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# The Role of Fintech Development in Financial Inclusion in Asia*

Dinh Thi Thanh Van[†] · Hoang Thi Ngoc Anh[**] · Tran Thi Phuong Diu[***]

A B S T R A C T

Over the past years, financial technology (Fintech) has been known as an industry that uses technology to provide financial services and make financial systems more efficient. Fintech plays an important role in improving access to financial services for all, at the same time, promoting financial inclusion. Financial inclusion represent for availability of financial system which is straightforward to access to useful financial products and services by everyone at reasonable prices. The study examined the relationship between Fintech development and financial inclusion in 45 Asian countries. Using the GMM regression technique, the paper confirms the correlation between Fintech development and financial inclusion through the enhancement of Fintech infrastructure and Fintech ecosystems to facilitate improved financial inclusion.

Keywords: Fintech, Fintech development, financial inclusion, Asia

## Ⅰ. Introduction

In the context of the boom of the 4.0 Industrial Revolution with the strong development of advanced technology, this is a strategic time for banks to apply digital transformation to improve their service to individuals, industries and public services while increasing the chances of financial inclusion for the majority of the population. According to data from the World Bank, estimated from 2011 to 2014, the proportion of people using formal financial services reached nearly 60%. Yet it is estimated that more than 1.7 billion adults cannot access financial services. Increasing income per capita requires financial services to be provided for individuals at better quality and reduced cost. Digital finance has been acknowledged by international organizations as a comprehensive means to promote financial inclusion by reducing the cost of providing financial services (Wyman, 2017). The expansion of digital payment platforms has created opportunities for connecting the poor with financial products suppliers such as savings, credit, and insurance (Radcliffe and Voorhies, 2012). Financial inclusion becomes more universal by using the connections made available by affordable devices such as smartphones, wearable devices and through all radio signals to provide financial services as fast as possible (FST Media, 2015). This is challenging and great opportunities for financial inclusion through the creation and integration of technology into social networks and cost reduction (Lee and Teo, 2015).

Financial inclusion is an issue promoted by countries all over the world, especially developing countries wanting to promote economic growth. According to the World Bank,

financial inclusion means individuals and businesses have access to useful financial products and services at reasonable prices, meeting their needs - transactions, payments, savings, credit, and insurance - done in a responsible and sustainable way. Nowadays, accessing financial services is easier and faster due to technology; Fintech is a key solution for financial inclusion. The more technology has been developing, the more Fintech becomes important. Fintech has become a top concern of scholars, planners, banks and institutions to exploit the ability to provide new creative solutions for promoting financial inclusion. Fintech is an industry that uses technology to make smart financial systems and provide financial services more efficient. Fintech has played an increasingly important role in reshaping today's financial and banking landscape. This is an initiative to promote financial inclusion for those who cannot or do not access financial services. Therefore, Fintech is considered a driving force for promoting financial inclusion in many countries.

The paper aims at exploring and examining factors that influence financial inclusion through Fintech development in Asia using quantitative analysis. Based on the research results, the article provides recommendations for planners and Fintech companies to facilitate Fintech to develop and promote financial inclusion. Following this introduction, the second part of the paper focuses on literature review on financial inclusion and Fintech development. The third part describes the proposed methodology and data collection, and the research results and discussions are presented in the fourth part. The final part of the paper provides conclusions and suggests some recommendations to increase effectiveness of Fintech development to improve financial inclusion through innovative but simple approaches.

## Ⅱ. Literature Review

Financial inclusion is becoming highly important for a large number of countries worldwide, especially in Asia. A growing literature has been evaluating its measurements, determinants, and effects. According to the research of Michelle (2016), financial innovations, access to financial services, intermediary efficiency and financial literacy are the important factors to improve financial inclusion. Achieving financial inclusion requires narrowing the cash

gap and expanding digital payments (Dayadhar, 2015). In addition, it requires connecting customers to the digital payment system through instant money transfer at a low cost (Radcliffe and Voorhies, 2012). The relationship between financial technology and financial popularity begins with a large number of people who own mobile phones and want to be provided services being unable to get them. Mobile finance and related equipment can improve accessibility for this audience (World Bank, 2016). Research by Kim et al. (2016) analyzed the acceptance of Fintech's services based on the feasible calculation model of Petty and Cacioppo and the model of technology adoption. The study investigates the relationship between central and peripheral routes in accepting new technologies and services to determine the acceptance of Fintech for financial inclusion. Research by Ryoji Kashiwagi (2016) suggests that the more people use information technologies like mobile phones for searching, the greater its access to financial services at low-cost. In other words, Fintech is a key for financial inclusion. Leong et al (2017) mentions financial technology, or Fintech, affecting financial institutions, regulatory agencies, customers, and traders across many industries. Innovation, especially technology, is becoming a potential finance revolution by making it more inclusive, decentralized and egalitarian (Jame Guild, 2017). Ozili's research (2018) discusses digital finance and its implications for financial inclusion and financial stability. Digital finance through Fintech has a positive impact on financial dissemination in emerging and advanced economies. In addition, digital finance provides low-income and marginalized individuals a convenient and cheaper way to access to financing options. In the digital age, Fintech companies which is one of player in financial revolution, are taking emergence of "for-profit, mission-driven" to drive through greater financial inclusion (Anju Patwardhan et al, 2018).

Digital finance, which has substantial effects for financial inclusion, includes internet banking, mobile banking, wallets, credit cards and debit cards (Durai and Stella, 2019). A large part of the population that has difficulty accessing financial services owns mobile phones, and the provision of financial services through mobile phones and related devices can improve access to essential financial resources for this group (Sethy, 2016). High costs are one of the reasons that prevent customers from receiving the products or services they need, especially those with poor financial backgrounds who are excluded from

receiving financial services. Fintech has significantly reduced costs by providing services through innovative but simple platforms. Digital finance has been viewed internationally as a means of providing adequate opportunities to promote financial dissemination through reduced costs of providing financial services (ADB, 2016). Improved financial inclusion through digital inclusion is the innovative way in the digital age (ING, 2016). Francis Agyekum et al. (2016) examine the relationship between increased access to digital financial services (DFS) and financial dissemination in low-income countries. Digital finance through Fintech startups significantly influences financial inclusion in emerging and advanced economies. When providing financial services to individuals with low and variable income, Fintech services are often more valuable compared to similar services of traditional banks (Ozili, 2018). Although research shows that financial inclusion can be improved by digital transformation in the finance industry, studies that measure the impacts of specific characteristics of digital finance are rarely seen. In the following section we develop a quantitative model to analyze the relationships and influences between Fintech development and financial inclusion.

# Ⅲ. Data and Methodology

The goal of this empirical research is to find out the role of Fintech in financial inclusion in Asian countries. A multiple regression model is developed to regress

measures of financial inclusion on indicators of Fintech development for each country.

## A. Variables

The variables used as dependent variables were chosen based on past research and can reflect the financial inclusion in Asian countries. Three alternative dependent variables are examined. Two are mentioned in the research of Sarma (2008), who measures financial inclusion by the number of bank accounts per 1000 adults ($ACC_{i,t}$) and by the number of ATMs per 100,000 adults ($ATM_{i,t}$), based on some of the studies discussed above. However, these measures have many limitations, such as geographic data (living areas) and gender that can determine the level of financial inclusion but are not accounted for. Moreover, these variables do not account for distinctions between the native people of the area and the international people living in that country. Therefore, this study uses an additional dependent variable to measure the financial inclusion: total private domestic credit divided by GDP ($CRED_{i,t}$) (Okoye et al., 2017).

Explanatory variables are adopted from indexes developed in research by ING Group[1], which is a global bank with a strong European base, on the development of Fintech companies around the world. Using ING's research, the study measures Fintech development by two sub-indices: Fintech infrastructure and Fintech ecosystem. The Fintech infrastructure indicators reflect prerequisite conditions for Fintech development in a country. The Fintech infrastructure indicators consist of three representative data variables:

**Table 1.** Summary of Variables and Hypotheses

| No. | Factor | Variables | Hypothetical impact (ACC) | Hypothetical impact (ATM) | Hypothetical impact (CRED) |
|---|---|---|---|---|---|
| 1 | The number of bank accounts per 1000 adults | $ACC_{i,t}$ | | | |
| 2 | The number of ATMs per 100,000 adults | $ATM_{i,t}$ | | | |
| 3 | Total private domestic credit over GDP | $CRED_{i,t}$ | | | |
| 4 | Mobile subscriptions density | $MOBI_{i,t}$ | Positive | Positive | Positive |
| 5 | Internet density | $INT_{i,t}$ | Positive | Positive | Positive |
| 6 | Electricity coverage | $ELEC_{i,t}$ | Positive | Positive | Positive |
| 7 | Start-up attractiveness | $STA_{i,t}$ | Negative | Negative | Negative |
| 8 | Innovation | $INNO_{i,t}$ | Negative | Negative | Positive |

[1] https://www.ing.com/

the density of mobile subscribers, the percentage of internet users and the percentage of the population accessing the electricity network. The mobile subscription density reflects subscriptions per 100 inhabitants ($MOBI_{i,t}$), electricity coverage reflects share of population connected to the electricity grid ($ELEC_{i,t}$), and internet users reflects the percentage of the population in the internet network ($INT_{i,t}$). Increasing mobile phone and the Internet coverage is an essential opportunity to promote financial inclusion. Kpodar and Andrianaivo (2011b) also found a correlation between financial inclusion and the penetration of mobile phones. They found that the penetration of mobile phones strengthens the process of credit allocation, leading to wider financial inclusion in the financial system. Agyekum et al. (2016) also shows the positive impact of Information and communications technology, including the number of mobile and Internet subscribers, on financial inclusion. Research of World Bank (2016) implies that mobile phones connected to the Internet are affordable for digital technology finance which is best way to reach previously financially excluded persons.

The Fintech ecosystem indicators reflect the business environment for Fintech companies in a country. The Start-up attractiveness index, measured as the average time of starting a business, is representative of a nation's Fintech investment ecosystem ($STA_{i,t}$). At the same time, the Innovation index, measured as the multi-dimensional facets of innovation, reflects the overall development environment for a Fintech ecosystem ($INNO_{i,t}$). According

to Kama and Adigun (2013) who study financial inclusion in Nigeria, it can be seen that there are a lack and waste of innovation in Nigeria; it causes limited the completion of an important extension of a suitable combined budget. In addition, innovation is an important platform for Fintech.

The data used in this study include 40 countries in Asia in period from 2010 to 2017. The data for the eight variables examined in this study was published online in the Financial Development Report (World Bank). The summary of all the collected data can be found in Table 2.

## B. Methodology

The research will estimate models to find out whether Fintech development has an impact on financial inclusion and the level of that impact for countries in Asia. From the discussion above, the research proposes a six-variable linear regression model to evaluate the impact of Fintech development on financial inclusion. The regression equations take the following form:

$$\begin{aligned} ACC_{i,t} = &\,\alpha ACC_{i,t-1} + \beta_1 MOBI_{i,t} + \beta_2 INT_{i,t} \\ &+ \beta_3 \ln(ELEC_{i,t}) + \beta_4 STA_{i,t} \\ &+ \beta_5 \in NO_{i,t} + e_{i,t} \end{aligned}$$

$$(1)$$

$$\begin{aligned} ATM_{i,t} = &\,\alpha ATM_{i,t-1} + \beta_1 MOBI_{i,t} + \beta_2 INT_{i,t} \\ &+ \beta_3 \ln(ELEC_{i,t}) + \beta_4 STA_{i,t} \\ &+ \beta_5 \in NO_{i,t} + e_{i,t} \end{aligned}$$

$$(2)$$

**Table 2.** Descriptive Data

| Variables | Number of observations | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| Country | | | | | |
| Year | 320 | 2013.5 | 2.294876 | 2010 | 2017 |
| **Dependent Variables** | | | | | |
| ACC | 200 | 1053.63 | 1235.626 | 10.2454 | 8114.603 |
| ATM | 320 | 50.9127 | 50.56411 | .0913772 | 288.6319 |
| CRED | 312 | 65.8101 | 48.48711 | 4.645404 | 253.2622 |
| **Independent Variables** | | | | | |
| MOBI | 320 | 111.1021 | 35.70623 | 1.184307 | 214.7349 |
| INT | 320 | 45.66378 | 26.62387 | .25 | 99.4 |
| ELEC | 320 | 92.84814 | 13.70016 | 31.1 | 100 |
| STA | 320 | 25.84716 | 28.46019 | 2 | 187 |
| INNO | 320 | 35.65812 | 10.52678 | 4.6 | 66.42857 |

$$CRED_{i,t} = \alpha CRED_{i,t-1} + \beta_1 MOBI_{i,t} + \beta_2 INT_{i,t}$$
$$+ \beta_3 \ln(ELEC_{i,t}) + \beta_4 STA_{i,t}$$
$$+ \beta_5 \in NO_{i,t} + e_{i,t}$$

(3)

where the index i represents each country, index t represents the year of observation.

The OLS regression model considers countries to be homogeneous and this often does not reflect the true situation because each country is a completely different separate entity that can affect financial universalization. As such, the OLS model can lead to biased estimates when this particular impact cannot be controlled. With the FEM fixed-effects model or the REM random effects, these individuals dramatically can be controlled. In order to choose between OLS and REM, the LM test (Breusch-Pagan Lagrange Multiplier) is used, and to choose between REM and FEM, the Hausman test is used. However, one of the weaknesses of the OLS, FEM, and REM models is that it has not been able to address the potential endogeneity (Getzmann et al., 2010).

GMM method for dynamic panel data uses the appropriate delay of instrumented variables - which is a third variable, used in regression analysis which has endogenous variables that are influenced by other variables in the model. This is a dynamic panel data model with time parameters, country and delay variables. In addition, it also exploits the combined data of the table and does not bound the time series of table units in panel data. This allows the use of an appropriate structure to exploit the dynamics of data. The GMM model allows the independent variables of Fintech to impact financial inclusion but to adjust over time towards its long run equilibrium.

## IV. Research Results and Discussion

### A. Regression Results

For dynamic estimation models, according to GMM, Hansen's test results accept the hypothesis H0, the instruments used are reasonable. The testing of correlation also shows that there is no second-order correlation. Therefore, it can be confirmed that the use of GMM is appropriate. Results in dynamic models differ significantly from those in static models. When the study only uses the static model, the conclusions can be skewed both in terms of impact and significance.

Dynamic and static models only have similar conclusions about the impact of the percentage of Internet users (INT) affecting all and the mobile subscription density impacts on the numbers of ATM. Meanwhile, the dynamic model further shows the effect of the mobile subscription density and Start-up attractiveness on the number of accounts; the mobile density also impacts on the rate of private domestic credit; the innovation index impacts to the number of ATMs.

Comparing the results of the static models OLS, REM, FEM, to the GMM dynamic model showed the difference in results. Combining the analysis of the optimization of each method, this study selects the dynamic estimation model GMM as the most optimal model for analyzing experimental results. A preliminary evaluation of the influence of Fintech on financial inclusion performance is shown in Table 3.

With 99% reliability, the model obtained is statistically significant, accepting the initial hypothesis that the percentage of the population accessing the internet has a positive effect on the number of bank accounts and the number of ATMs; the innovation index affects significantly to the figure of ATMs with a positive impact; as well as the number of ATMs also witnesses a positive effect of electronic coverage; the mobile subscription density impacts on the rate of private domestic credit positively. With 95% reliability, the model accepts the hypothesis that density of people that using mobile subscription affects the number of bank accounts. With 90% reliability, the model accepts more 1 hypothesis that a positive impact on the figure of domestic credit of internet coverage. It is believed that the financial technology revolution is driving the cashless habit instead of dispensing cash to use by ATM. In addition, the development of telecommunications has supported people to have credit to become easier. The model demonstrates the impact of Fintech development on financial inclusion by explaining the phenomenon of research.

### B. Discussion

The purpose of this article is to fill the gap of the lack of studies in this particular discipline. In the previous studies, researchers found no evidence of the link between

**Table 3.** Regression Results for ACC Variable

| | Static model | | | Dynamic model |
|---|---|---|---|---|
| | **OLS** | **REM** | **FEM** | **GMM** |
| $ACC_{i,t-1}$ | | | | .6666543*** |
| $MOBI_{i,t}$ | -2.477135 | -2.477135 | -5.295503 | 1.055763** |
| $INT_{i,t}$ | 22.76353*** | 22.76353*** | 31.01652*** | 7.418927*** |
| $\ln(ELEC_{i,t})$ | 8.321913 | 8.321913 | 33.39664 | 9.355102 |
| $STA_{i,t}$ | -1.786465 | -1.786465 | -.3245158 | -2.263244*** |
| $INNO_{i,t}$ | -15.29103 | -15.29103 | -4.015273 | -6.103878 |
| **LM** | | 62.06*** | | |
| **Wald ($\chi2$)** | | | | |
| **Hausman ($\chi2$)** | | 6.89*** | | |
| **Hansen** | | | | 15.17*** |
| **AR (2)** | | | | 1.12*** |

Notes: Confidence Interval *** 1%, ** 5%, * 10%

**Table 4.** Regression Results for ATM Variable

| | Static model | | | Dynamic model |
|---|---|---|---|---|
| | **OLS** | **REM** | **FEM** | **GMM** |
| $ATM_{i,t-1}$ | | | | .7509137*** |
| $MOBI_{i,t}$ | .0904459** | .0904459** | .0889689** | 2.18e-06 |
| $INT_{i,t}$ | .5422845*** | .5422845*** | .508058*** | .0472776*** |
| $\ln(ELEC_{i,t})$ | .1459694 | .1459694 | .1031551 | 6.139503*** |
| $STA_{i,t}$ | .0969495** | .0969495** | .0976765** | .0077042 |
| $INNO_{i,t}$ | .3650869*** | .3650869*** | .2437693* | .1414197*** |
| **LM** | | 933.17*** | | |
| **Wald ($\chi2$)** | | | | |
| **Hausman ($\chi2$)** | | 10.30*** | | |
| **Hansen** | | | | 31.73*** |
| **AR (2)** | | | | 1.41*** |

Notes: Confidence Interval *** 1%, ** 5%, * 10%

**Table 5.** Regression Result for CRED Variable

| | Static model | | | Dynamic model |
|---|---|---|---|---|
| | **OLS** | **REM** | **FEM** | **GMM** |
| $CRED_{i,t-1}$ | | | | .9160633*** |
| $MOBI_{i,t}$ | .0336384 | .0336384 | .0321176 | .0451389*** |
| $INT_{i,t}$ | .5336962*** | .5336962*** | .5102129*** | .0235883* |
| $\ln(ELEC_{i,t})$ | .200124 | .200124 | .1858849 | -3.525794 |
| $STA_{i,t}$ | .009168 | .009168 | .0104296 | -.0060418 |
| $INNO_{i,t}$ | .2648008* | .2648008** | .1543461 | .0417422 |
| **LM** | | | | |
| **Wald ($\chi2$)** | | | 22314.35*** | |
| **Hausman ($\chi2$)** | | | 12.48*** | |
| **Hansen** | | | | 28.94*** |
| **AR (2)** | | | | -1.03*** |

Notes: Confidence Interval *** 1%, ** 5%, * 10%

Fintech and financial inclusion with two-year time lag in Asia. This article results are consistent with previous studies, suggesting that internet density improves financial inclusion. These effects are gradually, becoming significant three years after the adoption of Fintech. Empirical evidence shows that the Internet use has a substantial positive relationship with financial inclusion, which means that the growth in the Internet use is related to the increase in the use of finance (Olaniyi Evans, 2018). In this research, internet access is significantly related to the number of the account holders. There is no doubt that potential development of Fintech has an impact on financial inclusion in Asia. This continent is young and hyper-connected. It possesses an impressive Internet penetration rate along with the nationwide usage of mobile phone.

The scale of the impact on the number of accounts is significant (64% increase after three years of using Internet). This impact is the result of reduction in the asymmetry of information and transaction costs (Agyekum, 2016). With a unique platform on mobile devices provided with the access to the Internet, bill payment, charge, money transfer (in and across borders) and other financial services can all be easily implemented (Donovan, 2012). In fact, in India with more than 220 million smartphone users, lending is made easier through the application of high technology accessed through the Internet, as it helps reach a wider audience when compared to other approaches. In Korea, 4G-LTE networks are covered up to 97% of population, the number of Internet users is nearly 44 million, making it one of the most connected online markets. Due to the advantages of technology - electronics, Korea has a large e-commerce market where payment methods are also diversified and popular among people. Credit cards are the most favorite means of payment among Koreans. According to Findex report 2017, 95% of adults aged 15 and older own bank accounts. Korea has 146.5 million active Internet banking accounts recorded at the end of 2018. Empirical evidence also shows that increasing flow of information in the Internet makes it easy for Fintech to reach customers and improve financial literacy for people, which indirectly promotes financial inclusion. Having the internet access and educational program over the Fintech platforms certainly will improve the knowledge and demand of financial products (Yoshino, Morgan & Wignaraja, 2015). In addition, having internet access with financial education programs could improve the financial position and status of individuals (Atkinson, &

Messy, 2013).

While some policymakers are still considering the challenges and barriers, Fintech startups are finding innovative solutions to the benefit of all. The beauty of this new wave of innovation is that the mobile technology is a given and the use of data is front of mind. Innovation in digital channels provides convenience for clients at a lower cost for banks and has been instrumental in helping suppliers overcome challenges related to infrastructure and geography. The regression results show that startups and innovation system can impact significantly on the domestic credit taken up in the country. Financial inclusion also means access to financial services for Micro, Small, and Medium Enterprises (MSMEs) and startups. This is a sector that has not been provided credit in the form of organized business, but can only provide credit under a personalized method. "The absence of traditional credit data for financially excluded individuals and MSMEs is a major barrier to accessing financing" (EY, 2018). This is an obstacle to financial inclusion for small and super small business entities. If the governments improve the innovation environment and build an ecosystem for startups and MSMEs to develop, the domestic credit or financial inclusion in the country can be improved. The model results also showed that innovation is a key of Fintech to enhance financial inclusion.

# V. Conclusions and Policy Implications

## A. Conclusions

The Fintech industry is newly developed in recent years and has limited available data. Therefore, this research focuses on a narrow view of the development of Fintech industry by measuring the infrastructure and the ecosystem to support Fintech companies to develop. The research confirms the important role of Fintech in promoting financial inclusion. While providing finance to those who find it difficult to access finance or do not use financial services, Fintech through mobile expansion and Internet usage plays an essential to reduce costs and symmetric information, even for the poor. The benefit of lowering the cost of providing services through the expansion of Fintech assists financial service providers

and people who use financial services. Industry policy-makers and sponsors need Fintech to develop to achieve a more-inclusive financial system. In order to support the development of the Fintech sector, the results show that the infrastructure and the ecosystem play critical roles. Specifically, the internet connection and innovation environment are significantly related to the financial inclusion measures within countries in Asia.

## B. Policy Discussion

The important role of governments in developing Fintech is undeniable. Legislators play the role of the guarantees in the development of Fintech, keeping its related risks under control, as well as securing the appropriate ecosystem infrastructure to promote financial inclusion. Through research results, a complete financial system and better financial inclusion is due to policymakers create a technology environment for Fintech. Investing in mobile infrastructure and the Internet is the cornerstone of Fintech's digital development. From the experience of China and Singapore, Fintech's infrastructure needs to focus on international technology and networks. For example, most Fintech services require customers to have smartphones connected to the Internet. In addition, the research results showed that internet access and innovation environment can significantly impact financial inclusion. Therefore, the limits of traditional banking infrastructure create an opportunity for Fintech companies to partner with banks to innovate digital banking services. China proved this with the growth of online banking customers and increased online payments. These platforms are the driving force for online banking services such as Mobile banking and Internet Banking as one of the positive drivers of financial inclusion. Governments need to encourage commercial banks to collaborate with telecommunications providers to enhance the use of mobile banking. Online banking will not have a positive impact on financial inclusion without government's investment in international Internet connection to increase financial inclusion. Governments of Asian countries can boost the Fintech development and consequently improve financial inclusion by some policies and programs to:

- Promote a digital approach for financial inclusion such as commitment to effective coordination between policy makers, central banks, financial institutions;

maintain active dialogue among key stakeholders; encourage industry and work with other national authorities to remove barriers.
- Expand the digital financial infrastructure: improve and modernize the current financial systems, ensure the basic infrastructure.
- Enhance the internet penetration and its quality.
- Strengthen digital and financial literacy: raise awareness among Small and Medium Enterprises (SME) about the advantages of using Fintech; encourage the consumers to choose the new technology; aid them in understanding the benefits and risks of Fintech. In addition to simplifying business procedures, Fintech startups will be easier to develop, to provide services that are subject to financial exclusion without the current financial system providing service for this object.

As regards the role of Fintech companies, in developing countries, from the experiences of Singapore, Hong Kong, and China, it can be seen that it is necessary for Fintech companies to understand the digital infrastructure, development, and research of the Financial technology sector in developing countries. The application of technology and its regular use will open financial online products, especially mobile payments through mobile and Internet platforms. Experience from China shows that mobile payments tend to be popular for small transactions, therefore the use of e-wallets has grown among a number of big companies like Alipay, Penpay, etc. Besides, SMEs capital needs or MSME lead to increase in credit trends of businesses without having to apply strict regulations of traditional banks and institutions.

In addition, from analyzing the status of Asian countries, it can be seen that Asian Fintech companies in general, and developing countries in Asia in particular, need to consider the following factors before joining the Fintech industry:

- Understand the market limits: in these case studies, not all aspects of Fintech are attractive to users due to a number of reasons from artificial intelligence to local technology limitations in the country. Startups in developing countries need to investigate and allocate resources to research on aspects of Fintech that can be developed.
- Understand demographics: Every country has a prominent demographic of that country. Because Fintech is digital-based and access to it exceeds

the boundaries, Fintech startups in developing countries need to understand the potential development of each country based on population, digital covered ratio and the effectiveness of digital technology in people like time for equipment digital.

- Investigation of human tendency: depending on the needs of people, Fintech invests its resources. For example, while China uses these payments, India does not. Trends in each country are not the same as in other countries.
- Select attractive industry: one of the most important factors related to starting a business is capital. Startups should consider that operating in a certain area may also be an attractive belief for investors.

With active Fintech, providing digital financial services to people will reduce costs of using the service. According to Michelle's study (2016), the provision of digital financial services will not promote financial inclusion when those services charge only for the sake of simplifying operations and reducing operating costs for banks. This is an opportunity for Fintech to dominate the digital financial technology market or to work with banks to provide efficient financial services and reduce costs.

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