OPPORTUNITIES AND CHALLENGES FOR FINTECH STARTUPS: THE CASE STUDY OF THAILAND

Article · May 2021

CITATION
1

READS
280

1 author:

Ploypailin Kijkasiwat
Khon Kaen University
13 PUBLICATIONS **22** CITATIONS

SEE PROFILE

OPPORTUNITIES AND CHALLENGES FOR FINTECH STARTUPS: THE CASE STUDY OF THAILAND

Ploypailin Kijkasiwat [*,1]

Abstract

In the industry 4.0 model, innovation and technology are adopted to revolutionize business models with a particular focus on repeatable and scalable business models. This study investigates the opportunities and challenges of FinTech startup firms using Thailand as a case study. A mixed-method approach is adopted using secondary data accessed from Thailand FinTech associations and primary data collected from in-depth interviews. Descriptive analysis and content analysis were used to achieve robust results. The empirical results show a snapshot of FinTech firms in Thailand, and how they generate both opportunities and challenges for development and growth. Findings indicate that these opportunities and challenges occur as a result of the national technology system and financial regulations, symbiotic relationships, and the inter-relationship through digital literacy, financial literacy, and financial inclusion. The study discusses each factor in detail and proposes suggestions for further studies. The findings could be used by policy makers and local authorities to make improvements, as well as minimize the potential risks for FinTech startup firms and contribute to sustainability in the economy as a whole.

Keywords: Opportunities, Challenges, Fintech, Startup

1. INTRODUCTION

In the 4.0 Financial Industry, innovation and technology play an important role in encouraging and supporting small businesses to grow faster. The development of technological tools such as block chain, bit coin, libra, and various financial platforms offer convenient choices with secure systems for individuals to access a variety of services and financial products (Gomber, Kauffman, Parker, &

[*,1]Dr. Ploypailin Kijkasiwat obtains a Ph.D. in Finance and Accounting from The University of Waikato, New Zealand. Currently she is working as a lecturer in The Faculty of Business Administration and Accountancy (Major in Finance), Khon Kaen University. Email: ploypailin@kku.ac.th

Weber, 2018; S. Lee, 2015). Such choices are beneficial to users in terms of addressing the concerns of distance, service fees, wasted time, and safety (P. Lee, 2015). Haddad and Hornuf (2019) found that the development of technology and innovation offers opportunities for startup firms to enlarge their market share. FinTech firms are "companies that are creating innovation for integrating distributed digital banking, mobile solutions and delivery platforms, micro-finance, payment solutions, peer-to-peer lending and crowd-funding" (Digital Finance Institute, 2015). FinTech focuses on technological innovations and technological development (Gomber, Koch, & Siering, 2017). In Southeast Asia, Thailand (19%) ranks second after Singapore (43%) in the number of FinTech firms (Vrara, 2017). It is interesting that Fintech venture capital investments are relatively more common in countries with weaker regulatory enforcement and without a major financial center (Cumming & Schwienbacher, 2018).

According to the Ministry of Industry, in 2017 in Thailand, 8000 startup firms were operating in the Agricultural (AgriTech), Health (HealthTech), Financial (Fintech), Manufacturing (IndustryTech), Travel (TravelTech), Lifestyle technology (LifestyleTech), E-commerce, Education (EdTech), and Property (PropertyTech) industries. Only 1,700 of these firms were registered with the National Innovation Agency (Public Organization). Among the 8000 startup firms, the highest number of startup businesses were operating in the Financial sector, and involved in lending and credit transactions, retail investment and personal finance, or payment and blockchain (Digital Finance Institute, 2015). According to Dorfleitner, Hornuf, Schmitt, & Weber (2017), failure occurs because FinTech firms have higher operating costs than their competitors. These firms pay greater attention to the development of financial functions rather than focusing on how to solve problems (pain points) for potential users. Additionally, the innovation and technology created are inappropriate, or difficult to use, particularly for individuals who have limited digital literacy. However, whatever the reasons, the failure of these startup firms affects the confidence of investors for investing in this private financial market, resulting in deficiency of financial capital. Consequently, it limits the growth of new Fintech businesses at the countrywide level.

In Thailand, FinTech firms operating in the Business tool/comparison/marketplace sector are those who provide accounting software or platforms and act as intermediaries between customers and users**.** The crowdfunding sector provides a fundraising platform and acts as a bridge between businesses and investors. The institutional infrastructure provides a system for brokers and investors to support efficiency in investment and financing. Insurance involves all types of insurance such as peer-to-

peer, spot, usage-driven, insurance contract management, and brokerage services, as well as claims and risk management services. Lending and credit facilities provide lending platforms for transactions, connect creditworthy borrowers, provide payment gateways, and match borrowers directly with lenders to offer them finance at a lower cost. Fintech operating in the payment sector provides new and innovative payment solutions, such as mobile payment systems, e-wallets, or crypto currencies (Haddad & Hornuf, 2019). Personal finance (asset management) offers services such as wealth management, personal financial management application, retirement planning, and retail investment. Remittance provides a money transfer system across the globe. Blockchain offers services to remove the middleman in financial services, provides a platform for cryptocurrency exchange, and builds a platform for cryptocurrency investment**.**

Currently there is a noteworthy increase in initiatives to support the growth of startup firms in Thailand. The Stock Exchange of Thailand (SET) is one of the major promoters of the development of startup firms by providing knowledge, sources, materials and even networks for individuals who are interested in investing in these firms, and those who prefer financial capital. A new track of promoting fundraising in private financial markets was started in 2017. The main duty of SET is to educate university lecturers as well as discuss how universities can act as supporters to both startup firms and investors who are interested in investment. Also, an increase in business incubators and accelerators indicates that many entities are paying attention to this development.

With the opportunity to access resources, enlarge market share and growth faster for startup firms in this advanced technological era, it is critical for entrepreneurs, investors, and other related entities to understand factors which support the sustainability of startup firms as well as the reasons underlying their failure. This paper investigates the opportunities and challenges of Fintech startup firms by analyzing secondary data and primary data collected from semi-structured interviews with startup founders.

2. LITERATURE REVIEW

Prior research has recognized the opportunities and challenges that FinTech firms face. The literature discusses critical factors such as innovation systems and financial regulation, interaction among several businesses, the perceptions in financial circles about how financial products and services can be convenient for people, and support from digital tools.

2.1 Innovation System and Financial Regulation

Wonglimpiyarat (2018) explains that a national innovation system is one of the drivers relating to the

development of countries through technology and innovation. Wonglimpivarat's study shows that SMEs and startup firms are supported by a national innovation system, as can be seen from the specific policies of financial information systems such as notable startups, events, education, business incubators and accelerators, government, tech media, startup associations, venture capital, angel groups and clubs, venture builders, co-working spaces and tech companies. This study demonstrates how regulations and laws in Thailand allow firms to sell security through electronic networks, thereby offering choices for firms in the acquisition of financial capital to support business more readily. The study suggests the Ministry of Digital Economy and Society should establish policies which support crowdfunding and startup firms. Although the national innovative system offers opportunities for FinTech firms to be developed, security challenges relating to mutual authentication, authorization, integrity, privacy, and availability, must be considered (Kang, 2018). FinTech startups are developed and supported by technological systems such as social media, mobile technologies, data analytics, and cloud.

In 2019, the Thai government developed a regulation sandbox for FinTech firms which allows them to reduce the time-to-market and support their innovation development. This regulation sandbox offers a space for FinTech startup firms to test their business ideas, products, and services, under the control of related entities, including Bank of Thailand (BOT) and SET. FinTech founders and investors can launch their products and services to the public to test whether these products and services meet consumer demand without fear of prosecution. Additionally, public authorities have the opportunity to investigate those products and services and determine whether they contradict particular laws or regulations. If they are in conflict with related entities, the authorities can resolve the problem in a timely fashion before the negative impacts of those financial products and services cause any difficulties. Developing the regulation sandbox can reduce risks associated with ambiguous laws (Yeoh, 2016).

Regulation involves legislation associated with different financial services (Vasiljeva & Lukanova, 2016). The regulations of each country are different depending on country-specific factors. In the private financial market in Thailand, convertible preference shares are normally offered to investors by early-stage firms to gain financial support from investors. Investors prefer to receive convertible preference shares as they can reduce the downside risks relating to voting rights, dividends, and reimbursement. Additionally, these shares increase the options for investors to convert preferred shares to common stock. However, the law in Thailand does not support the conversion of preferred shares to common stock. This limits the options for FinTech startup firms

to attract financial capital in this financial market.

The Civil and Commercial code has no specific procedures for limited companies in regard to providing for preference shares to be converted to ordinary shares. However, in section 1142, where preference shares have been issued, their preferential rights cannot be altered. On the other hand, the interpretation by the Office of the Council of State of Thailand is that the conversion of preference shares is deemed to alter their preferential rights. One way to resolve this problem is to use indirect procedures. This entails a reduction in capital to cancel preference shares, amendment of articles of association to cancel rights to these shares, then issuing ordinary shares to substitute for preference shares, thus increasing the capital. However, this solution is complicated and time-consuming. The shareholders must meet to validate capital reduction, amendment of the appropriate articles, and capital increase. Also, the proceeds from the capital reduction may not cover payment for shares for capital increase, and such proceeds may become taxable profit for the shareholders. In addition, creditors may well object to a capital reduction, despite that not being the aim of this procedure.

2.2 Symbiotic Relationships

The opportunities and challenges for FinTech startup firms depend on cooperation between different entities. Symbiosis, cooperation, networking, and collaboration play important roles in supporting firms to enhance financial performance. Symbiotic relationships among different parties both directly and indirectly impact on the risk and return position of businesses. Firms have greater opportunities to increase returns and the number of customers when business owners refer their customers to each other. Additionally, knowledge and information can be shared which offer an opportunity for firms to reduce information searching costs.

In Thailand, business incubators and accelerators play important roles in supporting FinTech startup firms (Wonglimpiyarat, 2018). Both incubators and accelerators adopt the concept of symbiosis to support members. Incubators normally cooperate with universities and academic providers. They support firms in their early stages by providing training, co-working space, and suggesting they work with mentors and other partners in their incubators. Incubators play an important role in providing knowledge and ideas, whereas business accelerators focus on the growth of businesses. Some accelerators support both knowhow, knowledge, teamwork and finances to promote business growth. Business incubators and accelerators offer opportunities for startup founders who have ideas for moving forward to the next stage of business, to exchange ideas, not only with mentors, but also with other founders.

In the financial industry, some

banks and FinTech firms adopt the concept of symbiosis and working cooperatively. Fermay, Santosa, Kertopati, and Eprianto (2018) report that banks in Indonesia act as the main incubators to support Fintech startup firms. Vasiljeva and Lukanova (2016) recommend that banks should cooperate with FinTech firms to adopt financial innovations to improve their services. FinTech firms support advanced technology for banks, particularly the banks with advanced technology to meet customer requirements easily (Fermay et al., 2018). Interaction also offers benefits to FinTech firms to gain more customers and increase income, especially startup firms which cannot obtain financial support from banks. Crowdfunding, peer-to-peer services provided in online platforms can be another option. However, strong competition between FinTech firms and banks can be seen in the similar financial platforms, applications and tools provided by both banks and FinTech firms. Vasiljeva and Lukanova (2016) mention the disruption of traditional bank services by the introduction of FinTech. In this competitive environment, the concept of symbiosis and connection with others might be overlooked and difficult to sustain in the long term.

Currently, there are more than 800 angel groups globally. Bangkok Venture Club, founded in 2014, is an angel syndicate which has more than 500 angel investors in Thailand and Southeast Asia (Bangkok Venture Club, 2017). Ardichvili Cardozo, Tune, and Reinach (2002) argue that connections among business angels are important for the growth of a startup firm. Their study mentions that social connection is helpful for business angels to recommend, share, and discuss, investment options with each other before making a decision to invest money (Tan, 2012). Networking among different venture angels reduces the challenges of facing overvalued price offerings by startup founders. Connections between business angels and venture capitalists are also important as they create opportunities for parties to make recommendations and provide feedback to each other regarding the health of startup firms. Many business angels prefer to contact professional venture capitalists, especially if they want to invest in firms operating in an area in which they are not experts, then having the option to invest with professional venture capitalists is beneficial.

While networking and building connections may offer many opportunities to FinTech firms, networking may also generate some risks. Agency problems in capital markets and in FinTech networks occur in similar ways. In this regard, Jensen and Meckling (1976) discuss the issues of moral hazards and agency conflicts. A moral hazard can occur when a particular group of people think about their individual benefits rather than the overall performance of the whole network. In such an instance, rules and regulations of the group could be generated to offer advantages to some people rather than to all members. In business

transactions with a high risk of opportunism, many resources will be spent. This increases transaction and monitoring costs which then decreases the productivity of all parties (Luo, 2006).

The causes of opportunism and agency problems in interfirm relationships are similar. Goal disparity among different entities leads to agency conflicts in business relationships, then results in either cooperative or opportunistic behaviour (Child, Faulkner, & Tallman, 2005). Commitments and joint activities in FinTech networking are specified based on the expected net return which members anticipate while recognising uncertainties.

2.3 Digital and Financial Literacy

According to the Ministry of Higher Education, Science, Research and Innovation, digital literacy in Thailand has four components: use, understand, create, and access. Use relates to the ability to use a computer and internet in terms of a word processor, web browser, search engine, and cloud computing. Understanding, in technology, involves the initial skills which should be taught to children in the online world. Individuals should be able to recognize both the importance and impacts of technology, then demonstrate the ability to use it effectively. Understanding of technology and a digital environment helps learners with decision making. Creating is the ability to communicate effectively via digital tools such as video, multimedia, and various types of social media. Access relates to the ability to gather information and use technological resources. These four skills are important to the development of FinTech startup firms as well as being necessary for digital users to access financial services and transactions. Digital literacy is important for the economy and social development of the country (Peitz & Waldfogel, 2012).

The link between digital literacy and financial literacy can be seen when people realize the importance of financial products and services, then begin to use digital tools to access those products and services. Long (2016) argues that the development of FinTech firms increases when financial technology is useful for financial behaviors in daily life. This demonstrates how financial literacy is important.

Financial literacy is the ability to understand financial matters or being financially educated. Huston (2010) mentions that both knowledge and application of human capital specific to personal finance are important elements of financial literacy. Financial knowledge can be ascertained from what financial products and services people access and how they use them. The ways in which people improve their financial well-being through financial activities can explain the level of financial knowledge as applied to real life.

The literature shows the links between digital literacy, financial literacy, and financial inclusion. Thomas (2019) suggests that digital

Table 1
Demographics of the case studies

Cases	Years in operation	Sector	No. of founders	Stage	Employees	Source of finance
1	2012	Business tool	2	Maturity	>350	Capitalist
2	2013	Payment/credit	6	Growth	>130	Capitalist
3	2018	Payment/credit	3	Prototype	6	Financial bootstrapping
4	2015	Retail investment	2	Growth	21	Capitalist
5	2003	Payment/credit	1	Launched	200	Capitalist
6	2018	Blockchain	3	Launched	50	Capitalist, Business angel
7	2014	Business tools	3	Growth	20	Capitalist
8	2012	Personal finance	5	Growth	14	Capitalist
9	2007	Blockchain	2	Idea	10	Financial bootstrapping

financial services expand the delivery of basic financial knowledge and services to the poor without any reference to the technology challenges faced by the poorest members of society. Sinha, Pandey, and Madan (2018) mention digital literacy as being a major problem for FinTech firms in developing countries, in such areas as financial payment services, loans and crowdfunding. This is a result of low levels of financial inclusion, exacerbated by low levels of financial knowledge in the country's wider population.

3. RESEARCH METHOD

3.1 Research Design and Sampling

Thailand, the context for this empirical research, has one of the highest economic growth rates in Southeast Asia, as well as an increasing number of startup firms. This research study used a mixed method design utilizing content analysis to evaluate semi-structured interviews and document investigation. The research investigation divided the data collection process into two phases which are presented in Table 2. In phase 1 the secondary data, information about 66 startup firms in the Thai FinTech Association was collected from their individual websites. In Stage 2, more details were explored concerning the opportunities and challenges faced by entrepreneurs of each firm by follow-up semi-structured interviews. Samples were selected based on the availability of the firms' founders. The founders of these FinTech startup firms were contacted via email and asked for their availability. At this point, nine participants agreed to be interviewed (Table 1). To identify and

understand the opportunities and challenges of FinTech startup firms,16 people regarded as FinTech users were interviewed.

3.2 Data Collection and Analysis

In the first stage of data collection, secondary data were gathered from websites focusing on the demographics of the key founder, characteristics of the firm, business purpose and plans, sources of finance, and the laws and regulations affecting each firm. Descriptive analysis was then undertaken, with results presented in the form of contingency tables.

In the second stage, Nvivo was applied to code, cluster, and count the frequency of words, in order to summarize the key variables from the semi-structured interviews. The coding started by inserting the interview responses which were transcribed into writing, then inserted into the software. The study codes words and sentences relating to the opportunities and challenges of FinTech firms. They were then taken into nodes categorized according to different names. Normally, the names of each node are based on the subject emphasis of particular codes. Content analysis was adopted for analyzing the interview scripts. This technique is appropriate for analyzing text, documents, and narrative conversations by predetermined categories (Bryman, 2012). Content analysis examines a large amount of textual information, in order to find the frequency, trends, and pattern of words, sentences or paragraphs (Grbich, 2013). Themes and patterns in interview scripts were then identified as being samples for citation. Specified categories from related theories, were followed by coding the contents of the interview

Table 2
The data collection process

Phase	Research process and samples	Key themes investigated
1	Document search from Thai FinTech Association 66 startup FinTech firms	Demographics of the founder Characteristics of the firm Stage of business Source of finance
2	Semi-structured interview 9 startup FinTech firms	Strengths of the business Weaknesses of the business Opportunities of the business Threats to the business
	Semi-structured interview 16 FinTech users	Financial transactions Digital and technological knowledge Financial knowledge Mobile/internet applications

transcripts with a focus on the opportunities and challenges of FinTech startup firms.

4. EMPIRICAL FINDINGS

4.1 FinTech Startup Firms in Thailand

From the Frequency Distribution Analysis, the highest number of FinTech firms are involved in lending and crediting activities, (24%). This is followed by those whose main activities involve business tools, comparison, and marketplace (17%). FinTech startup firms which are operated in the insurance sector and payment sectors account for 12 percent. The smallest number of FinTech startup firms are found in the institutional infrastructure sector and the remittance sector (2% each). The highest number of startup firms do not require additional funds to operate their business (27%). These firms are mainly running at the launch stage and at the scale up stage, at 50 percent and 29 percent, respectively. The highest number of firms which require more than 250 million are running at the scale up stage, (43%), whereas approximately 50 percent of firms in the prototype stage require additional funding of less than 10 million.

Regarding firm size, the highest number of startup firms have less than 10 employees (49%), followed by those having 11-20 employees (24%). Startup firms hiring more than 250 employees accounted for only 5 percent. According to the definition of SMEs in Thailand, the majority of FinTech startup firms are small businesses (Lertwongsatien & Wongpinunwatana, 2003). In terms of owner's characteristics, the age of the main founder of startup firms was identified. Business owners in their thirties dominate the age list with a proportion of 38 percent. The smallest percentage of startup firms are run by founders in their sixties, constituting 6 percent of the sample. The study revealed that about 56 percent of respondents were male while only 21 percent of SMEs are managed by females. Fifteen (23%) of the companies belong to a partnership business where a couple is jointly in charge of the company. Regarding sources of financing for the firms, the study shows that only 15 percent of SMEs prefer to finance themselves internally through retained earnings, and 38 percent of entrepreneurs were granted loans from banks or financial institutions. This is consistent with Mollick (2014). Thirty-one companies (47%) in the sample stated they adopted venture investment as their financing method. It is not surprising that the majority of startup firms prefer equity capital as the highest number are running at the launch or scale up stages which require external funding to support their business plans.

Regarding business challenges, the highest number of startups face difficulty in accessing finance (38%). The second reason for startup failure is because of obsolescent technology and lack of skills (29%). In addition, 11 percent of startup firms regard the investment environment being in the

doldrums as the primary cause of the short survival of SMEs of about 5 years. The empirical findings indicate 23 percent of firms suffer from having incomplete strategies to manage intellectual and intangible assets.

4.2 Opportunities for FinTech Startup firms in Thailand

4.2.1 National Technology System and Financial Regulation

The main laws and regulations which relate to FinTech startups in Thailand were established by BOT and the Securities and Exchange Commission (SEC) in 2019, to support the development of FinTech through a regulation sandbox system. The policy aims to stimulate financial service providers to use sophisticated technology to improve the efficiency of online services in order to offer users lower costs and faster services. The "*open system*" offers "*unique services for fixing the customers' painpoints*" (Case 1) as indicated:

We found blue-collared workers cannot manage their debt and payment. With the limitation (such as collateral, personal guarantee) to get financial support in low-income workers, we can fill in this gap. (Case 2)

The technological system offers online payment for customers. Also, it offers us to get some payments easier and wider. You can pay tax any time. The development of technology grows very fast. If thinking about online payment, we can see that long time ago. Many people use it. And now under the policy direction of Thailand 4.0, we can develop faster. (Case 5)

The regulation sandbox system was set up to support the growth of FinTech startups in Thailand by focusing on three areas: financial innovation, consumer protection, and risk control. A number of projects from both government and private entities support the growth of FinTech startups. For instance, the Startup and Innovation project created by the Thai Credit Guarantee Corporation, the Startup venture project created by the National Science and Technology Development Agency, the True Incube project created by True Corporation, and Krungsri Uni Startup.

The FinTech Act focuses on digital transactions that are operated under the regulations of BOT, SEC, and Office of Insurance Commission (OIC). The FinTech Act aims to increase confidence in financial transactions, investment and insurance. The National Technology System and Financial Regulation support FinTec startup firms to access anonymized data to improve financial products and tools which are beneficial to the firms and their users. A perspective on these matters was identified from the interviews:

Any online transactions are done under the Electronic Transactions Act 2001, so customers are confident in using online transaction. We have a security system to protect accounts. I can see many people do online payment all the time. Now we must think what more we can offer them. Improving the current system or

providing them new services. Our strength is we are certified by The Securities and Exchange Commission. (Case 6)

4.2.2 Symbiotic Relationships

The empirical findings show that the connections between FinTech startup firms and other firms operating in different industries, between FinTech startup firms and business accelerators, and among FinTech startup firms, are beneficial to FinTech firms and every related entity. Firstly, FinTech firms can gain additional financial and non-financial support for growth, such as knowledge, and strategy, as well as "*receiving advice from mentor"* (Case 4). Secondly, they can reduce costs in terms of information searching, administration costs and advertising. Moreover, FinTech firms are able to increase revenue "*from the projects they co-operatively work* " (Case 7) , particularly market share, and can be sustained in the long term.

The findings show that co-operation between FinTech startup firms and corporate banks generates a positive outcome. Innovation and digital financial technology create positive effects for both banking performance and FinTech firms (Scott, Van Reenen, & Zachariadis, 2017). The findings are consistent with Kijkasiwat (2019) who argues that connection and cooperation among businesses in different entities enables Micro, Small, and Medium businesses (MSMEs) to reduce costs and expenses as well as increase revenue and profit.

4.2.3 Digital and Financial Literacy

The empirical findings show that digital literacy of the people is one of the important factors in increasing the financial performance of FinTech startup firms. The findings show that from the perspective of FinTech founders, digital literacy and creativity supports the development of firms. Firms can provide the financial platforms which are necessary and easy to use. The variety of financial platforms and online services developed by FinTech startup firms leads to greater financial inclusion resulting in a more general improvement of digital capability. Financial technology not only improves financial inclusion within the country, but some respondents also considered that financial inclusion could promote the development of financial technological products and services. Some of the insights provided are as follows:

What can help them to make the better life. Don't worry about how they use your products. You see old generation play with the phone. You think they learn from the beginning. No. At the beginning they do not even know how to make the word bigger. Then, they learn. They try by themselves. They ask their children. (Case 1)

Since a couple of years ago, people are interested about tax reduction. What expenses they can use? How much insurance they should have? Nearly every young people know how to do tax online payment. When we did research, we found many

of them spend too long time find documents and bills. How provident fund can be used. They still feel not sure if online tax planning is useful. (Case 8)

The empirical findings show that people can develop resilience as they face digital challenges (Kaewseenual, 2018). With easily accessible channels in the current digital world, they learn how to use technology by themselves. Although the necessity of usage could motivate people to learn digital technology, developing user-friendly platforms is important and necessary in FinTech startup firms to increase the number of users, and make financial transactions quicker. This results in an increasing financial inclusion in the country, and consequently increases firm performance in FinTech startup firms.

4.3 Challenges of FinTech Startup Firms in Thailand

4.3.1 National Technology System and Financial Regulation

From the empirical results, it is evident that there are perceived to be some negative impacts of NTS and financial regulation. The advance of technological development and the support of Thailand's government "*bring a number of competitors"* (Case 5) in financial industries. The competition between FinTech firms and corporate banks (Phan, Narayan, Rahman, & Hutabarat, 2019), and among FinTech firms themselves occurs mainly because of "*similar platforms and services*" (Case 4) being operated under the same technological systems and the same financial regulations. Moreover, FinTech relates to "*intangible which are decontrolled by government and banks"* (Case 6). Unique financial products and services could turn the challenges into opportunities. However, this uniqueness should be operated within a closed technological system which cannot be accessed by others.

The interviewees' responses indicate that there is a perception that the Thai government has developed regulations and policy which support the growth of startup firms in general, rather than supporting the growth of FinTech startup firms specifically. Some laws and regulations are being considered, as to whether they could be relaxed or not, in order to improve FinTech startups in Thailand. Issuing convertible debt is still unacceptable for Startup firms despite there not being restrictions on this in some countries such as Singapore (Thai Venture Capital Association, 2017).

It seems that security is the main concern for FinTech users. The scale of cyber-attacks may expand due to an increase in digital transactions and the number of FinTech firms (Caruana, 2006). This is a different situation to that in China where the fraud rate is decreasing every year (Long, 2016). This may be because of the difference between communism and democracy. The centrally controlled government is likely to create regulations which are controlled by the central government and has decisive power to eliminate fraud and cybercrime Authority stems from only one party

without outside intervention.

4.3.2 Symbiotic Relationships

Only one negative impact from symbiotic relationship is related to the leaking of information. This does not affect financial performance directly; however, it indirectly impacts the corporate performance of FinTech Startups. Leaking of information occurs when investors are also corporate committee members in firms operating in the same industry. This was mentioned by interviewees:

The same strategies can be used for both firms I work with. I mean the software system. I suggest to them and they use. But, later I found they put this as the main service channel. What happen, we suffer. Everybody suffers. (Case 2)

We spent three months working together with other founders. That is good. They say they will try this first with the market. I do as well. Not exactly the same, but we put our software into it. We launch first in the market. Now, we are the leader. (Case 5)

4.3.3 Digital and Financial Literacy

The empirical findings show that the majority of people in Thailand understand how to access digital information and are able to use "*user-friendly function*" (Case 8) applications at the basic level relating to day-to-day activities. They understand how to use mobile functions for some financial transactions such as money transformation, investment, and online payments. While individuals aged between 15-55 have basic digital knowledge, people who are more than 55 years old found "*complexity of the technology system"* (Case 6) and mobile applications. It was found that the challenges of doing these activities relates to the necessity and usefulness of financial services and transactions for daily usage. In Thailand, people like to use the internet and mobile applications for online shopping, money transfers, and billing. However, it is rarely seen that they use the new technology in lending, crowdfunding, insurance, investment, or taxation. Many participants indicated that these activities have potential risks in terms of hacking, phishing, and decryption, which are far beyond their capability to recognize and manage. More importantly, many participants state that rather than accepting money transfers and online payment, they prefer "*representatives based in the office who can give some advice."* (Case 8)

It can be concluded that digital literacy is not the main threat for Fintech firms. Many people learn how to adopt and apply digital technology (Kaewseenual, 2018). The findings are consistent with Ozili (2018) who states that basic knowledge in technology in some groups of people having limited education background could be the cause of lower financial usage. However, this is not the main threat to FinTech firms. The real challenge in FinTech startup firms is how to link their finance platforms with individuals' daily activities. This finding is similar to that of Long

(2016) who concludes that the success of FinTech firms comes from the integration of finance and real-life needs.

The issue here is not only digital literacy, but also about how FinTech startup firms integrate their products and services with the requirements of potential users. Additionally, the firms must instruct potential users in how to develop a financial background and to incorporate a digital financial service to enable people to use digital technology more effectively. It can be concluded that this would not only promote financial inclusion in the country, but improving security systems is also important for FinTech, technology users and the country.

5. DISCUSSION AND CONCLUSION

This study provides two main contributions to the literature regarding opportunities and challenges for FinTech startups. First, drawing on the concept of symbiosis (Kijkasiwat, 2019), this study found that FinTech startup firms in Thailand have a greater opportunity to grow and develop when they co-operate with other firms in both similar and different sectors. The study demonstrates that it is the idea of flying solo that limits the ability to improve the risk and return situation in startup firms. Additionally, co-operation from the government and related public authorities, in terms of providing feasible policies, is necessary and beneficial to both FinTech startup firms and users accessing their financial products and services. The centralization of related entities could impact on opportunities and challenges for FinTech firms. Strategies for setting up a national technology system and financial regulations which can support the growth of FinTech startups, as well as increase the confidence of FinTech users, must be considered.

Second, this study contributes to a theoretical framework regarding the association between the context of digital literacy, financial literacy, and financial inclusion. The study raises issues from previous studies which link financial technology and financial activities (Long, 2016), then provides in-depth discussion. The necessity for using financial products and services in individuals' daily activities impacts on their technology-learning endeavors. Knowledge in finance affects the use of financial technology. People who understand some financial products tend to access financial digital devices which depend on a level of financial inclusion. The study shows the inter-relationship of digital literacy, financial literacy, and financial inclusion.

In terms of policy implications, it is suggested that the Thai government and public authorities should establish specific policies which offer opportunities for FinTech startup firms to grow. At the same time, the Thai government should develop security systems in the FinTech sector which protect its users against illegal digital transactions. Banks and FinTech firms should co-operate and

use their expertise to support each other, in order to increase positive opportunities and reduce negative challenges (Mollick, 2014). Government authorities could motivate Thai people to use local FinTech platforms rather than international ones. The risk of big data divulgence to international rivals could be a threat which may consequently reduce the competitive ability of Thai startup firms. While supporting local firms through local policies, relaxing some legal regulations which obstruct corporate development should be considered. Reducing tax for startup firms could encourage corporate development, whereas omitting fees for technology users might motivate individuals to access these local financial instruments. Similar policy recommendations were argued for by Wonglimpiyarat (2018) and guidelines issued by the Startup Thailand Association to local authorities, propose that all parties should work together. These parties include local entities and FinTech startup firms, startup firms and private authorities, and the government and local people.

This study suggests future research opportunities. First, future studies could use a social analysis approach to investigate the associations between FinTech startups and other entities. This could provide more information to identify and examine the opportunities and challenges faced by FinTech startups. Second, future research could generate robust discussion by comparing the findings of this study with findings from other research studies which investigate the circumstances of FinTech startups in other countries.

ACKNOWLEDGEMENTS

This research was supported by the Faculty of Business Administration and Accountancy, Khon Kaen University, Thailand. I would like to give thanks to Dr. Sujittra Kaewseenual from Maejo University who provided insight and expertise that greatly assisted the research.

REFERENCES

Ardichvili, A., Cardozo, R. N., Tune, K., & Reinach, J. (2002). The role of angel investors in the assembly of non-financial resources of new ventures: Conceptual framework and empirical evidence. *Journal of Enterprising Culture, 10*, 39-65.

Bangkok Venture Club. (2017). Bangkok Venture Club, Thailand's largest angle investment group. Retrieved from https://www.bangkokvc.com/

Bryman, A. (2012). *Social research methods: Content analysis*. Oxford, England: Oxford University Press.

Caruana, J. (2006). *Financial inclusion and the fintech revolution: Implications for supervision and oversight*. Paper presented at the Conference

remarks at the Third GPFI-FSI conference on standard-setting bodies and innovative financial inclusion, Basel.

Child, J., Faulkner, D., & Tallman, S. B. (2005). *Cooperative strategy*. New York, NY: Oxford University Press.

Cumming, D. J., & Schwienbacher, A. (2018). Fintech venture capital. *Corporate Governance: An International Review, 26*(5), 374-389.

Digital Finance Institute. (2015). Innovation: Innovation matters. Retrieved from http://digifin.org/digital-financeinnovation/

Dorfleitner, G., Hornuf, L., Schmitt, M., & Weber, M. (2017). *The fintech market in Germany*. Switzerland: Springer.

Fermay, A. H., Santosa, B., Kertopati, A. Y., & Eprianto, I. M. (2018). *The development of collaborative model between fintech and bank in Indonesia.* Paper presented at the 2nd International Conference on E-commerce, E-Business and E-Government Hong Kong.

Gomber, P., Kauffman, R. J., Parker, C., & Weber, B. W. (2018). On the fintech revolution: Interpreting the forces of innovation, disruption, and transformation in financial services. *Journal of Management Information Systems, 35*(1), 220-265.

Gomber, P., Koch, J. A., & Siering, M. (2017). Digital Finance and FinTech: Current research and future research directions. *Journal of Business Economics, 87*(5), 537-580.

Haddad, C., & Hornuf, L. (2019). The emergence of the global fintech market: Economic and technological determinants. *Small Business Economics, 53*(1), 81-105.

Huston, S. J. (2010). Measuring financial literacy. *The Journal of Consumer Affairs, 44*(2), 296-316.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Finance, 3*(4), 305-360.

Kang, J. (2018). Mobile payment in Fintech environment: Trends, security challenges, and services. *Human-centric Computing and Information Sciences, 8*(1), 32-47.

Kijkasiwat, P. (2019). *Impacts of symbiotic relationships on risk, return and value of micro-, small and medium enterprises.* (Doctoral dissertation), The University of Waikato,

Lee, P. (2015). The fintech entrepreneurs aiming to reinvent finance. *Euromoney (UK), 46*(552), 42-48.

Lee, S. (2015). *Fintech and Korea's financial investment industry Capital market opinion*. Retrieved from https://www.kdevelopedia.org/Resources/industry-technology/fintech-korea%e2%80%99s-financial-investment-industry--05201501210136352.do?fldIds=

TP_IND%2520TP_IND_GE%2520TP_IND_IT#.XZWY80YzbIU

Lertwongsatien, C., & Wongpinunwatana, N. (2003). E-commerce adoption in Thailand: An empirical study of small and medium enterprises (SMEs). *Journal of Global Information Technology Management, 6*(3), 67-83.

Long, C. (2016). From fintech to finlife: The case of fintech development in China. *Journal China Economic Journal, 9*, 225-239.

Luo, Y. (2006). Opportunism in inter-firm exchanges in emerging markets. *Management and Organization Review, 2*(1), 121-147.

Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. *Journal of business venturing, 29*(1), 1-16.

Peitz, M., & Waldfogel, J. (2012). *The Oxford handbook of the digital economy*. London, England: Oxford University Press.

Sinha, S., Pandey, K. R., & Madan, N. (2018). Fintech and the demand side challenge in financial inclusion. *Enterprise Development and Microfinance, 29*(1), 94-98.

Tan, Y. (2012). *The way of the vc: Having top venture capitalists on your board*. Singapore: John Wiley & Sons.

Thomas, H. (2019). How digital finance and fintech can improve financial inclusion (Y. Hedrick-Wong, Trans.). In Y. Hedrick-Wong (Ed.), *Inclusive Growth* (pp. 27-41): Emerald Publishing Limited.

Vasiljeva, T., & Lukanova, K. (2016). Commercial banks and fintech companies in the digital transformation: Challenges for the future. *Journal of Business Management, 11*, 25-33.

Vrara, K. (2017). Southeast Asia's fintech landscape is dominated by mobile wallets. Retrieved from https://ecommerceiq.asia/techsauce-fintech-landscape/

Wonglimpiyarat, J. (2018). Challenges and dynamics of fintech crowd funding: An innovation system approach. *The Journal of High Technology Management Research, 29*(1), 98-108.

Yeoh, P. (2016). Innovations in financial services: Regulatory implications. *Business Law Review, 37*(5), 190-196.

Appendix

Table 3
Frequency in the sample

Sector	Number	Percentage
Business tools, comparison, & marketplace	11	17%
Crowdfunding	3	5%
Institution Infrastructure	1	2%
Insurance	8	12%
Lending & Credit	16	24%
Payments	8	12%
Personal Finance	5	8%
Retail investment	6	9%
Remittance	1	2%
Blockchain	7	11%
Funding request (USD)		
0-1M	3	5%
1-10M	8	15%
10-25M	5	9%
25-50M	10	18%
50-100M	6	11%
100-250M	2	4%
>250M	6	11%
Not requested	15	27%
Stage of Business		
Idea	2	3%
Prototype	17	26%
Launch	28	42%
Scale up	19	29%
Number of employees		
Less than 10	29	49%
11-20	14	24%
21-30	7	12%
31-40	1	2%
41-50	2	3%
51-100	2	3%
101-150	0	0%
151-200	1	2%
201-250	3	5%

Table 3 (Continued)

Age of the main founder (in years)		
20 - 29	9	14%
30 - 39	25	38%
40 - 49	17	26%
50 - 59	11	17%
60 - 69	4	6%
Gender of FinTech startup founder (Main)		
Female	14	21%
Male	37	56%
Partnership	15	23%
Main Source of Finance		
Retained Earnings	10	15%
Debt	25	38%
Equity	31	47%
Reason for failure		
Poor macro-economy	7	11%
Access to financing	25	38%
Strategies to manage intellectual & intangible assets	15	23%
Obsolescent tech & skill	19	29%