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Nurturing a FinTech ecosystem: The case of a youth microloan startup in China

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ABSTRACT

Financial technology, or FinTech, involves the design and delivery of financial products and services through technology. It impacts financial institutions, regulators, customers, and merchants across a wide range of industries. Pervasive digital technologies are challenging the fundamentals of the highly regulated financial sector, leading to the emergence of non-traditional payment systems, peer-to-peer money exchanges and increased turbulence in currency markets. This case study explores the development of a FinTech company in China that offers microloans to college students. Five lessons learned are presented for organizations to better manage the challenges and to leverage the opportunities amidst the disruption of financial sector. Our findings also shed light on how digital technology 1) offers the strategic capability for a firm to occupy a market niche in financial sector, 2) enables the generation of alternative credit scores based on non-traditional data, and 3) improves the financial inclusion of previously excluded market segments.

1. Introduction

With the inexorable march of technological advances and digital transformation, we are now witnessing rampant disruptions in highly regulated sectors such as banking and finance, especially with the development of FinTech, a broad umbrella term that describes disruptive technologies in the financial services sector. Globally, investments in FinTech have grown exponentially from $1.8 billion in 2010 to $19 billion in 2015 (Citi Group, 2016). It is regarded as a form of alternative finance, and its progression is precipitated by a few trends. First, trust and confidence in incumbent service providers have waned since the 2008 financial crisis and the occurrence of a number of high-profile financial scandals has led to a growing appetite in the market for an alternative finance (Gelis, 2016). Second, innovations in new financial products and services (e.g., digital wallet) offer better convenience, efficiency, and inclusion at a lower cost, thus eroding the reliance on traditional establishments. Third, FinTech is largely propelled by the convergence of multiple advances in technology: the availability and affordability of infrastructure (e.g., Internet, mobile technology, sensors), the maturing technological applications (e.g., platform, big data analysis), and business operations (e.g., sharing economy), among others.

In this case study, we examine the emergent microloan service in FinTech and how the various changes in financial systems play out. According to a report by KPMG and H2 Ventures (2015), lending is one of the four key financial services affected by FinTech, along with payment and transactions, wealth, and insurance. Although the notion of microloans is not novel (e.g., the borrowing and lending of money especially in small amounts have occurred between family and friends for centuries), it happens primarily through informal channels because the costs of serving this customer segment would be relatively too expensive considering the small amounts of money involved. Nonetheless, companies are now

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able to offer small loan services as technology reduces the transaction costs.

Our paper will present the case of **007fenqi**, a FinTech start-up in China that offers microloans to college students. This paper is organized as follows: a brief literature and the details of the research method will first be provided, followed by our case analysis. Next, the key lessons learned from the case will be presented before a discussion of the implications in the concluding section of this paper.

2. Outline literature review

FinTech is an emerging phenomenon. Some of the FinTech phenomena that are well-studied in the Information Systems (IS) area include mobile payment like M-Pesa in Kenya (e.g., Foster and Heeks, 2013), crowdfunding (e.g., Burtch, Ghose, & Wattal, 2013), and online peer-to-peer lending (e.g., Burtch, Ghose, & Wattal, 2014). However, most of the studies are centered on conventional issues investigated in IS research such as technology adoption. For example, Kim, Shin & Lee (2009) studied the factors that influence the formation of trust in mobile banking which in turn affects the intention to use the service. Moreover, most studies are variance-based. Although they offer useful empirical corroboration for predicted user behaviors, they are less appropriate for revealing the dynamics of the development process. For instance, using data from a California-based crowd-funded platform, Burtch et al. (2013) has developed an antecedents and consequences model of the contribution process in a crowdfunding market. In a number of recent studies, researchers have thus far examined how financial incumbents should react to innovative applications of technology. In De Reuver, Verschuur, Nikayin, Cerpa, & Bouwman (2015) for instance, a case study is conducted to document the collective action between banks and telecom operators in order to compete in the mobile payment segment.

Our literature review shows that few studies have examined the strategies or the development of a FinTech company. Findings from such studies are critical to offer managerial guiding principles for FinTech firms. This study therefore, aims to fill this gap by theorizing on the digital strategies and strategic developmental process of disruptors through an in-depth case study.

3. Case method

To examine the contemporary phenomenon of FinTech, a qualitative case study research methodology is adopted (Pan and Tan, 2011; Walsham, 1995). 007fenqi in China is a suitable case organization for a few reasons: 1) FinTech is increasingly important in China where a relatively underdeveloped incumbent consumer banking system and accommodative regulations exist (Citi Group, 2016), 2) 007fenqi's business is focused on lending, one of the four key financial service segments where the top 100 leading and most intriguing FinTech companies are operating in (KPMG and H2 Ventures, 2015), 3) despite its late entry to the market, 007fenqi has become one of the top five lending platforms for college students in China, thus representing a revelatory case for the phenomenon of our interest (Mason, 2002), and 4) it employs a platform strategy by combining e-commerce with microloan services that is distinct from most financial platforms in China (Li and Dong, 2013), thus allowing us to uncover potentially interesting insights about its ecosystem.

The data was collected primarily through in-depth semi-structured interviews and corroborated by our observation notes and secondary data. Case access was negotiated through the company's CEO, which granted us an immediate "legitimacy and credibility" (Patton, 1990 p. 254). Since our aim is to understand FinTech in the case organization via concept discovery and to extrapolate outcomes in the form of lessons learned, the interviewees were identified in conjunction with the CEO. Table 1 presents the sources of data.

4. Case analysis

In May 2015, 007fenqi was founded by a group of young entrepreneurs in Zhejiang, China. Riding the FinTech wave, the young startup provides microloan and installment-based retailing services exclusively for college students in China. It allows uncollateralized loans for students, who tend to have little or no credit history, such that they are able to access an alternative financing option. Although traditional financial institutions are not able to offer the same services to this customer segment, primarily due to a lack of data for appropriate risk assessment, the students' demand for microloans is significant because: 1) many of these students come from rural areas of China and/or families with limited wealth, and hence require financial support; 2) the culture of consumerism has picked up in contemporary China, and the student sector is no exception, viewing big ticket items such as laptops and mobile phone as not luxuries, but necessities.

007fenqi was not the first or only FinTech startup that offered such services to whom they identified as a lower-risk class. Yet, despite its late entry, 007fenqi is today one of the top five players in the student microloans segment with about 300,000 registered users. Its user base continues to grow at a phenomenal rate with nearly 2000 new applications a day. Within five months since the launch of its app in September 2015, 007fenqi was ranked among the top five in 2015 AppBase Internet Finance. By submitting loan applications through the 007fenqi app, customers can either make purchases on 007fenqi's self-operated e-commerce site (paying in installments), or receive a loan of up to RMB$3000 (USD$450) in their bank or Alipay account (China's leading third-party online payment platform of Alibaba Group) within the same day, and then repay that loan over a period of 12 months or lesser.

A distinctive aspect of 007fenqi's development lies in its ecosystem strategy. Centered on the needs of their target segment, 007fenqi offers services in four key areas that correspond to the typical financial lifecycle of a college student, which were to spend, loan, earn, and invest. Fig. 1 illustrates the ecosystem of 007fenqi. Unlike many other student loan platforms that depend on other e-commerce retailers (such as JD.com), 007fenqi decided to operate as an online retailer on its own (**spend**). From electronic products at its inception, 007fenqi's product offerings have expanded quickly to cover fashion accessories, outdoor gear, face and body care products, apparel and shoes, training courses, mobile phone repairs and even aesthetic procedures.

In late 2015, barely six months after the inception of 007fenqi, a heated discussion arose within the industry about the higher risk of defaults among students. To overcome this challenge, 007fenqi worked with major part-time job portal (i.e. qtshe.com), hoteliers, as well as food and beverage operators. A list of job opportunities was provided on the 007fenqi app, offering assistance for their customers in finding part-time employment or internship opportunities so that they can **earn** an income and make their repayments on time. In April 2016, the company also launched Tongtongli, another app that allows the students to make microfinance **investments**.[1] "This feature is designed to deepen our engagement with customers that have a good credit record with us. These students will one day graduate from school and they can use the investment feature to manage their money better,"

[1] Though part of the 007fenqi ecosystem, Tongtongli is not restricted to the customer group of students. The service is open to public.

Table 1
Data sources.

Data Sources	Description	
Interview	16 interviewees Chief Executive Officer (CEO) Chief Technology Officer (CTO) Chief Architect Operations Director Chief Risk Officer Risk Control Director Human Resource Director Purchasing Manager Channel Project Manager Mobile Phone Project Leader Technical Design UI Designer Operational Staff Mobile Frontend Architect Underwriter Underwriter	
Observation	● Participant observation of the three key apps – 007fenqi (user), 007fenqi (merchant), Tongtongli (finance management) ● Participant observation of the credit assessment workflow ● Participant observation of the credit analysis and reporting workflow	
Secondary data	Company archives • Template of big data • Internal team building video • Statement of Organizational Culture	Media material • News related to 007fenqi: 13 • News related to student loan market in China: 8 • News related to 007fenqi's competitors: 15

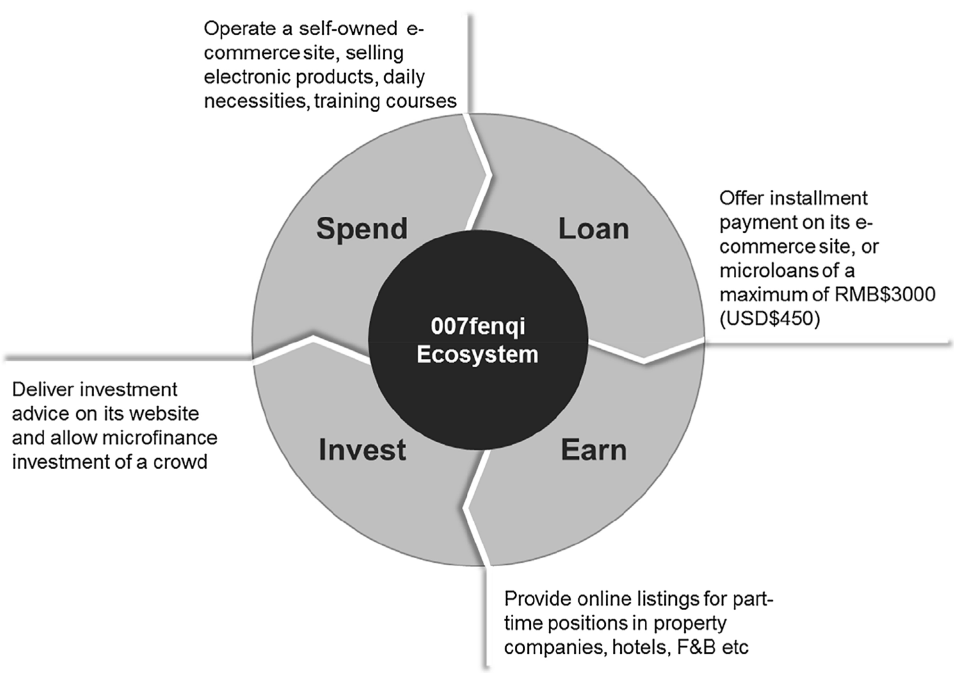

Fig. 1. Ecosystem of 007fenqi. The ecosystem is designed based on the typical financial lifecycle of a college student, which is to spend, loan, earn, and invest.

explained the Operations Director. Up to end July 2016, more than RMB$21.7 million (USD$3.2million) have been invested through the Tongtongli platform.

5. Discussion and lessons learned

One of the key challenges of achieving innovation in such highly regulated sector is a good understanding of and compliance to the regulatory requirements when designing products. In a report released by World Economic Forum in 2015, it is acknowledged that many emerging platforms are operating in a "grey area", with marketplace lending legislation not yet in place (Ventura et al., 2015). In hindsight, such an unregulated environment, although not intentionally engineered, have presented an opportunity for the growth of innovative financial services and FinTech firms (Citi Group, 2016). Apart from the more accommodative regulatory environment in China at present (Citi Group, 2016), the well-developed e-commerce industry in China and relatively tech savvy customers in the cities form a favorable market condition for the proliferation of technology companies in the financial sector. In fact, Chinese e-commerce giants Alibaba and Tencent have ventured into FinTech as early as in 2004 and their Alipay and WeChat services are dominating China's mobile payment market with a user base of 800 million today.

Against this backdrop, 007fenqi identified college students as its targeted customers as they are currently excluded from most financial services. Although students have no income, most of them receive an allowance or stipend from either family or their colleges, which makes them a low risk category considering that the loan amount offered by 007fenqi was to be capped at RMB$3000 (USD$450). Moreover, 007fenqi positioned itself as an e-commerce retailer "mashed" with microloan capabilities to navigate the policy uncertainties in the FinTech area. The Chief Risk Officer of 007fenqi explained:

> "Instead of purely being a loan provider, we want to develop an e-commerce offering as well. Our business model that combines e-commerce with microloans has helped to avoid a number of policy constraints."

To actualize its market positioning, 007fenqi ensured that it acquired financial knowledge, especially in credit analysis and risk assessment. Other than the 20-person technical team where many had previously worked for tech giants such as Alibaba, Netease, and Sohu, the next largest department of the company consisted of 15 staff with a financial background in banks or credit card companies. 007fenqi ensured that their financial products fell under the compliance of regulations. For instance, the CEO emphasized that their annual interest rate is deliberately held below the threshold sanctioned by financial regulators.

Operating in a (currently) loosely regulated segment, the company took a flexible approach to launching its products and services in order to leverage the space afforded by the regulatory environment. For instance, the IT team adopted agile development methods, and initially utilized HTML5 to develop the app to reduce the development time. Within a year, the company has launched four apps and trialed many other services including recent initiatives offering mobile phone repair services and minor aesthetic procedures as new products on their e-commerce site. For each new product, they would decide if a new product/service was viable within a short span of three months. The company was also adamant in ensuring a rigorous credit assessment process. This was important in selecting and retaining quality customers. Hence, a proprietary credit assessment system was developed by the in-house development team. This also helped to ensure the privacy of the customers, a key concern especially when monetary issues are involved.

5.1. Navigating the business with a digital hybrid model

While there are tremendous opportunities for FinTech startups aiming to disrupt the financial industry, substantial risks remain. Although many of the current financial rules and policies were established before the Internet era, companies offering new financial services have to ensure that their model, operations, and products do not contravene legal requirements. As mentioned in previous section, regulatory uncertainty in this emerging area is a key concern of the disruptors as it may threaten the advantage, or even the survival, of a FinTech startup in the near future. Notwithstanding, FinTech companies are also dealing with intense competition from both other startups and incumbents who are transforming their service offerings. It is therefore exceptionally important for a FinTech startup to manage the risks and threats in order to ensure its sustainability in the long run.

Prior to 007fenqi's inception in May 2015, there were already a number of platforms offering loan services to college students including startups such as WeLab (Wolaidai), moneyplat, Qufenqi, Fenqile, and Aixuedai, and e-commerce giants like JD.com. At its peak, there were more than 100 such companies targeting the college student sector. The Chief Technology Officer of 007fenqi described the situation at the time:

> "We started as an e-commerce company selling mobile phones. Now, we position ourselves as an e-commerce company that offers financial services. We combine e-commerce and finance."

In rivaling the competitors, 007fenqi offered not only microloans to college students, but also an installment payment option if they made a purchase on the 007fenqi e-commerce site. Unlike some competitors who depended on other online retailers, 007fenqi owned and managed its own e-commerce site within a dedicated department. According to the Purchasing Manager of E-commerce, apart from working with different suppliers in introducing a wide variety of products on their e-commerce site such as fashion accessories, outdoor gear, face and body care products, apparel and shoes, as well as training courses, 007fenqi enhanced its product range and thus customer experience, by working with Wal-Mart. Students are now able to purchase more than 1000 items directly from Wal-Mart on 007fenqi's e-commerce site.

> "We aim to work with maybe thousands, or ten of thousands of merchants in future. Hence, the company has launched an app for merchants in July 2016, called the 007fenqi Merchant," said the Purchasing Manager of 007fenqi.

Instead of purely acting on the opportunity to offer microloans to college students like most of its competitors, 007fenqi's hybrid strategy of combining both product (e-commerce) and service offerings (installment payment and loan) on a single platform is an example of how risk can be mitigated when innovative financial services are being offered. With a foothold in e-commerce, which is a strength of 007fenqi as a tech firm, we argue that the team can better afford to explore new financial services in its targeted market for a number of reasons. First, compared to a pure loan provider, 007fenqi has a better understanding of its customers based on their purchasing history on its e-commerce site. This not only allows the firm to identify customer needs and spending trends, but it also generates data for assessing the "quality" of a customer, using indicators such as purchasing behavior and payment history. Second, having e-commerce as another primary draw of the business means an additional source of revenue. The profits made from selling products can serve as a backup to that of its financial services. Third, the hybrid model could buffer the risk of a FinTech company in view of the regulatory uncertainties within its environment.

5.2. Mounting analytical capabilities on risk assessment

Another critical challenge of FinTech firms in serving a customer segment with limited access to credit facilities at financial institutions is the unavailability of financial data based on traditional measures of credit risk. College students have limited credit or debt histories that allow the lenders to assess their credit risk. They also usually do not own property or assets that can be used as collateral in the event of default, and no formal employment records to demonstrate their ability to repay the loan. However, it does not mean that this segment has zero credit worthiness. Increasingly, non-financial data such as utilities and telecommunications bill payment histories are used as alternative sources of information for credit assessment. An example is Destacame, an alternative credit scoring platform in Latin America that has helped to improve financial inclusion (BBVA Research, 2015).

Consequently, 007fenqi developed a proprietary credit assessment system. With its staff's expertise and experience in bank underwriting, the company adopted and improved on the established process of credit card issuance. The Risk Control Director of 007fenqi explained:

> "Our credit assessment system is more comprehensive than traditional banks and credit grantors, as well as our competitors. The traditional bank system is a relatively closed system and they can't work with big data companies, whereas most of our competitors worked with at least one or two big data companies. We are now working with six big data providers."

The proprietary system of 007fenqi was connected with multiple external data providers including:

- CHSI: the China government-designated institution that provides student record verification service
- Sesame Credit: Alibaba's financial arm that provides user data-based credit scoring calculated based on the payment histories, behavioral patterns, repayment ability, identity, and social network
- Tongdun: a big data firm that provides anti-fraud risk control services and data such as whether the users have made loan applications at multiple online platforms
- Shanghai Credit Information and Allwin Credit: the microfinance credit information sharing platform that provides data such as the number of current and previous loans, rejected application, etc.

In addition to the data, some big data companies provided services such as facial recognition, which helped 007fenqi to authenticate the identity of the applicants based on a comparison of their submitted photos and ID photo. Location-based information was also used in verification – based on the customer's call and messaging history, an automated system would filter applicants with dubious records, for instance, a customer with no call history or a call history that were made up of fake phone numbers. In addition, the system would also reject multiple applications that were submitted through different accounts but through a single, identifiable device. Another distinctive feature of the credit assessment system was the social network-based "guarantor". For instance, if the applicant has a friend who has already made a loan repayment to 007fenqi, it could serve as an indicator of the applicant's credit worthiness.

There are as many as 500 data points that are analyzed in assessing a potential borrower. As a technology-driven company, 007fenqi was positioned more favorably in the market compared to traditional institutions since it was better able to make use of these alternative sources of data, and capable of leveraging technology in making sense of the data.

5.3. *Sustaining business growth with an ecosystem approach*

As a disruptor to the financial industry, the issue of stability and sustainability is often called into question. Regardless of the rigor of credit assessment, it is unrealistic to expect a zero default rate where all borrowers are able to repay their debts. In 2015, a student from Henan province, China committed suicide because of his inability to repay an accumulated debt of USD$91,000 as a result of his gambling addiction (Xinhua, 2016). It sparked a discussion then about the immaturity of college students in managing loans. In the longer run, it is also a concern that a firm operating in this segment will lose its customers once the students graduate, especially with new entrants joining this space at high speed.

As depicted in Fig. 1 and explained briefly in Section 3, there are four key and interdependent components within the financial lifecycle of college students, which are spend, loan, earn, and invest. While the spend (e-commerce) and loan services were key revenue-generating businesses for 007fenqi, the firm also incorporated the "earn" element. Not only did this create unique value for the customers, it also helped to mitigate the risks of defaults or late payments. As the Operations Director of 007fenqi explained:

> "One of thing that makes us different from our competitors is that we have a portal for part-time jobs and internships. Compared to other existing independent part-time job portals, our information is simple and there are no agents involved. We link the potential employers directly with the students who are interested in getting a job."

To extend the life of its customers, 007fenqi also launched the Tongtongli app, an investment platform in April 2016. Students or working professionals were encouraged to make an investment, which would in turn be loaned to other borrowers. In other words, 007fenqi was building a platform that facilitated P2P lending. This allowed the firm to expand its borrower base, as well as attract new customers to its investment platform. The Chief Architect of 007fenqi described its ecosystem strategy:

> "When the ecosystem is in place, we would be able to gather more comprehensive data about a customer, including information about his/her employment or income history, purchasing patterns, investment preferences, payment records, etc. With these data, we can design different products such as personalized financial advice, recommendations, or credit scoring,"

5.4. *Educating users through digital financial participation*

As FinTech evolves, younger populations are now given greater access to a wider variety of increasingly sophisticated financial products and services, some of which entail higher risks that may not be currently known to the market. Yet, the financial knowledge of the younger generation is usually lower compared with those of their parents, and OECD has noted that this mismatch can potentially result in new vulnerabilities among the youth in terms of the responsible use of credit (OECD, 2013). This issue is exacerbated in China as college students are usually active online consumers (Michael and Zhou, 2011), and most of them pursue college studies in other cities, removed from their parents who are crucial to the financial socialization process (Van Campenhout, 2015).

Financial literacy at young age is a catalyst for responsible and sensible financial behavior in the later stage of one's life. Being aware of this, 007fenqi was willing to trade off short-term profits in order to build a healthier ecosystem that would inculcate a sense of responsibility among its young customers. For instance, 007fenqi's approval rate for loan applications was only about 30%. The Chief Risk Officer of 007fenqi explained the rationale for its low approval rate:

> "Some of our competitors are eager to grab market share. They offer free money and interest-free loans to entice more borrowing from the students. We don't do that... In fact, the more stringent our credit assessment process is, the fewer customers my department (e-commerce) will get in the end. However, this should be the way. It is more important to ensure that only qualified customers are granted credit."

In addition, 007fenqi's credit score system was merit-based. For instance, they took into consideration the payment history of a recurrent applicant, whether the applicant has a friend with a good repayment record with the firm, and part-time employment history as indicators of credibility. To encourage the students to be accountable for their loans and even to make money, 007fenqi devoted a team to assist the students to access job opportunities.

The company's plan of turning the users' data into a record of credibility among students and young graduates was also reflected in their vision to inculcate financial responsibility among the youth. As the Operations Director of 007fenqi explained:

> "Once we have enough data about the users, we can generate a personal credit score. We can then work with others such as QingTuanShe (www.qtshe.com), a part-time job platform for students, to compile a resume for the student. It will consist of his or her employment history, credit record, payment history, etc. Hopefully, this will help them in job seeking and loan applications at the traditional banks in the future."

To summarize, throughout the case, the development strategy of 007fenqi as a FinTech startup can be clearly discerned. The development of the ecosystem-based business model that consists of not only lending services, but also the spending and earning channels, is both catering to customer needs by differentiating 007fenqi from its direct competitors, and opening up new revenue streams while lowering its operational risks. On the other hand, the emphasis on credit assessment over short-term profits is an evidence of 007fenqi's long-term planning, and a reflection of its vision in "educating the Chinese youth about the importance of financial responsibility." In both ends, technology presents itself as the tool and the means for the firm to not only survive, but thrive to date.

6. Conclusion

The highly regulated global financial sector is undergoing irrevocable changes due to the disruptive effect of digital technologies. Given the growing significance and wide-ranging implications of FinTech, there is a need to explore the strategic development of a FinTech firm from an IS perspective. This case study examines a youth microloan startup in China, with the aim of distilling lessons learned that will offer practical indications for organizations to better manage the challenges and leverage the opportunities amidst the present disruptions of the financial sector. Building on our findings, future research can focus on understanding 1) how a firm can occupy certain market niches in FinTech with digital capabilities such as e-commerce and big data analysis, 2) how digital traces of a consumer can form a non-traditional, alternative and substantive source of data in generating a credit score that might transform the classical definition of creditworthiness based solely on prior credit history, and thus opening up previously untapped segments of the market, and 3) how digital technology can improve financial inclusion as the previously financially excluded segments, including approximately two billion adults that are not qualified for bank loans (Demirguc-Kunt, Klapper, Singer, & Oudheusden, 2015), would enjoy greater access to financial facilities with FinTech.

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