations, having established its own FinTech venture capital fund named Santander InnoVenture.

4.3 Enable the incumbent financial institutions to make the cake bigger

Instead of taking away the pieces of cake from the incumbent big players, Ant Financial could help them make the cake bigger and cut their own cake consumption. To enlarge the cake means to acquire more valuable clients and to provide more diversified services. As analyzed above, big banks failed to identify relatively more reliable clients in the gray area of the current credit system. Equipped with better trained algorithms built upon additional non-traditional operation data and unstructured behavior data, these big banks could get back some of these clients from the blacklist, without breaking their prudential principle. To cut cake consumption could be interpreted as to improve operation efficiency. Banks could improve their credit card and debt approval efficiency and risk control with the complementary assessment done by Ant's strong cloud computing capability. The positive impacts could be even more robust if backed by cooperation between Sesame Credit and Serasa Experian, because the latter could enhance its current credit rating system by incorporating more data value generated from non-traditional data and covering larger population base.

4.4 Partner with data generator channels to bring large user traffic and to exchange data value

Similar to its channel strategy in Chinese market, Alipay should partner with the large user base platforms in order to acquire new customers and also to exchange data value which could enrich services for both sides. Two common such platforms are Transportation and food apps which are ideal scenarios for mobile payment. Within these categories, 99 Taxi and iFood are recommended accordingly. China's ride-hailing giant Didi bought 99 Taxi earlier this year, with Ant Financial being strategic investor of the acquirer, which might facilitate their cooperation in the remote market.

4.5 Integrate local FinTech disruptors and help them scale up

As the local FinTech market is already booming but facing challenges to scale up due to the fragmented landscape, Alipay's efforts to create synergy by building an ecosystem could benefit both Alibaba and the market. Ant should integrate these resources on its platform by creating a marketplace, or even invest in some of the leading players to plug into its own system. For instance, it should invest in Nubank, a digital credit card provider and the first FinTech unicorn in Brazil. Nubank could be plugged into Pago to provide consumers credit option while shopping via MELI, just as the role of HuaBei in Alipay's in-house platform. As Nubank checks for creditworthiness online using its own algorithms⁴⁶, Alipay could help Nubank to optimize its algorithms and scale up by acquiring more clients from the ecommerce platform, and Nubank could provide the data value of creditworthiness to the platform's credit system.

4.6 Empower the government to better manage its anti-poverty program

It could be too ambitious for Alipay to start cooperating with the Brazilian government with comprehensive projects such as Smart City, which requires Ant to be integrated into the whole civil system, getting access to too much sensitive data that a foreign player should not have, but it does not mean that Ant should stand far away. One of the Brazilian government's main headaches lies in reducing poverty. Bolsa Familia Program is one of the star programs that provides conditional cash transfer to poor Brazilian families and set some priorities of how to use the money subsidized.⁴⁷ Ant could cooperate with Caixa Econômica Federal, current infrastructure to transfer the funds, by enabling it to better monitor the money flow, and incentivizing the receivers to record the payments and manage their account.

⁴⁶ Joe Leahy. (2017, Aug 22). FinTechs target Brazilian banks' fat margins, Financial Times. *Financial Times*. Retrieved from <https://www.ft.com/content/78058d7c-7c90-11e7-9108-edda0bc928>

⁴⁷ Maceio. (2008, Feb 7). Happy families. *The Economist*. Retrieved from <https://www.economist.com/node/10650663>

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