
Emergence of Fintech Companies in Southeast Asia —Rising Hopes of a Solution to Financial Issues—

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Summary

1. A growing number of fintech-related businesses are emerging in Southeast Asia, reflecting increased interest as part of the global fintech (financial technology) boom. The Internet and smartphones are spreading rapidly in Southeast Asia, and many of these new businesses are utilizing these technologies to find solutions to the region's financial problems.
2. Many of the technologies and business models adopted by fintech businesses in Southeast Asia were not developed in the region, but instead imported from developed countries and China. While using these technologies and business models, Southeast Asian fintech companies are also retaining some traditional methods to create hybrid business models that combine both high-tech and low-tech approaches, which from the perspective of developed countries seem unsuited to the digital age. This situation reflects the fact that digital and non-digital fields have not developed side by side in Southeast Asia, as they have in many developed countries.
3. These characteristics are seen in the following examples of typical fintech businesses in Southeast Asia.
 - (1) Mobile payment services: These can be used even by people who have no bank accounts. Money can be loaded into accounts in mobile devices by paying cash to affiliated retailers and other outlets in the local community.
 - (2) Services that allow cash transfers using only mobile phone numbers: Singapore and Thailand are both engaged in national initiatives in this area as part of their efforts to create domestic infrastructure for electronic payments.
 - (3) Mobile overseas money transfer services: These services evolved to meet the needs of a region in which large numbers of people travel overseas to work. They are promoted as being easier, cheaper, and faster than conventional systems.
 - (4) Lending services based on the use of alternative data: These businesses collect and analyze digital footprints and use this information to compensate for or provide an alternative to underdeveloped credit information systems.
4. One area which is leading the fintech boom in Southeast Asia is mobile payments. Competition has intensified in this area due to a large influx of companies into the market. The Chinese companies Alibaba and Tencent are expected to step up their presence in the market sooner or later. Local companies, such as the powerful ride-hailing startups Go-Jek and Grab, are meanwhile positioning themselves strategically to take leading positions across the entire electronic payment service sector in Southeast Asia.
5. Fintech businesses are also attracting attention from Southeast Asian governments, which want to ensure the sound development of fintech as a way to develop and enhance the financial systems of their countries. There are especially high hopes toward the role of fintech in the achievement of financial inclusiveness and the creation of a cashless society.
6. Many hurdles will need to be overcome before fintech businesses can become firmly established in Southeast Asia and contribute to the solution of the region's financial problems. What is most important is to ensure the reliability of fintech businesses. That will require both public and private initiatives, including the creation of mechanisms and rules, the establishment of security measures, and awareness-raising activities for users.

Introduction

In recent years there has been a global trend toward the convergence of finance and IT in the form of fintech, leading to the emergence of various financial services. In Southeast Asia, this has led to the rise of various fintech businesses, especially problem-solving businesses that approach financial sector problems in Southeast Asia as business opportunities. These businesses are using technologies and business models that originated in developed countries and China as problem-solving tools. Another feature of these businesses is their ability to combine high-tech and low-tech approaches according to local conditions, by introducing cutting-edge technology while also keeping traditional methods.

In this article we will examine these characteristics of Southeast Asian fintech and the companies that use fintech. Part 1 will provide an outline of fintech businesses in Southeast Asia. Part 2 will examine the various finance-related problems in Southeast Asia that have led to the rise of fintech businesses in the region, and show how fintech can be used to resolve these issues. Part 3 will look at some typical examples of fintech businesses in Southeast Asia, and Part 4 will focus on mo-

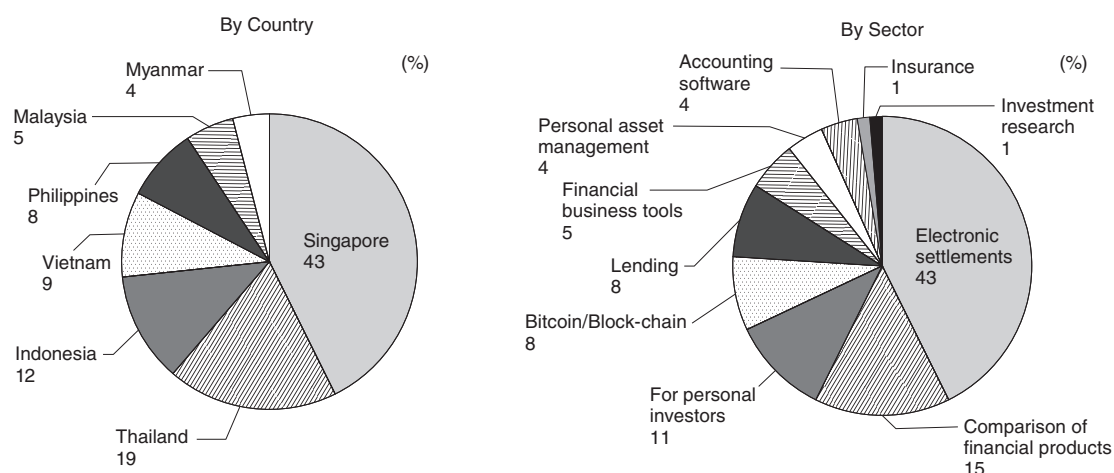
bile payments, which is leading the fintech boom in Southeast Asia, focusing in particular inroads by Chinese companies and trends in the ride-hailing business. Part 5 will show how governments are looking at fintech businesses in terms of their potential to contribute to the solution of policy issues in each country.

1. Recent Developments of Fintech in Southeast Asia

(1) Upsurge in Fintech Businesses

An overview of fintech businesses in Southeast Asia can be obtained by looking at the list compiled by the Thai technology media firm Techsauce and market research and consultancy company RUAMKID in *Southeast Asia's Top 75 Fintech Companies Report 2017*⁽¹⁾. First, the top three countries in terms of head office locations for these companies were Singapore (43%), Thailand (19%), and Indonesia (12%) (Fig. 1). These figures confirm that while many fintech companies are concentrated in Singapore, which is the most

Fig. 1 Attributes of the Main Types of Fintech Companies in Southeast Asia (Survey of 75 Companies)



Notes: The 75 fintech companies were selected on the basis of funds raised, cross-border business expansion, and other factors (e.g., market leadership, business model innovation, links with large corporations). They include both existing and emerging companies.

Source: Techsauce, RUAMKID, *Southeast Asia's Top 75 Fintech Companies Report 2017*, February 2017

financially advanced country in Southeast Asia, they are also emerging in other countries in the region. Moreover, a significant number of companies have located their headquarters in Singapore, which, although small, offers an attractive business environment, including its regulatory and tax systems, while conducting their actual business activities in other countries.

Second, if we categorize these companies in terms of their field of business, nearly half (43%) are involved in the electronic payment business, including mobile payment services⁽²⁾. This is far higher than the percentage engaged in the second most common field of activity: financial product comparison (15%), and the third-ranked area: support for individual investors (11%). When looking at the global trend, less than 20% of companies in the Fintech 250 list⁽³⁾ compiled by CB Insights (2017 edition) are engaged in the electronic payment business⁽⁴⁾, reflecting the dispersal of companies across a broader spectrum of fields. This suggests that the electronic payment business is leading the growth of fintech in the Southeast Asian market, which still lacks depth.

Cross-aggregation by country and business field confirms that while many electronic payment companies are based in Singapore, such compa-

nies are also scattered across other countries in the region, indicating that companies are emerging throughout Southeast Asia (Table 1). However, five out of the six companies engaged in bitcoin- or blockchain-related activities are based in Singapore, as are all four providers of financial and business tools, which are primarily involved in supporting financial institutions and professional investors. This is because these companies must satisfy relatively sophisticated financial needs or require advanced financial technology. In contrast, only three fintech companies have their headquarters in Myanmar, and are involved in the electronic payments business. This appears to reflect the fact that diversified and sophisticated financial needs have only just started to evolve in Myanmar.

Key players in the fintech business in Southeast Asia include existing financial institutions and telecommunications companies, and also start-ups. Major financial institutions in each country already provide mobile banking services, and telecommunications carriers as well as financial institutions offer mobile payment services.

Fintech start-ups are becoming an increasingly important presence. Although the aforementioned list of Southeast Asia's top 75 fintech companies

Table 1 Major Fintech Companies in Southeast Asia by Country and Field

	(Companies)							
	Singapore	Thailand	Indonesia	Vietnam	Philippines	Malaysia	Myanmar	Total
Electronic settlements (e.g., mobile settlements)	12	5	3	4	3	2	3	32
Comparison of financial products	2	2	2	1	2	2	0	11
For personal investors	4	3	1	0	0	0	0	8
Bitcoin/Blockchain	5	0	0	0	1	0	0	6
Lending	3	1	2	0	0	0	0	6
Financial/business tools	4	0	0	0	0	0	0	4
Accounting software	1	1	1	0	0	0	0	3
Personal asset management	0	1	0	2	0	0	0	3
Insurance	0	1	0	0	0	0	0	1
Investment research	1	0	0	0	0	0	0	1
Total	32	14	9	7	6	4	3	75

Notes: The 75 fintech companies were selected on the basis of funds raised, cross-border business expansion, and other factors (e.g., market leadership, business model innovation, links with large corporations). They include both existing and emerging companies.

Source: Techsauce, RUAMKID, *Southeast Asia's Top 75 Fintech Companies Report 2017*, February 2017

is not limited to start-ups, they make up the majority. Examples include the Vietnam-based company M_Service, which provides mobile payment services under the “MoMo” brand (examined later in this article), Coins.ph, which has its headquarters in the Philippines and provides payment services using mobile devices and blockchain technology, and Funding Societies, a P2P lending company based in Singapore. Some of these start-ups have attracted enough interest to be included in the global Fintech 250 list.

According to statistics compiled by CB Insights (Fig. 2), Venture capital (VC) investment in fintech start-ups in Southeast Asia rose from \$11 million in 2012 to \$177 million in 2015, a 16-fold increase. The total dropped slightly to \$158 million in 2016, but the growth trend has continued in terms of the number of investments. The fact that fintech has become a significant focus for VC investment is confirmed by its share of total technology-related investment over the past three years (2014-2016), which reached 9.2% in value and 17.1% in volume. In 2016, VC investment in fintech in Japan was similar to the level in Southeast Asia at \$154 million.

In addition to specialized fintech start-ups, a

growing number of start-ups from other sectors are also moving into the fintech business in Southeast Asia. In the area of electronic payments, especially mobile payments, start-ups from fields ranging from e-commerce to online gaming and ride-hailing services have moved into the area. In many countries, there is now a proliferating array of schemes formed by start-ups in collaboration with existing financial institutions and telecommunications companies. Two companies that are attracting attention in the area of electronic payments are Go-Jek (head office: Indonesia) and Grab (head office: Singapore), both of which are involved in the ride-hailing business. We look at their activities in greater detail later in this article.

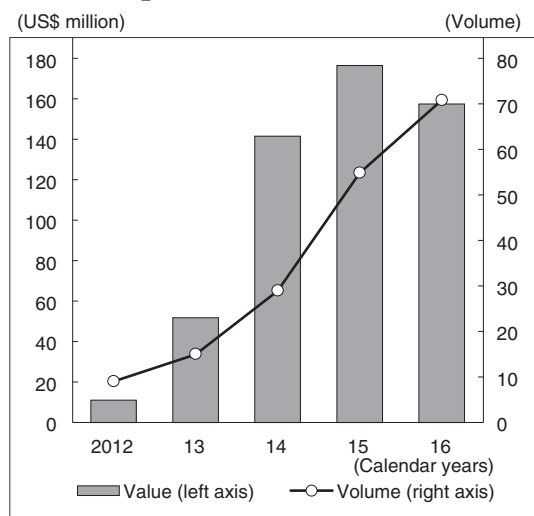
(2) The Significance of Fintech for Southeast Asia

In the emerging markets of Southeast Asia, there is ample scope for the development of fintech businesses. This is because of the big potential of fintech to solve the many issues affecting the financial environment in these countries.

In developed countries, the level of financial services available is already relatively high, which means that the improvements provided by fintech solutions are generally only marginal⁽⁵⁾. While fintech can enhance usability and yield cost savings for financial institutions, so far it has not triggered any dramatic changes to the financial industry. Blockchain technology has that potential, but full-scale practical implementation is still some distance in the future.

This contrasts with the situation in Southeast Asia, where fintech has the potential to have a major impact on the financial sector. The region’s financial systems are underdeveloped, and in many countries there is considerable room for improvement through the use of fintech. Various things that were previously difficult can now be achieved with fintech, and the benefits gained from these new possibilities are substantial. Similar factors explain the surge of fintech activity in China and India.

Fig. 2 Fintech Investment by Venture Capital in Southeast Asia



Source: CB Insights, *Southeast Asia Fintech Deals Hit a New Record*, March 17, 2017

Another factor that affects the scope for the emergence of fintech businesses is differences in regulatory surroundings. In developed countries, financial activity is already subject to stringent regulations, which tend to create barriers when fintech start-ups try to introduce pioneering initiatives. In contrast, many Southeast Asian countries offer an environment in which fintech start-ups can operate freely because their regulatory systems are either relatively relaxed or have not yet been established.

2. The Role of Fintech in Finding Solutions to Issues in Southeast Asia

(1) Key Financial Issues

In this section, we will analyze problems affecting the financial environment in Southeast Asia. Most of these issues are common to developing and emerging countries.

First, there is a significant population of people who have problems in terms of identify verification and credit checking, especially among low-income earners. From the perspective of banks, providing services to these people is both difficult and expensive. A significant number of people have no documents that can be used to verify their identities, and even when such documents are available, their authenticity is questionable. For example, in Indonesia all citizens over the age of 17 possess an ID card (Resident Identity Card), but because of inadequacies in managing the system, fraud is not uncommon. For example, some people possess multiple ID cards, while there are occasional cases of forgeries⁽⁶⁾. For this reason, banks need to ask for multiple identifying documents and spend time verifying them.

In addition to the difficulty of identity verification, the challenge of assessing creditworthiness is significant due to the inadequacies of credit information systems in Southeast Asia. Credit bureau coverage (the larger of either public on private) is

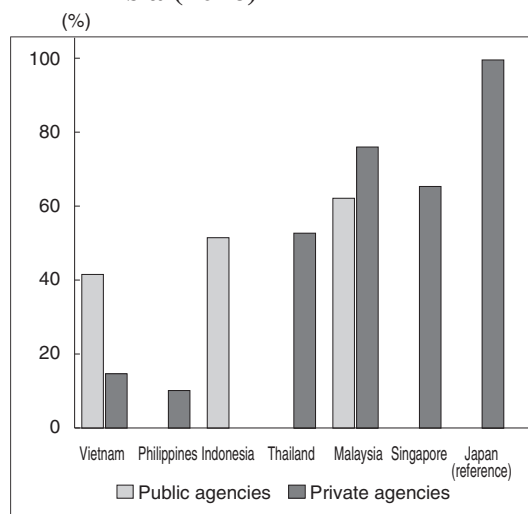
50% in Thailand and Indonesia, 40% in Vietnam, and only 10% in the Philippines (2016, Fig. 3). Even in Singapore the coverage ratio is only 66%, reflecting the fact that its credit information agency, Credit Bureau Singapore, was established relatively recently in 2002.

In addition, the financial needs of low-income earners, whether deposits or loans, tend to involve small amounts, leading to higher operating costs for the providers of these services. As a result, banks have been reluctant to offer financial services to low-income individuals and have concentrated their branch and ATM networks in urban areas. They have also been charging account maintenance fees, and have applied strict terms and high interest rates to loans. Another factor is low financial literacy among low-income people. For these reasons, formal financial services have not been widely available to people in these countries. In Southeast Asia, this situation has led to the following problems.

(a) Low Bank Account Holdings

The percentages of people with bank accounts in Southeast Asian countries are just 31.8% in the Philippines and 30.0% in Vietnam. In other coun-

Fig. 3 Credit Bureau Coverage Ratios for Individuals in Southeast Asia (2016)



Notes: Percentages of adult population.
Source: World Bank, *World Development Indicators*

tries the ratios are below 30%, at 29.1% in Laos, 25.6% in Myanmar, and 17.8% in Cambodia (all figures from 2017, Table 2). There is also a disparity within the country, based on income level and region. For example, in many countries the percentages of low-income and rural people with bank accounts are lower than the national averages.

There are various reasons for the low percentage of people with bank accounts, including a lack of nearby banks, the difficulty and bother of submitting multiple identity verification documents, application procedure taking several weeks before a bank account can be opened, and the cost of bank account maintenance fees. In addition, many people basically have no reason to open a bank account. On a global basis, the number of people without bank accounts is about 2 billion, or almost 40% of the world's adult population (5.5 billion)⁽⁷⁾. Almost 300 million of these people live in nine Southeast Asian countries⁽⁸⁾.

(b) Limited Access to Bank Loans and Credit Cards

Inadequate credit information systems make it difficult for banks to assess creditworthiness. For

this reason, banks find it difficult to provide loans and credit cards not only to people who have no bank accounts, but even to those who hold accounts. In Thailand, for instance, access to loans is limited due to underdeveloped credit information systems, despite the fact that a relatively high percentage (81.0%) of people have bank accounts.

The percentages of people with credit cards are generally low in Southeast Asian countries. The ratio is 48.9% in Singapore and 21.3% in Malaysia, and below 10% in other key Southeast Asian countries (Fig. 4). Since credit cards are issued by banks, the low percentage of people with bank accounts is responsible for the low percentage of credit card holders. This situation has been aggravated by inadequacies in credit information systems.

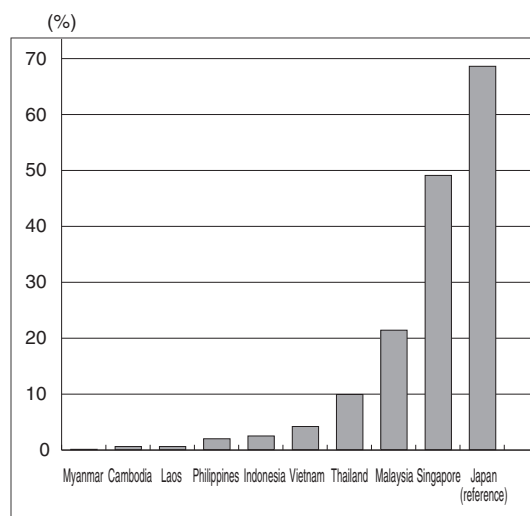
The inability to obtain financing from banks when needed has an even greater impact on SMEs, micro-enterprises, and individual business operators than on individuals, including missed growth opportunities, and insufficient resilience to overcome emergency situations. In a survey conducted by the International Finance Corporation (IFC)⁽⁹⁾, as many as 40% of informal enterprises (enterprises not registered with a local govern-

Table 2 Percentages of People with Bank Accounts in Southeast Asian Countries

	Bank account holding ratio (aged over 15, %)				Number of ATMs per 100,000 adults
	Lower 40% by income	Upper 60% by income	Rural		
Singapore	97.8	96.1	99.0	—	57.7
Malaysia	85.1	80.2	88.4	80.8	48.1
Thailand	81.0	76.9	83.6	80.2	113.1
Indonesia	48.4	36.0	56.6	46.7	54.7
Vietnam	30.0	20.3	36.5	24.6	24.5
Philippines	31.8	17.5	41.2	26.1	27.1
Laos	29.1	17.4	36.8	22.4	24.3
Myanmar	25.6	22.1	28.0	24.8	2.7
Cambodia	17.8	10.3	22.8	15.6	6.7
Japan (reference)	98.2	97.5	98.7	97.3	127.8

Notes: 2017 figures. ATMs for Cambodia are 2014 figures. Source: World Bank *Global Findex Database*, *World Development Indicators*

Fig. 4 Percentages of People with Credit Cards in Southeast Asia



Notes: 2017 figures. Source: World Bank, *Global Financial Inclusion Database*

ment or tax department, or individual business operators) in Malaysia, Indonesia, the Philippines and Vietnam stated that they needed finance but were unable to access it (Fig. 5). Given the high percentages of informal enterprises in these countries, the negative effects of this situation are significant. Furthermore, 60% of Indonesian SMEs (5-250 employees) stated that they needed finance but were unable to access it, indicating that formal as well as informal companies struggle to secure finance from banks.

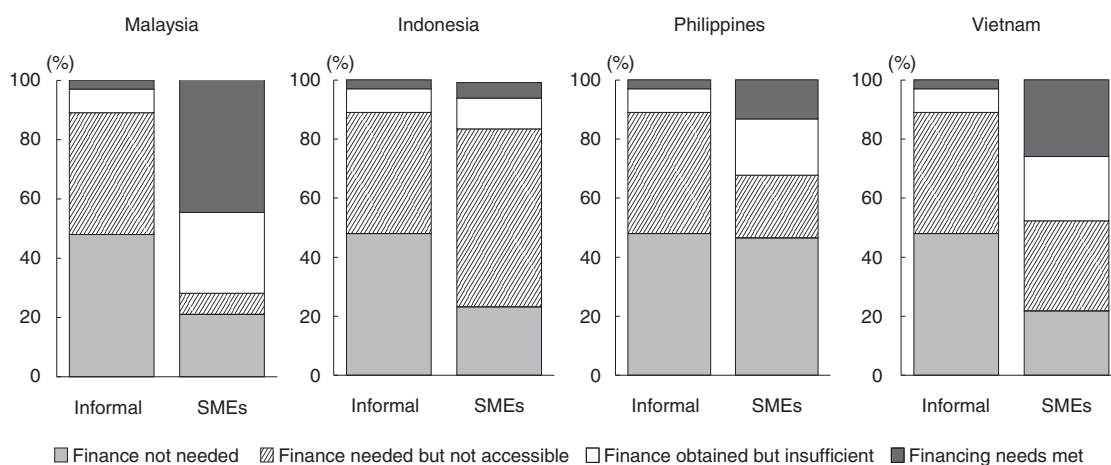
(c) Low Utilization of Banking Services

Usage levels are low not only for loans and credit cards, but also for other banking services, such as deposits and money transfers. Reasons for this include poor access to physical banking facilities, such as branches and ATMs, long lines at bank counters, a lack of spare money to deposit in accounts because of low incomes, and failure to think of using banking services due to low financial literacy rates. Indonesia has 54.7 ATMs per 100,000 adults, which is about 40% of Japan's figure (127.8). The totals for Vietnam (24.5) and the Philippines (27.1) are just 20% of the figure for Japan (see Table 2 above).

In the Philippines, for example, it takes an average of 25.9 minutes to reach a bank, and the waiting time after arrival averages 32.9 minutes. Even with ATMs, the situation is similar. It takes an average of 21.9 minutes to reach an ATM, and the average time waiting in line is 16.5 minutes⁽¹⁰⁾. Of course, these times are averages. The Philippines has over 2,000 inhabited islands, and there are many places where the nearest ATM is several hours away by sea and overland. As the world's largest archipelago nation with over 8,000 inhabited islands, Indonesia faces similar problems. Even when an ATM is installed on an island, the cash is replenished only on a weekly basis, resulting in situations where the machines run out of money less than three days after being refilled⁽¹¹⁾.

Many people from the Philippines, Indonesia, Vietnam, and other countries work overseas, creating a need for workers to send money home to their families, and for families to access that money. Despite these needs, the systems are inconvenient and costly for both senders and receivers of these funds, either because people do not have bank accounts, or because of the poor accessibility of real-world facilities, and the problems involved are even greater than those affecting domestic

Fig. 5 Fulfillment of Financing Needs of SMEs in Four Southeast Asian Countries



Notes: Informal enterprise: An enterprise not registered with a local government or tax department, or a self-employed person.
SME: Enterprises with 5-250 employees.

Source: IFC Enterprise Finance Gap Database (2011 data)

transfers. Moreover, because of the high demand for money transfers, these services are generally provided by money transfer operators, who generally charge high commissions.

(d) Cash-Based Societies

People who do not have bank accounts or credit cards must carry out money transactions in cash. As discussed later in this article, cash transactions involve high handling costs and are an impediment to economic efficiency. In addition, the difficulty of tracking cash transactions in cash-centered societies encourages the formation of underground economies and tends to have a negative impact on economic monitoring and tax collection.

In Indonesia, the Philippines, Vietnam and Thailand, over 60% of wages are paid only in cash (Fig. 6). Concerning social security benefits, 34.5% paid in cash in Indonesia, and 57.2% in the Philippines (Fig. 7). Cash is the main medium for face-to-face payments, and even in e-commerce there is limited use of credit cards, which are by far the dominant payment method in Japan. Many people do not have credit cards, and even those that do refrain from using them because of secu-

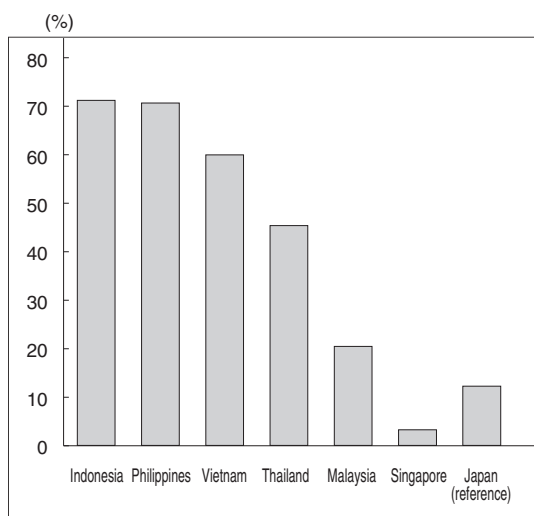
rity concerns. Cash-on-delivery is used for around 80% of e-commerce payments in Thailand and almost 70% in Indonesia (Fig. 8)⁽¹²⁾. In this way, cash is used to receive and pay money in everyday life. According to one survey, over 70% of consumers in the Philippines and Indonesia frequently use cash as a payment medium in their daily lives (Fig. 9).

The Southeast Asian country that is making the greatest progress toward a cashless society is Singapore. For example, few people receive wages or social security benefits in cash, and credit card usage is relatively high. Even so, cash is still commonly used in some places, such as hawker centers and small retail outlets⁽¹³⁾. That is partly why Singapore’s ratio of cash flow balance to nominal GDP is above the 9.03% average for countries included in the statistics⁽¹⁴⁾ at 10.36% (2016), indicating that its progress toward a cashless society is not great from a global perspective⁽¹⁵⁾.

(2) Changes Caused by Fintech

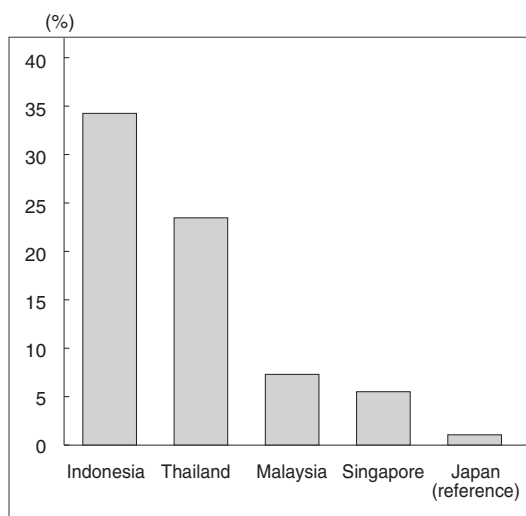
What specifically can fintech achieve that were

Fig. 6 Percentages of Workers Paid in Cash in Southeast Asian Countries



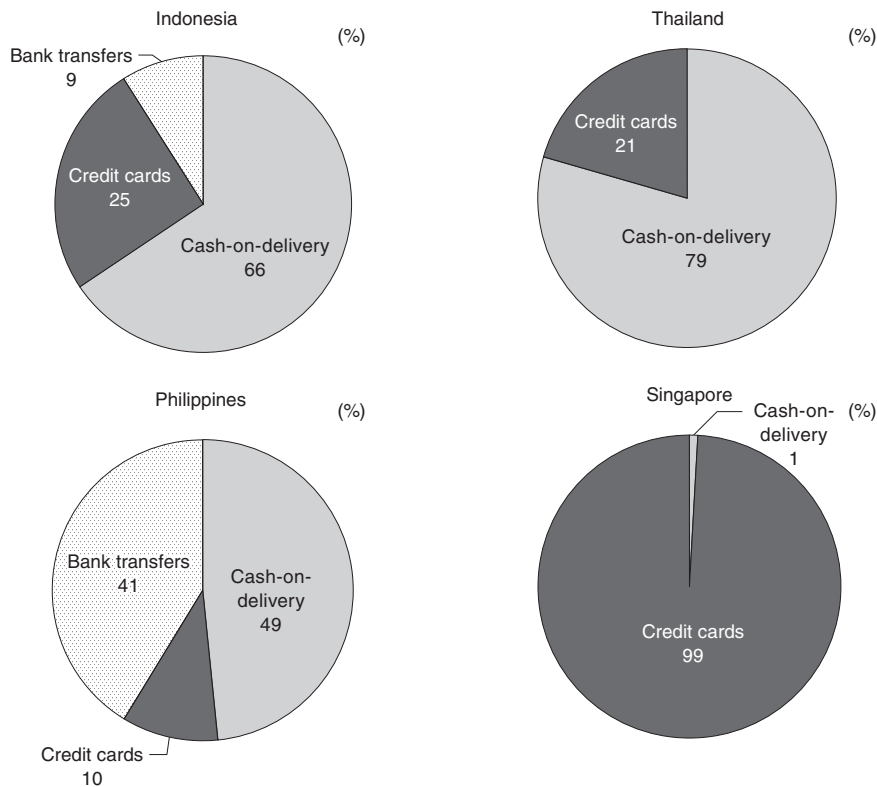
Notes: Percentage of wage-earners paid only in cash (2017 figures).
Source: World Bank Global Financial Inclusion databank

Fig. 7 Percentage of Social Security Beneficiaries Paid in Cash in Southeast Asian Countries



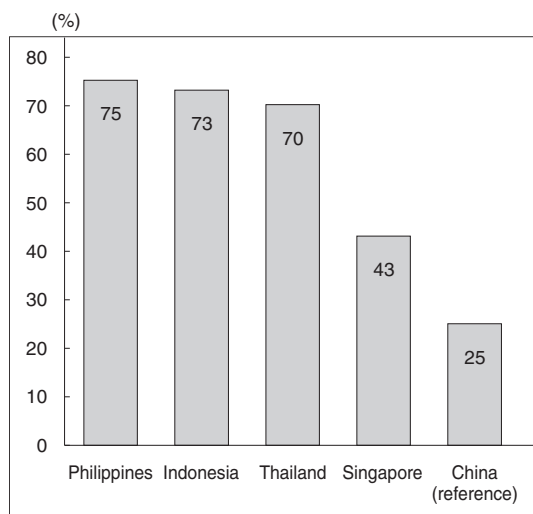
Notes: Percentage of social security beneficiaries paid only in cash (2017 figures).
Source: World Bank Global Financial Inclusion databank

Fig. 8 E-Commerce Payment Methods in Key Southeast Asian Countries (March 2017)



Notes: Based on the results of an interview survey with EC companies in each country about methods used to obtain payment after the sale of physical goods, excluding ticket purchases, game charges, etc.
 Source: ecommerceIQ, *Southeast Asia Payment Methods Data: Cash-on delivery up, despite onslaught of fintech*, March 29, 2017

Fig. 9 Most Common Payment Methods Used by Southeast Asian Consumers (Percentages Indicating “Cash” in Survey Responses)



Source: PayPal, *Digital Payments: Thinking beyond Transactions*, August 2017

not previously possible? An analysis of issues in Southeast Asia’s financial environment provides the following answers to this question.

First, fintech has transformed mobile devices, such as smartphones, into portable ATMs, allowing users to access basic financial services without needing to go to bank branches or ATMs. In addition, it is now possible to use mobile devices to make payments, both online and face-to-face. The funds that can be used for these mobile payments is no longer limited to money tied up in bank accounts and credit cards, thanks to the emergence of electronic money, which can be used even by people who have no bank accounts or credit cards. With QR code payments⁽¹⁶⁾, accepting electronic payments has become possible at low costs, making this method attractive to retailers that handle small-ticket items, such as street vendors.

At the same time, fintech has made it possible

for financial service providers to acquire customer information more easily and at a lower cost than in the past. Identity verification processes can be completed more quickly and no longer need to be carried out at specific locations, thanks to new methods such as image capturing of documents. The use of biometrics is also leading to faster processing and cost reduction.

In addition, financial service providers have greatly expanded the range of information that they can acquire about both individuals and businesses by tracing their digital footprints. For individuals, the content of a person’s social media posts, the types of goods they buy through e-commerce, and the sites that they access can to some extent be used to gauge their incomes and personal characters, such as whether they are responsible enough to repay loans punctiliously. Digital footprints can also be used to assess the credit worthiness of SMEs, which is usually difficult if you rely on conventional means. The financial position of an SME that has opened a store on an e-commerce site can be ascertained from various data such as sales figures and deposits to and withdrawals from payment accounts. Methods have been developed to allow rapid, low-cost credit checking by automatically collecting and analyzing vast amounts of data without human intervention.

One factor that has enabled Southeast Asia to benefit from fintech in these ways has been the

growing availability of the Internet and smart-phones in the region. The Internet and social media penetration rates have reached 53% and 47% respectively (Fig. 10)⁽¹⁷⁾, while 40% of people have bank accounts and over 3.5% are credit card holders⁽¹⁸⁾. This situation is driving the continual emergence of fintech businesses based on the use of the Internet and smartphones in Southeast Asia.

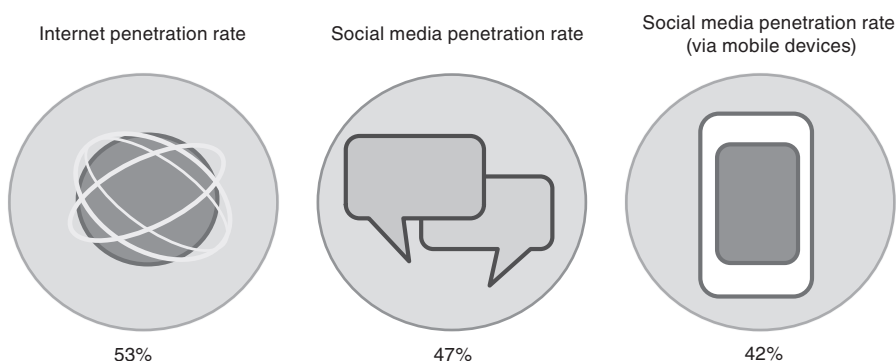
(3) Characteristics of Southeast Asian Fintech Businesses

Some of the fintech companies that have emerged in Southeast Asia are not much different from their counterparts in developed countries. However, there are also many businesses with characteristics that are unique to Southeast Asia and emerging countries. Overall, the following three characteristics can be observed.

First, many of these businesses are being established to solve problems. This reflects the numerous issues that the Southeast Asian financial sector faces. Founders of fintech start-ups in this area begin not by thinking about what they can achieve with fintech, but by identifying problems and considering whether they can use fintech to solve them.

Second, the underlying technologies and business models utilized by fintech businesses in

Fig. 10 Access to Digital Systems in Southeast Asia



Source: We are Social Singapore, *Digital in 2017: Global Overview*, 2017 (<https://wearesocial.com/sg/>)

Southeast Asia were generally not developed in the region but were instead imported from developed countries and China. Southeast Asian entrepreneurs and business owners identify financial issues in the region and scour the world for fintech technologies and business models with the potential to solve those issues. They then integrate these technologies and business models into their own business operations. From another point of view, which relates back to the first characteristic of these businesses, fintech is fundamentally a tool for solving problems and little importance is attached to where the technology was originally developed or whether it is simply a rehash of another technology.

Third, the fintech businesses in Southeast Asia employ business models that combine both high-tech and low-tech methods. Countries normally make progress gradually by introducing technology in stages, but because emerging and developing countries have fallen behind developed countries, they are generally able to “leapfrog” intermediate stages and achieve rapid evolution by introducing the latest technology. While Southeast Asian fintech companies adopt cutting-edge technologies and business models, they also retain traditional methods that seem unsuited to the digital age from the perspective of developed countries. For example, even in situations where mobile payment services are available, those services cannot be accessed fully from mobile devices and must be complemented by ancillary services provided by partners, such as small retailers in local communities. One reason for this is the fact digital businesses and other types of businesses have not evolved at the same pace in Southeast Asia, resulting in gaps that do not exist in developed countries. A good example is that many people have smartphones but not bank accounts, a basic necessity from a developed country’s point of view.

In the following section we will look at fintech businesses that illustrate these characteristics.

3. Typical Fintech Businesses in Southeast Asia

(1) Mobile Payment Services

(a) Typical Scheme

Mobile payment services that have emerged in Southeast Asia are basically the same as those in developed countries. However, one feature that is not common in developed countries is the availability of measures that can be used by people who do not have bank accounts. As in other emerging and developing countries, most mobile phones are prepaid types, for which call charges must be paid in advance. Users top up from bank accounts, or in cash through local retail outlets and convenience stores. Many of the mobile payments have features that you can load electronic money in the same way.

(b) Case Study: MoMo⁽¹⁹⁾

MoMo is a payment service in Vietnam operated by the start-up M_Service. The company launched the service in 2009 after perceiving a business opportunity resulting from two factors. First, most low-income people were unable to access financial services. Second, smartphones were rapidly becoming common in Vietnam, including rural areas. Initially M_Service provided payment services using SIM cards, but in 2014 it switched to its own mobile payment app called “MoMo”⁽²⁰⁾. The app can be used to load electronic money and carry out various transactions relating to electronic payments, including money transfers between individuals, utility charge payments, online shopping payments, and airline ticket reservations.

In response to the current environment in Vietnam, M_Service’s target user base includes not only people with bank accounts, but also people with bank accounts but no local access to bank branches or ATMs, people without bank accounts, and even people who do not own smartphones. To meet the needs of this broad customer base, M_Service has established a network of around 4,000 agents throughout Vietnam. These agents enable

people who cannot go to bank branches or ATMs as well as people without bank accounts to load prepaid electronic money for use in mobile payments, and to receive cash transferred to them. Those who do not own smartphones can have the agents use their mobile payment facilities to transfer funds or pay utility charges on their behalf.

Currently about one-half of MoMo customers are users of mobile payment services, while the other half use agent services⁽²¹⁾. The company's approach reflects the situation in Vietnam, where customer needs for financial services cannot be met solely through mobile devices. They even offer a feature that allows users to find the nearest agent using the GPS function on their smartphones.

In rural areas of Vietnam, post offices play an important role in providing financial services, such as remittances and payments, for people who do not have bank accounts. However, these services are not entirely customer-friendly. For example, counters normally close at 5 p.m., and remittances take 3-4 days⁽²²⁾⁽²³⁾. MoMo agents have longer operating hours than post offices, and remittances reach recipients instantly.

In November 2017, M_Service entered into a partnership with Vietnam Sun Corporation (Vinasun), a major local taxi operator⁽²⁴⁾ and announced several new services. One of them is that, when boarding a Vinasun taxi, the user will be able to pay with electronic money through the MoMo app by using the smartphone to scan the QR code provided by the driver. Another is, passengers who book Vinasun taxis using the Vinasun app will be able to link with the MoMo app so that they can pay automatically.

In addition to service content, M_Service claims that it has made security a priority with the MoMo system. It meets the PCI DSS⁽²⁵⁾ standard and has also adopted layered security measures, such as one-time password verification and SSL⁽²⁶⁾.

(2) Money Transfers Using Just a Mobile Phone Number

(a) Typical Scheme

This service allows a recipient to link a bank account number to his or her mobile phone number. Thereafter money can be transferred to that person simply by entering the mobile phone number. Services of this type are already being introduced worldwide by telecommunications companies and banks. What is unique about this kind of service in Southeast Asia is the fact it is being promoted by the governments of both Singapore and Thailand. Their aim is to improve the convenience of credit transfers and payments as part of efforts by governments, private sector financial institutions, and other organizations to develop electronic payment infrastructure in these countries.

(b) Case Study: PayNow (Singapore), PromptPay (Thailand)

Established under an initiative led by the Association of Banks in Singapore and the Monetary Authority of Singapore (MAS), the PayNow bank account transfer service has been available in Singapore since July 2017. Using a smartphone, funds can be transferred almost instantly and with no transfer fees by entering the mobile number or national ID number that the recipient has linked to his or her bank account. Currently the system is limited to person to person (P2P) payments, but there are plans to extend it to accommodate person to business (P2B) payments, including payments to taxi operators, hawkers (street vendors), and self-employed people, and B2P payments, such as wages and insurance payments⁽²⁷⁾.

Thailand's equivalent service, PromptPay, was introduced even earlier, in January 2017, under an initiative led by the Thai Banking Association and Bank of Thailand, Thailand's central bank. Funds can be transferred via a smartphone, Internet banking, or an ATM by entering one of five types of numbers, such as a mobile phone number or national ID number⁽²⁸⁾. Transfers are free for amounts up to 5,000 baht (about ¥17,000). Charges apply for larger amounts, but overall costs are

low⁽²⁹⁾. PromptPay was initially available for P2P transfers, but it now also accommodates B2B transfers based on taxpayer (company) IDs. Future plans call for further expansion of the system to include other types of payments, such as utility charges.

By the end of August 2017, a month after the launch of the service, the number of registered PayNow users had exceeded 500,000⁽³⁰⁾. Given Singapore's population of 5.5 million, this figure is indicative of steady growth. By October 2017, the number of registered PromptPay users had reached 24 million, or one-third of Thailand's population (68 million)⁽³¹⁾.

In July 2017, MAS and Bank of Thailand agreed to cooperate in the fintech area and are now working toward the interlinkage of PayNow and PromptPay. Once this is achieved, it will be possible to transfer money between Singapore and Thailand instantly and safely simply by entering the other party's mobile phone number⁽³²⁾.

(3) Mobile International Remittance Services

(a) Typical Scheme

Many people in Southeast Asian countries, especially the Philippines, work overseas. These people generally remit funds each month to their families in their home countries, primarily through specialist money transfer operators such as MoneyGram and Western Union. Many expatriate workers do not have bank accounts, and even those that do are eager to avoid the high transfer charges levied by banks⁽³³⁾. With money transfer operators, transfers commonly involve time-consuming manual processes, and it takes time for the money to reach the recipients. This situation has recently led to the emergence of services that allow people to remit money overseas easily and at low prices using mobile devices.

(b) Case Study: Toast (1)⁽³⁴⁾

Toast (head office: Singapore) provides international remittance services that allow Philippine

people working in other countries to send money back home using mobile devices. The service is currently available in Hong Kong and Singapore, but the company aims to increase the range of countries in the future. The co-founder and CEO is Aaron Siwoku from the United Kingdom. He had the idea for the service after seeing Philippine women waiting in long lines to send money home and noticing that they all had smartphones in their hands⁽³⁵⁾.

The person making the remittance loads funds through a smartphone app and then completes the transfer process. There are multiple ways to load funds, including transfers from a bank account. Users can also load cash at affiliated stores. To use this method, the person wishing to make a remittance first scans identification documents into his or her mobile phone and then goes to an affiliated store to hand over the cash. This saves time, since confirmation of identity, which previously had to be carried out in the store, can now be completed in advance on a smartphone. Another advantage of this system is that it is based on a familiar remittance method and is therefore easy for users to accept⁽³⁶⁾. A method that would allow the entire process to be completed on a mobile device would be more convenient, but there is a risk that existing customers would not use such a service because of the psychological resistance to new ways of doing things.

Recipients in the Philippines can choose from three methods for receiving remittances. They can have the money sent to the Toast app or their bank account, or obtain cash at an affiliated retail outlet. This means that the service can be used even if neither the remitter nor recipient has a bank account. The service fee is set low. There is no charge for remittances from Hong Kong to the Philippines using the Toast App, while a charge of HKD15 (about USD2) is levied when funds are transferred to a bank account, and there is a HKD19 (about USD2.4) charge for transfers to an affiliated retail outlet.

Toast plans to use data accumulated through its remittance services to start a lending business for overseas workers. By monitoring monthly remittance amounts, the company can estimate the in-

comes of overseas workers to some extent as the basis for determining their creditworthiness⁽³⁷⁾.

(4) Lending Services Based on the Use of Alternative Data

(a) Typical Scheme

Credit screening schemes based on the use of digital footprints as alternative data have emerged in Southeast Asia. Credit providers have developed these schemes themselves or purchased them from other sources. The fact that credit is not widely available in Southeast Asia is attributable in large part to the inadequacy of credit information systems, which makes it difficult to assess the creditworthiness of potential borrowers. By using alternative data as the basis for credit checks, lenders are able to target new borrowers who were previously overlooked due to the lack of credit histories. In addition to the benefits for borrowers, this approach is also expected to allow credit providers to expand their customer bases.

(b) Case Study: LenddoScore⁽³⁸⁾

Lenddo (head office: Singapore) provides personal credit scores (“LenddoScore”) and identity verification (“Lenndo Verification”) services to organizations such as banks, micro-finance providers, and credit card companies. The credit score service is based on the perception that there are a certain number of people who are creditworthy despite having no data registered with credit information agencies, and that the repayment capacity and commitment of such people can be ascertained to some extent by analyzing their digital footprints, since they generally own smartphones.

Lenddo launched a lending business in the Philippines in 2011 and subsequently expanded into other countries, including Colombia and Mexico. However, it sold the lending business in 2015 and has since specialized in providing services to third parties. It currently offers its services in over 15 countries.

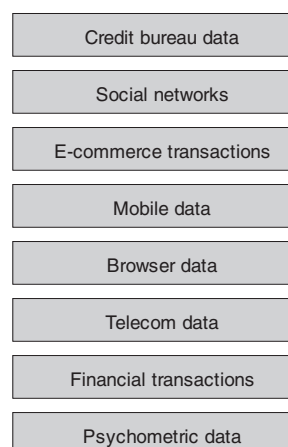
In addition to data provided by credit bureaus, Lenddo also collects and analyses alternative data

with the consent of loan applicants. Using this data, it calculates a credit score (1-1,000, where a higher score indicates a higher credit rating) using its own proprietary method, and supplies this information to banks and other organizations. The types of data gathered include smartphone usage data, social media data, and psychometric data (Fig. 11). For example, social media data gathered include pages accessed on Facebook, LinkedIn, Twitter, and the like, access frequencies, the number of friends, and the content of messages. If credit bureaus have data, those are also incorporated. Based on 12,000 data items per case, Lenddo calculates a score using an AI prediction algorithm. The process takes just three minutes.

Digital footprints are also used for the identify verification service, which can be completed in three seconds. Lenddo boasts that the system is highly accurate. Other advertised benefits include the fact that lenders can reduce the amount of documentation collected from customers, and the number of credit checks that need to be carried out by human staff.

Table 3 summarizes the four services of fintech businesses described in this section.

Fig. 11 Main Data Items Used in Credit Assessments by Lenndo



Source: Lenddo website (<https://www.lenddo.com/>)

Table 3 Typical Examples of Fintech Businesses in Southeast Asia

	Fintech service	Typical example			
			Provider	Country	Remarks
(1)	Mobile payment services	MoMo	M_Service JSC (HQ: Vietnam)	Vietnam	Also available to people without bank accounts
(2)	Money transfers using a mobile phone number	PayNow	Nine major banks (DBS, OCBC, UOB, etc.)	Singapore	Led by the Association of Banks in Singapore and Monetary Authority of Singapore
		PromptPay	All banks in Thailand	Thailand	Led by Thai Banking Association and Bank of Thailand
(3)	Overseas remittance service via mobile devices	Toast	Toast Me Pte Ltd. (HQ: Singapore)	Singapore, Hong Kong, Philippines	Designed to allow Philippine workers in Singapore and Hong Kong to send money home
(4)	Lending using alternative data	LenddoScore	Lenddo Pte Ltd. (HQ: Singapore)	Over 15 countries, including the Philippines, Thailand, and Indonesia	Based on smartphone usage data, social network usage histories, etc.

Source: Compiled by JRI using information from corporate/organization websites, etc.

4. Mobile Payment Trends in Southeast Asia

(1) Chinese Companies Making Inroads

As described earlier in this article, mobile payment services are leading the fintech sector in Southeast Asia. Many companies have already moved into this area. In Vietnam, for example, by the start of 2017, the number of non-banks licensed to provide payment services, including mobile payment services, had reached 16⁽³⁹⁾. The result is a free-for-all battle for business in which financial institutions are also involved. Similar situations are emerging in other countries, albeit with some variation. No clear winners have so far emerged. The Chinese companies Alibaba and Tencent are sooner or later expected to step up their efforts to establish inroads into this area. Go-Jek and Grab, which are powerful ride-hailing start-ups, are meanwhile moving to take control of general electronic payment services in Southeast Asia. This section will analyze developments surrounding the mobile payment business.

Both Alibaba and Tencent are starting to make significant inroads into the Internet sector in

Southeast Asia. Alibaba has acquired Lazada, the region's biggest e-commerce site, and Red-Mart, a major Lazada-based online seller of food and household goods in Singapore. Alibaba has also invested in Tokopedia, Indonesia's biggest e-commerce site. Through moves such as these, it has established a major presence in the Southeast Asian e-commerce market (Table 4).

Tencent has invested in Southeast Asia's biggest Internet company Sea (formerly Garena), which operates online games and other services, VNG, which is Vietnam's biggest Internet company, and Go-Jek. Other moves include the acquisition of Sanook Online, the biggest online portal in Thailand, and investment in Ookbee, a major Thai digital content platform provider.

Both Alibaba and Tencent are also steadily building a presence in the payment area in Southeast Asia. Both companies in China enhanced their understanding of consumers by collecting and analyzing their customers' payment data. They then used this knowledge not only to strengthen their existing businesses, but also to create foundations for the development of new businesses. The natural approach for them would be to attempt to replicate this approach in Southeast Asia. Alibaba has taken the lead and is working to make use of Alipay, an e-commerce site that it has acquired, in

Table 4 Main Activities of Alibaba in Southeast Asia

May 2014	Alibaba agrees to buy 10.35% of postal giant Singapore Post and enter into a strategic partnership to improve delivery networks for items sold on its platform.
November 2015	Alibaba invests in Series-C funding for Singaporean start-up M-Daq, which enables companies to process overseas transactions cheaply.
April 2016	Alibaba invests \$1 billion in Lazada, a major e-commerce company based in Singapore, and acquires management control rights. <ul style="list-style-type: none"> • Lazada was established in Germany by Rocket Internet in 2011. • It has developed business operations in Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam.
October 2016	Alibaba increases its stake in Singapore Post to 14.4% through an additional investment.
November 2016	Ant Financial announces the acquisition of a 20% shareholding in the online payment company Ascend Money (Thailand) with the option to acquire a further 10%. It also agrees to form a strategic partnership. <ul style="list-style-type: none"> • Ant Financial is the financial wing of Alibaba. • The Ascend Group, to which Ascend Money is affiliated, was spun off from True Corporation (a member of the CP Group), a major telecoms carrier in Thailand, in 2015. It is now affiliated to True's parent company, CP Group. • The target customers for Ascend Money are online payment users and consumers who have no banking accounts.
November 2016	Lazada acquires RedMart, an online food and household goods retailer in Singapore. <ul style="list-style-type: none"> • Established in 2011, RedMart has developed its business in Singapore.
February 2017	Ant Financial invests in Globe Fintech Innovations (Mynt) and enters into a strategic partnership. <ul style="list-style-type: none"> • Mynt is a finance company affiliated to Globe Telecom, a major telecoms carrier in the Philippines.
April 2017	Ant Financial merges with the HelloPay Group, which operates a payment platform on Lazada. <ul style="list-style-type: none"> • HelloPay is renamed "Alipay".
April 2017	Ant Financial enters into a partnership with Elang Mahkota Teknologi (Emtek), Indonesia's second-ranked media company. <ul style="list-style-type: none"> • The companies plan to provide a payment platform based on the BlackBerry social messaging system.
June 2017	Alibaba undertakes a further investment of approximately \$1 billion in Lazada, increasing its shareholding from 51% to 83%.
June 2017	Alibaba announces that it will launch Tmall World, a Chinese-language e-commerce site serving Singapore, Malaysia, Hong Kong, and Taiwan.
July 2017	Ant Financial enters into a partnership with Touch'n Go, a subsidiary of CIMB, a major Malaysian bank. <ul style="list-style-type: none"> • Touch'n Go provides prepaid payment cards.
August 2017	Ant Financial forms a partnership with the Singaporean company Fave. <ul style="list-style-type: none"> • Fave provides discounts for real-world outlets, such as restaurants, fitness centers, and beauty parlors. • Chinese tourists who use Alipay are now eligible for discounts.
August 2017	Alibaba invests \$1.1 billion in Tokopedia (Indonesia) and becomes a minority shareholder. <ul style="list-style-type: none"> • Established in 2009, Tokopedia is Indonesia's biggest e-commerce platform.

Source: Compiled by JRI on the basis of newspaper reports

Southeast Asia. Alibaba also has focused on the steady growth in the number of Chinese visitors to Southeast Asia and is working on creating an environment in which they can use Alipay in brick-and-mortar stores as they do in China.

(2) Entry of Ride-Hailing Start-ups

In China, mobile payment services first began to spread through e-commerce but have since started to be used in face-to-face transactions in brick-and-mortar stores, following the introduction of QR codes. In addition to this transition

from online payments to face-to-face payments, electronic payment services in Southeast Asia could also expand into mobile payment services through a transition from face-to-face payments to online payments. As noted earlier in this article, this is because the scale of online payments is still small, and services that allow mobile payments to be used in face-to-face transactions are being introduced one after another.

There has been particular interest in the mobile payment services provided by the ride-hailing service companies Go-Jek and Grab. Go-Jek is based in Indonesia, Southeast Asia's biggest country in terms of population, while Grab has its headquarters in Malaysia and is expanding its business

operations throughout Southeast Asia. Both have grown to the extent that they now rank among the few “unicorns” (unlisted companies with market valuations over \$1 billion) in Southeast Asia. Both companies provide taxi and bike-taxi services, and it is not surprising that face-to-face payments for these services would lead to the use of mobile payments by consumers. Developments surrounding these two companies are outlined below.

(a) Go-Jek

Founded in Indonesia in 2010, Go-Jek began to provide the bike-taxi ride-hailing app Go-Jek in Jakarta in 2015. Go-Jek’s services have become extremely popular, in part because people in Jakarta use bike-taxis frequently because of the city’s under-developed public transport systems and congested streets. Since then the company has extended its service areas and expanded its range of services, initially as a way of providing a useful way for drivers to use their free time. Currently it offers a wide variety of services, including food deliveries from restaurants (Go-Food), food deliveries from stores (Go-Mart), home cleaning (Go-Clean), and masseur services at the customer’s location (Go-Massage). One of those services is the Go-Pay electronic payment system.

By downloading the Go-Pay app onto their smartphones, users can pay for Go-Jek services with credit loaded into the app. Credit can be loaded through transfers from bank accounts, or deposits at ATMs. To allow people who do not have bank accounts to use the services, cash can also be paid to Go-Jek drivers. In addition to the convenience of not needing to engage in cash transactions by the side of road after using a bike-taxi, the system also matches conditions in Indonesia, where only a small percentage of people have bank accounts. Usage has expanded rapidly since it first became available in 2016, and currently 50-60% of Go-Jek rides are paid for using Go-Pay⁽⁴⁰⁾. Moreover, Go-Pay is now the fourth most commonly used form of electronic money in Indonesia⁽⁴¹⁾.

Go-Jek aims to promote the use of Go-Pay not only for payments for its own services, but also for electronic payments in general in Indonesia.

Users can already use Go-Pay credit to make payments in affiliated stores, and they can transfer money to other users free of charge simply by entering a telephone number. In addition, credit can be cashed at affiliated banks. In December 2017, Go-Jek acquired three fintech companies⁽⁴²⁾ with the aim of expanding the areas in which Go-Pay can be used⁽⁴³⁾.

According to figures released by the company, Go-Jek has 900,000 contracted drivers. This number is far larger than the number of bank branches (25,000) and ATMs (103,000) in Indonesia. The company’s founder and CEO, Nadiem Makarim, recently said that Go-Jek will use its drivers as financial access points to reach a wide range of consumers, including people who have previously not been able to use financial services⁽⁴⁴⁾. Go-Jek aims to become a leading player in electronic payments in Indonesia and across Southeast Asia. During an interview, Go-Jek’s President Andre Soelistyo said that his company’s goal was to build Go-Pay’s presence in Southeast Asia to the same level as Alipay and WeChatPay in China⁽⁴⁵⁾.

(b) Grab

Grab was established in Malaysia in 2012 as a start-up providing the GrabTaxi taxi hailing service. It has since relocated its headquarters to Singapore. While Go-Jek has specialized in Indonesia, Grab provides its services not only Singapore and Malaysia, but also in Indonesia, Thailand, Vietnam, the Philippines, Myanmar, and Cambodia. It has gradually expanded the scope of its services, which include “GrabCar,” a ride-sharing system for private cars, and “GrabHitch,” a system that allows people to hitch rides with people going in the same direction. Like Go-Jek, its services also include an electronic payment system called “Grabpay.”

GrabPay is used in basically the same way as Go-Pay. Initially it was necessary to link the GrabPay smartphone app to a credit card in order to load credit, but other methods have since been added, including deposits through bank ATMs, Internet banking, and affiliated convenience stores. As a result, the system can now be used by people who do not have credit cards or bank accounts. In

Singapore, over 75% of Grab service users pay through GrabPay⁽⁴⁶⁾.

Like Go-Jek, Grab wants its GrabPay system be used not only to pay for its own services, but for a wide range of other purposes throughout Southeast Asia. In a press release, the company's co-founder, Tan Hooi Ling said that Grab wants to be the region's leading payments platform⁽⁴⁷⁾. The company plans to focus initially on expanding the use of GrabPay in small retail outlets, which currently operate primarily on a cash basis, followed by expansion into the online payment area⁽⁴⁸⁾. As part of this strategy, it has been working since November 2017 to promote GrabPay to restaurants and hawkers (street vendors) in Singapore.

In 2017, Grab acquired Kudo, an Indonesian start-up established in 2014 to operate an online-to-offline (O2O) platform. Kudo provides services that allow people without bank accounts to make online purchases or buy mobile phone credit through the company's agents⁽⁴⁹⁾. By purchasing Kudo, Grab has acquired a network of over 500,000 agents in 500 cities and towns in Indonesia. It plans to use this network to enhance the convenience of GrabPay, including the expansion of locations where credit can be loaded, and to capture e-commerce payment business in Indonesia. Longer-term, it also aims to handle insurance and consumer loans through Kudo⁽⁵⁰⁾⁽⁵¹⁾.

(3) Expanding Use through Multiple Channels

Why are providers of ride-hailing apps playing such a prominent role in the mobile payment business in Southeast Asia? Possible reasons include the fact that taxis and bike-taxis are familiar modes of transport for the public, and both Go-Jek and Grab have high overall shares of the markets in which they have rolled out their services. An incentive for frequent users is the availability of a simple way to make cashless payments instead of muddling with cash.

The mobile payment systems provided by Go-Jek and Grab began for use with their own servic-

es, but the range in which the systems can be used has gradually expanded. The companies hope that people who get used to paying for taxi or bike-taxi rides with Go-Pay or GrabPay will also use the systems for other payments, including online payments. Going forward, they want to play a leading role in the development of cashless payments and financial inclusiveness in Southeast Asia.

From these perspectives, we can probably expect to see a gradual increase in the use of mobile payments in Southeast Asia, both through the use of mobile payments for e-commerce, and also through use of mobile payments for face-to-face payments when using ride-hailing services.

5. Southeast Asian Governments' Expectations toward Fintech

(1) Fintech Promotion Measures (Focused on Singapore)

Southeast Asian governments have taken a keen interest in the emergence of various fintech businesses in the region. Recognizing the potential of fintech to change the face of finance, governments are eager to ensure its sound development, so that it leads to the improvement and advancement of their countries' finance systems. Governments in each country are implementing a range of measures, including the formulation of policies, the establishment of specialist fintech units within financial regulatory and supervisory agencies, and the introduction of regulatory sandboxes⁽⁵²⁾ (Table 5).

Singapore has shown the greatest enthusiasm for the promotion of fintech. It hopes that fintech will (1) solve issues, (2) provide indirect support for Singapore's evolution as a smart nation, and (3) maintain and strengthen Singapore's status as an international financial center.

Concerning the first of these goals, while Singapore already has a fully developed financial system, there are still issues that need to be solved. The government is exploring the potential to use

Table 5 Fintech-Related Measures in Key Southeast Asian Countries

Malaysia	
Dec. 2011	Formulation of the Financial Sector Blueprint 2020 as a vision for financial sector in 2020 <ul style="list-style-type: none"> • Increase in the number of electronic payments per person from 44 in 2010 to 200
Feb. 2015	Announcement of regulations for investment-type crowd funding by Securities Commission Malaysia
April 2016	Announcement of regulations for P2P lending by Securities Commission Malaysia
June 2016	Establishment of the Financial Technology Enabler Group (FTEG) within the Malaysian central bank <ul style="list-style-type: none"> • Support for innovation that contributes to improvement in the quality, efficiency, and accessibility of financial services • Formulation and strengthening of regulatory policies to promote innovation in the financial sector
Oct. 2016	Introduction of a regulatory sandbox by FTEG
Thailand	
May 2015	Announcement of regulations relating to crowd funding by the Securities and Exchange Commission of Thailand
Dec. 2015	Approval of an e-payment master plan by the Thai cabinet and Ministry of Finance
2016-	Progressive introduction of regulatory sandboxes for securities, derivatives, KYC, etc., by the Securities and Exchange Commission of Thailand
Dec. 2016	Introduction of regulatory sandboxes by Bank of Thailand
Jan. 2017	Launch of the PromptPay C2C electronic money transfer service
May 2017	Introduction of regulatory sandboxes by the Thai Insurance Commission
Indonesia	
Aug. 2014	Launch of the “National Non-Cash Movement” by Bank Negara Indonesia <ul style="list-style-type: none"> • An initiative to encourage people to use non-cash payment methods
Nov. 2016	Establishment of a specialist unit (the Fintech Office) within Bank Negara Indonesia <ul style="list-style-type: none"> • Risk assessment and mitigation, fintech-related surveys
Nov. 2016	Introduction of regulatory sandboxes by Bank Negara Indonesia
Dec. 2016	Announcement of P2P lending regulations by the Financial Services Authority <ul style="list-style-type: none"> • Introduction of registration system
June 2017	Establishment of the FinTech Advisory Forum by the Financial Services Authority <ul style="list-style-type: none"> • Establishment of strategic direction for the development of the fintech industry
Philippines	
Dec. 2015	Announcement of a framework for a “National Retail Payment System” by Bangko Sentral ng Pilipinas <ul style="list-style-type: none"> • A framework of standards for retail payments in the Philippines, and management regulations and policies • Designed to promote a society that is less dependent on cash
Jan. 2017	Bangko Sentral ng Pilipinas approval for banks to provide services to their customers through cash agencies (Circular 940)
Feb. 2017	Announcement by Bangko Sentral ng Pilipinas of regulations concerning money transfers by non-banks, including e-money issuers, and money transfer platform providers (Circular 942)
Feb. 2017	Announcement by Bangko Sentral ng Pilipinas of regulations concerning virtual currencies (Circular 944)
March 2017	Announcement by Bangko Sentral ng Pilipinas of regulations to allow the use of technology instead of face-to-face contacts for KYC processes when banks commence transactions with new customers (Circular 950)
March 2017	Announcement by Bangko Sentral ng Pilipinas of guidelines concerning social media risk management (Circular 949)
Vietnam	
Dec. 2014	Recognition of e-wallets as payment services by the State Bank of Vietnam (Circular 39)
Jan. 2017	Announcement by the Vietnamese government of a plan to make Vietnam cashless by 2020 <ul style="list-style-type: none"> • Installation of card readers in all supermarkets, shopping malls, and retail stores • 70% of water, electric power and telecommunications utilities accepting card payments or online payments • Increase in the percentage of the 15-and-older population with bank accounts to at least 70%
March 2017	Establishment of the SBV Steering Committee on FinTech by the State Bank of Vietnam <ul style="list-style-type: none"> • Acceleration of the development of fintech companies under government guidelines

Notes: See Table 6 and 7 for information about policies in Singapore.

Source: Compiled by JRI using government press releases, media reports, and other sources

fintech to solve or mitigate these issues. For example, it aims to use blockchain technology to improve cross-border payment mechanisms time-wise and cost-wise compared to the existing methods, through correspondent banks. In addition, the Monetary Authority of Singapore (MAS) and the Hong Kong Monetary Authority (HKMA) are jointly implementing a blockchain-based digitalization project to improve the efficiency of trade finance, which at present still involves the exchange of large amounts of paper documents.

In relation to the second point, Singapore has made the “Smart Nation” concept a national strategy for the realization of its goal of becoming a knowledge- and innovation-intensive economy. Singapore is already a high-income country. The only way that it can maintain its position as a front-runner in the world economy is to open up paths to industrial advancement and economic development through its own innovation initiatives. Obviously fintech is vital to this strategy, since IT will play a vital role in both finance and financial innovation in a knowledge- and innovation-intensive economy. MAS believes that to become a “Smart Nation” Singapore also needs to become a “Smart Financial Centre.” It sees fintech as the key to the realization of the “Smart Financial Centre” concept, which it introduced in 2015.

Concerning the third point, the financial sector is one of the most important industries. In 2016 it accounted for 13.1% of Singapore’s GDP. Maintaining and improving the industry’s international competitiveness and the ability as a financial center to attract business from financial institutions around the world have consistently been national priorities for Singapore. To achieve these goals, Singapore needs to stay at the cutting edge of finance, and to reap the benefits of innovation as quickly as possible.

These expectations are reflected in the Singaporean government’s efforts to promote fintech, which are based on two approaches. First, the government is striving to optimize fintech-related regulations. According to the MAS, the requirements for fintech regulation are to maintain the stability of the financial system and the soundness of key players, and to protect consumer interests, while

also helping to accelerate financial innovation⁽⁵³⁾. Table 6 summarizes the main fintech regulations that have been introduced from these perspectives. MAS has placed particular emphasis on cyber security, and it has introduced a variety of measures based on its view that to promote fintech, it will be necessary to build reliability by ensuring security. In 2017, MAS established the Cyber Security Advisory Panel and created the post of Chief Cyber Security Officer within its organization.

Second, Singapore is developing infrastructure to encourage the use of fintech. It is creating soil for an ecosystem that will continually create fintech innovations and allow them to grow bigger. To ensure that the full benefit of these products can be realized, the government is also creating common fintech business standards and supporting fintech interoperability. The main infrastructure elements created so far are listed in Table 7.

Just as Singapore is enthusiastically promoting fintech, other countries are also showing strong interest. They have particularly strong expectations toward the potential of fintech to improve financial inclusion and create a cashless society. We will now look at these two aspects.

(2) Improving Financial Inclusion

Low-income and lower-middle-income countries in Southeast Asia have problems relating to financial inclusion⁽⁵⁴⁾, specifically the fact that a significant number of people are unable to access financial services. Financial inclusion is a key policy priority in these countries because of its potential to contribute to poverty eradication and economic development. A variety of initiatives have been implemented over many years. Even in Thailand, a middle-income country where a relatively high percentage of its people have bank accounts, bank loans and insurance are not widely available. Because of this the government is taking a keen interest in financial inclusion⁽⁵⁵⁾. While Singapore has largely achieved financial inclusion, its government sees this as a problem for Southeast Asia as a whole.

Table 6 Main Fintech Regulations Introduced by the Monetary Authority of Singapore (MAS)

Payments	<ul style="list-style-type: none"> • Payment regulations, which were previously divided into two categories according to the type of payment business (Note) have been integrated into activity-based regulations based on a single license. • This step was taken in response to fintech-related ambiguities and complexities concerning payment business categories.
Cloud services	<ul style="list-style-type: none"> • Guidelines have been created for the use of cloud services by financial institutions. • Formulated in response to an increase in the use of cloud services by financial institutions, these guidelines clarify the risks involved and the obligations and responsibilities of financial institutions.
Financial advice	<ul style="list-style-type: none"> • To facilitate participation in online financial advisory services (robot advisors), the requirements for participation in the financial advisory have been eased compared with those that apply to conventional financial advisory services, subject to certain safeguards. • This will allow investors to benefit from low-cost investment advice.
Insurance	<ul style="list-style-type: none"> • Insurance companies are now allowed to provide all types of life insurance online without advice. • Guidelines have been formulated concerning safeguards relating to the online sale of life insurance products.
Regulatory sandboxes	<ul style="list-style-type: none"> • In November 2016, MAS announced guidelines concerning regulatory sandboxes for fintech. • These allow eligible companies to trial innovative financial services for a specific period in a relaxed regulatory environment, subject to certain limits.
Cyber security	<ul style="list-style-type: none"> • Cyber security measures have been strengthened in recognition of the need for reliable cyber security to encourage the use of new technology and innovative services. • In September 2017, the Cyber Security Advisory Panel was formed. The panel consists of international experts on cyber-security. • In October 2017, a Chief Cyber Security Officer was appointed within the MAS.

Notes: The Payment Systems Oversight Act and the Money-changing and Remittance Business Act.

Source: Monetary Authority of Singapore, "Proposed Activity-based Payments Framework and Establishment of a National Payments Council," (consultation paper P009-2016), August 2016

Monetary Authority of Singapore, "MAS Issues New Guidelines on Outsourcing Risk Management; Introduces Guidance on Cloud Services," (media release), July 2016

Monetary Authority of Singapore, "Facilitating the Provision of Digital Advisory Services," (media release), June 7, 2017

Monetary Authority of Singapore, "Guidelines on the Online Distribution of Life Policies with no Advice," March 31, 2017

Monetary Authority of Singapore, "Fintech Regulatory Sandbox Guidelines," November 2016

Table 7 Infrastructure Created by the Monetary Authority of Singapore (MAS) to Facilitate Fintech

Provision of environments for collaboration and experimentation	<ul style="list-style-type: none"> • Looking Glass@MAS was opened in August 2016 as fintech innovation laboratory. • Lattice 80 was opened in November 2016 as a hub for fintech start-ups.
Electronic payment infrastructure	<ul style="list-style-type: none"> • In July 2017, the Association of Banks in Singapore, with the cooperation of MAS, introduce the PayNow service, which allows funds to be transferred between individuals' bank accounts using mobile telephone numbers or national ID (or alien registration) numbers. • The service can be used by linking an account in any of the nine banks participating in the scheme with a telephone number or national ID number. • The service can be used free of charge on a 24/365 basis and allows funds to be transferred almost instantly. • It meets the needs of customers who want to transfer funds simply and efficiently.
State-owned KYC businesses	<ul style="list-style-type: none"> • The MyInfo e-government personal information management service is being extended to the financial sector to improve the efficiency of KYC processes (Note) by allowing the use of personal data collected by the government. • The aim is to make banks' KYC processes less burdensome.
Blockchain infrastructure for inter-bank cross-border payments	<ul style="list-style-type: none"> • In collaboration with R3, which administers the Blockchain Consortium, MAS, the Singapore Exchange, and a consortium of banks are working toward proof of concept for the use of blockchain technology in cross-border inter-bank payments in foreign currencies. • This initiative is part of the blockchain inter-bank payment project (Project Ubin). Phase 1 (completed) focused on domestic inter-bank payments. The target from Phase 2 onwards will be cross-border payments. • Using cash as security, banks will acquire digital currency issued by MAS for use in transfers between banks. • This system is expected to involve less time and cost and provide greater resilience than the existing system of transfers through correspondent banks under centralized management.
Open API	<ul style="list-style-type: none"> • Financial institutions will be encouraged to develop and adopt API with as much openness as possible. • MAS and the Association of Banks in Singapore have jointly published the "Finance-as-a-Service API Playbook" as guidelines for the use of open API by financial institutions.

Notes: KYC ("know your customer") refers to the customer identity verification procedures that financial institutions are required to carry out when opening new accounts.

Source: Monetary Authority of Singapore, "Singapore's FinTech Journey—Where We Are, What is Next—Speech by Mr. Ravi Menon, Managing Director, Monetary Authority of Singapore, at Singapore FinTech Festival - FinTech Conference on 16 November 2016," November 16, 2016

The Association of Banks in Singapore, PayNow website (<https://abs.org.sg/consumer-banking/pay-now>)

Governments in various countries are promoting fintech as a way to achieve financial inclusion. Indonesia and the Philippines have adopted national strategies for financial inclusion, while Myanmar has drawn up a financial inclusion roadmap. Indonesia's strategy highlights the use of ICT, while the Philippines is focusing on the power of technology. Myanmar's roadmap points to the potential of mobile devices (Table 8).

While Vietnam has not formulated a national strategy, the Deputy Governor of its central bank has acknowledged the role of fintech, saying that "digital technology will help banks accelerate financial inclusion⁽⁵⁶⁾."

In fact, many of the fintech services that have emerged in Southeast Asia can lead to greater financial inclusion. As illustrated by the previously mentioned examples, even people without credit cards or bank accounts are able to benefit from various financial services by using mobile devices. The use of mobile payments can also encourage people to set up bank accounts. This expectation has been heightened by the success of the M-Pesa mobile money transfer service in Kenya. The spread of that system has led to a major improvement in financial inclusion in Kenya⁽⁵⁷⁾.

Mobile overseas money transfer services offer a way to send money abroad at lower costs than

traditional methods. This reduces the financial burden on people working overseas and their families. Also the increase in lending based on alternative data is improving access to loans for certain segments that were previously unable to obtain finance. This means, for example, that SMEs will be able to free themselves from a hand-to-mouth existence by obtaining loans to buy the latest equipment so that they can increase their earnings.

Awareness of these benefits is prompting governments to promote fintech while also taking steps to ensure that fintech contributes to financial inclusion. In addition to initiatives to improve the usability of services, such as encouraging service providers to achieve interoperability between different mobile payment platforms, governments are also ensuring that users can access financial services safely through supervision, regulation, and the prosecution of fraud. Other government initiatives include educational activities to enable users to make the best use of financial services.

Southeast Asian countries are looking closely at financial inclusion policies in India. The Singapore FinTech Festival hosted by the MAS in November 2017 included a session on India, and the Indian Minister of Finance was one of the speakers. Identity verification in India has become easier since the introduction of a biometric

Table 8 Financial Inclusion Policies in Three Southeast Asian Countries

Indonesia
"National Strategy for Financial Inclusion Fostering Economic Growth and Accelerating Poverty Reduction" (2012)
—Main fintech-related references—
"Technology can enable some of the most important bottlenecks to be overcome and increase the supply of financial services."
Philippines
"National Strategy for Financial Inclusion" (2015)
—Main fintech-related references—
"Use of technology and other innovations to reach the financially excluded"
Myanmar
"Financial Inclusion Roadmap 2014-2020" (2013)
—Main fintech-related references—
"Development of electronic payments will require the installation of essential payment, clearing and settlement infrastructure. This must remain a priority for the government."
"Mobile devices are expected to play a greater role in providing financial services to the people."

Source: Compiled by JRI from government releases in each country

national ID system called “Aadhaar”⁽⁵⁸⁾. India has also launched the Pradhan Mantri Jan Dhan Yojana (PMJDY), a project to ensure that every citizen has a bank account⁽⁵⁹⁾. Under this project, banks have agreed to provide savings accounts without charging account maintenance fees. By the end of 2017, just over three years since the launch of the project in 2014, 300 million new accounts had been created⁽⁶⁰⁾.

(3) Creating a Cashless Environment

In addition to financial inclusion, Southeast Asian governments also see fintech as a way to create a cashless environment (specifically, the reduction of the percentage of payments made in cash). What are the advantages of cashless payments? The Japanese government, which is also working to create a cashless environment, has highlighted the following advantages⁽⁶¹⁾. First, business operators spend less time handling cash. Second, there are convenience and safety benefits, including a reduced need for consumers and foreign tourists to withdraw cash. Third, government administration processes involving the receipt of levies or the payment of benefits can be more efficient⁽⁶²⁾. Many Southeast Asian countries have greater expectations toward these advantages than Japan. Because crime rates are higher than in Japan, the handling or transportation of cash involves greater risks for financial institutions, businesses, and consumers, and the costs are substantial. Furthermore, bank branch and ATM networks are less extensive than in Japan, with the result that the withdrawal of cash from a bank account is more troublesome. Another problem with cash is the difficulty of tracing flows of money and income. This encourages the formation of an underground economy with adverse effects in such areas as economic monitoring and tax collection.

The creation of a cashless environment is also highly significant from the viewpoint of financial inclusion. If money is paid and received in cash, individuals will feel little need to have bank accounts, with the result that the percentage of peo-

ple with bank accounts will remain low. This creates a vicious circle, since it becomes impossible to move away from a situation in which all transactions are handled in cash, which also hinders progress toward financial inclusion.

For this reason, the Malaysian government, for example, is promoting electronic payments as a method that is safe and more cost-efficient than money transfers based on paper (cash), and as an important tool for improving Malaysia’s economic efficiency and productivity and accelerating economic growth⁽⁶³⁾. The Thai government similarly believes that electronic payments will bring wide-ranging benefits to the people, businesses, and the government (Fig. 12) and is implementing five projects, including the aforementioned PromptPay system (Fig. 13).

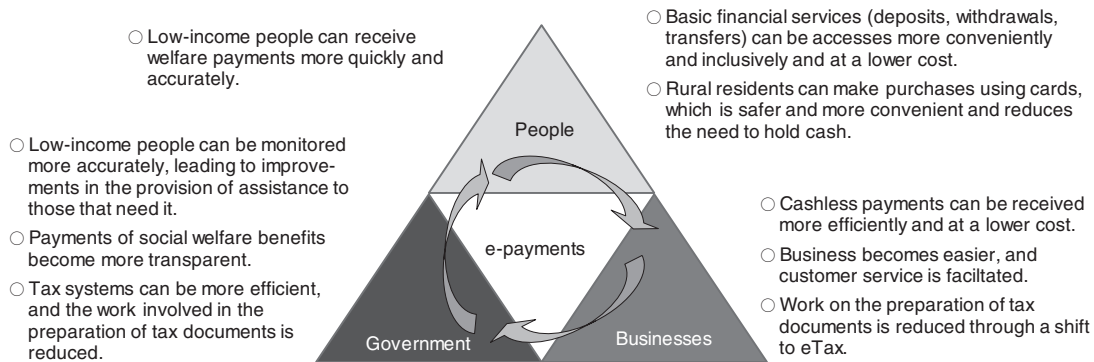
Some recent developments relating to fintech businesses in Southeast Asia are contributing to the creation of a cashless environment. Mobile payments in particular have the potential to encourage the use of cashless payments in both face-to-face transactions and e-commerce, while also reducing the need for exchanges of cash, which occur frequently at present.

Conclusions

This article examined the developments of fintech in Southeast Asia. There are many issues related to finance in Southeast Asia that are viewed by the private sector as business opportunities. This is reflected in the continuing emergence of fintech start-ups trying to solve these problems. Governments in the region are encouraging these developments.

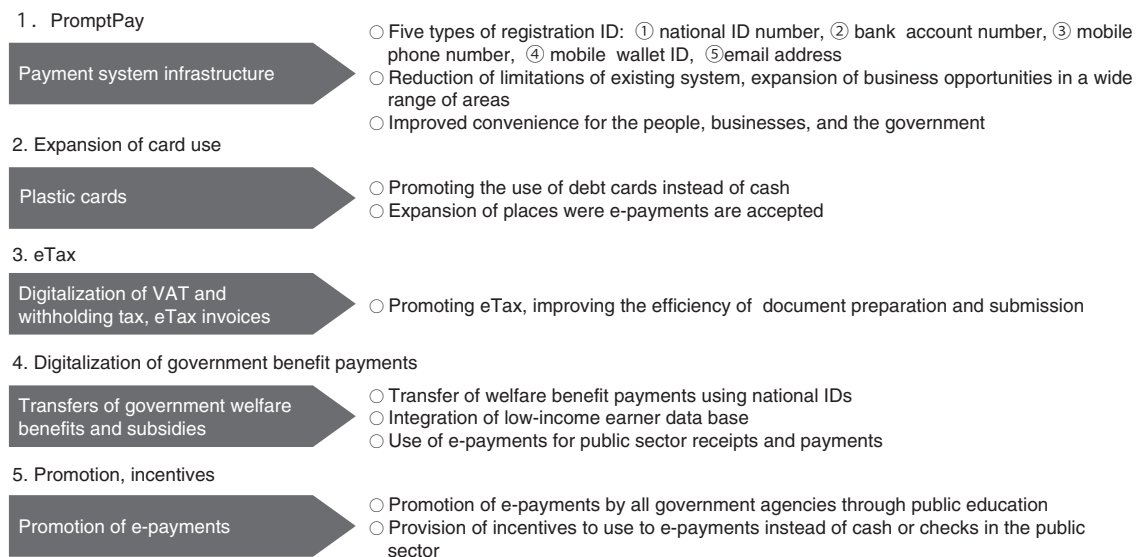
Of course, many obstacles remain to be overcome before fintech businesses can become firmly established in Southeast Asia and contribute to the solution of the region’s financial issues. The sustainability of some fintech business models has not yet been tested. For example, the effectiveness of credit screening systems based on alternative data during an economic recession can only be proven when a recession actually occurs. There will also be fintech businesses that are viable when still small but struggle to maintain their

Fig. 12 Benefits Resulting from Thailand’s National Electronic Payment Master Plan



Source: Bank of Thailand, "Payment Systems Report 2015," 2016

Fig. 13 Five Projects in Thailand’s National E-Payment Master Plan



Source: Bank of Thailand, "Payment Systems Report 2015", 2016

viability as the scale of activities expands. It will take time to determine whether these businesses are truly sustainable.

Moreover, whether potential users of these new financial services will become active users is hard to predict. While strong dissatisfaction with the current state of financial services will certainly motivate people to use the new services, it is not easy to change long-standing customs and practices. In finance, as in any other field, new things tend to be viewed with unease and suspicion.

There is also deep-rooted anxiety about the security of online payment systems. To overcome these barriers, service providers will need to earn the trust of users. This will require efforts by both the private sector and governments, including (1) the creation of mechanisms that allow potential users to try out new systems and assess their usability, (2) the establishment of both voluntary rules and laws / regulations, as well as security measures, to ensure customer protection and the soundness of transactions, and (3) educational activities to en-

able customers to use these new services effectively. Only when confidence has been built through initiatives such as these will fintech businesses be able to earn the trust of society and contribute to the solution of financial issues in Southeast Asia.

End Notes

1. Techsauce, Ruamkid, *Southeast Asia's Top 75 Fintech Companies Report 2017*, February 9, 2017 (<https://www.slideshare.net/techsauce/southeast-asias-top-75-fintech-startups-report>)
2. The term “mobile payment” refers to payment systems that utilize mobile devices, such as smartphones and tablets. Mobile payment methods include online payment, in which users employ mobile devices to make online payments on the Internet, mobile wallet systems, where mobile devices are used to make face-to-face payments in brick-and-mortar stores, the use of mobile devices as POS terminals in brick-and-mortar stores, and mobile POS payments using mobile POS payment systems that can accept card payments. Interfaces used by mobile wallet systems at the time of payment include QR codes, NFC, Bluetooth, and apps. Money can be added to mobile wallets from a variety of sources, including credit cards, bank deposits, and prepaid electronic money.
3. CB Insights, *The CB Insights Fintech 250 2017* (<https://storage.googleapis.com/instapage-user-media/11443291/19326201-0-Updated-Ebook-7-10.pdf>)
4. Because CB Insights uses a different classification system, this figure represents the total number of companies providing wallet money transfers and processing payment infrastructure.

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5. This trend is especially pronounced in Japan, where the majority of citizens can open bank accounts and acquire credit cards without any serious difficulties. Basic banking services are readily available, in part because of the proliferation of ATMs in convenience stores, and people are able to set aside deposits and obtain insurance to provide for unforeseen contingencies. Loan products are also available for various purposes. The circumstances of the companies are similar, and the financial institutions that provide financial services generally operate efficiently, reflecting their involvement in these activities for many years.
 6. Fuji Sankei Business i, *Indonesia's Parliament Speaker Arrested*, December 5, 2017. Resident Identity Cards (e-KTPs) are now being digitized to combat fraud.
 7. World Bank website (<http://www.worldbank.org/en/topic/financialinclusion/overview>)
 8. Singapore, Malaysia, Thailand, Indonesia, Vietnam, Philippines, Laos, Myanmar, and Cambodia.
 9. International Financial Corporation, *Enterprise Finance Gap Database* (2011 data).
 10. Bangko Sentral ng Pilipinas, *National Baseline Survey on Financial Inclusion*, 2015.
 11. NetHope, *The Case for Branchless Banking in Thousand Islands, Indonesia*, January 30, 2014 (<http://solutionscenter.nethope.org/blog/view/the-case-for-branchless-banking-in-thousand-islands-indonesia>).
 12. With cash-on-delivery, customers can avoid paying for goods that fail to arrive or are defective, since they only need to pay after receiving their orders. However, this method entails cash handling costs for e-commerce businesses. There are significant disadvantages with cash-on-delivery in Southeast Asia, including (1) the return of goods after customers refuse to receive them because they have changed their minds, and (2) the theft of cash received from customers by delivery personnel.
 13. In his National Day Rally speech in August 2017, Singapore Prime Minister Lee Hsien Loong stated Singapore was lagging behind other cities in the area of electronic payments and contrasted that with the spread of systems like WeChat Pay and AliPay in China. (Prime Minister's Office Singapore, *National Rally 2017*, August 20, 2017, <http://www.pmo.gov.sg/national-day-rally-2017>). The use of checks in Singapore is also high by world standards, and the reduction of payments made in cash or by check has become a priority.
 14. Member countries of the Committee on Payments and Market Infrastructures of the Bank for International Settlements.
 15. At 19.96%, the Japanese figure is the highest among the countries surveyed.
 16. With this payment method, payment is completed by scanning a QR code with a smartphone. Shops can store QR codes on smartphones or similar devices, or print them on cardboards, and allow customers to scan them using a smartphone app. Alternatively, customers can install an app on their own smartphones to display a QR code identifying their bank accounts. The shop can then use a smartphone or dedicated device to scan this QR code.

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17. We are Social Singapore, *Digital in 2017: Global Overview*, 2017 (<https://wearesocial.com/sg/>). Figures released in January 2017.
 18. World Bank, *Global Financial Inclusion Database*, 2014. Averages for nine key countries.
 19. References include the MoMo website (<https://momo.vn/>).
 20. M_Service initially modeled its service on the GCash service provided by Globe Telecom in the Philippines from 2004. It began to provide mobile payment services based on the SIM card system under a partnership with VinaPhone, a major mobile telecoms carrier. However, this limited the customer base to VinaPhone subscribers and involved troublesome processes for customers, such as updating. For these reasons, the company began to use its own mobile payment app in 2014. (*Follow the Leader in Vietnam, Inc. South Asia*, August 3, 2017, <http://incasean.com/editor-picks/follow-leader-vietnam/>).
 21. *How a fintech outgrew banks in the mobile wallet market in Vietnam*, *The Asian Banker*, May 11, 2017 (<http://www.theasianbanker.com/updates-and-articles/how-a-fintech-outgrew-banks-in-the-mobile-wallet-market-in-vietnam>).
 22. International Finance Corporation, *E- and M-Commerce and Payment Sector Development in Vietnam*, 2014, p.14
 23. Vietnam Post is currently digitizing its financial services in an effort to overcome these issues.
 24. *Vinasun, MoMo partner on smart payments*, Viet Nam News, November 17, 2017 (<http://vietnamnews.vn/bizhub/417696/vinasun-momo-partner-on-smart-payments.html#k7KJEDzukU3iMyC1.97>)
 25. Payment Card Industry Data Security Standard
 26. Secure Socket Layer—A protocol used to encrypt data transmitted over the Internet.
 27. Association of Banks in Singapore, PayNow website (<https://abs.org.sg/consumer-banking/pay-now>)
 28. Other options include bank deposit account numbers, mobile wallet IDs, and email addresses.
 29. Transfer charges are 2 baht (about ¥7) for amounts over 5,000 baht (about ¥17,000) and up to 30,000 baht (about ¥100,000), 5 baht (about ¥17) for amounts over 30,000 baht and up to 100,000 baht (about ¥340,000), and 10 baht (about ¥34) for amounts over 100,000 baht.
 30. Monetary Authority of Singapore, *Payments Council sets up taskforce to develop common QR code for Singapore*, (news release), August 29, 2017
 31. *Singapore, Thailand weigh e-payment alliance in digital push*, Bloomberg, October 5, 2017 (<https://www.bloomberg.com/news/articles/2017-10-04/singapore-thailand-discuss-e-payment-alliance-for-digital-push>)

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32. *Singapore FinTech Journey 2.0—Remarks by Mr. Ravi Menon, Managing Director, Monetary Authority of Singapore, at Singapore FinTech Festival on 14 November 2017*, Monetary Authority of Singapore, press release, November 14, 2017
33. According to a World Bank survey, the average money transfer commissions in April-June 2017 were 11.00% for banks, 6.56% for post offices, 6.14% for specialist money transfer companies, and 3.10% for telecommunications carriers. (World Bank, *Remittance Prices Worldwide*, Issue 23, September 2017)
34. References include the Toast website (<https://toastme.com/sg>).
35. *Toast lands \$1.5M for cross-border payment services for migrant workers in Asia*, TechCrunch, November 10, 2016 (<https://techcrunch.com/2016/11/10/toast-funding-cross-border-remittance-payments/>)
36. *Toast to become fully financial service platform for migrant workers*, e27, November 7, 2016 (<https://e27.co/beyond-remittances-toast-wants-to-become-full-scale-financial-services-platform-for-migrant-workers-20161109/>)
37. As above
38. References include the Lenddo website (<https://www.lenddo.com/>).
39. *E-wallet services aim to make money in future*, Vietnamnet, January 26, 2017 (<http://english.vietnamnet.vn/fms/science-it/171362/e-wallet-services-aim-to-make-money-in-future.html>)
40. *We are banking on our digital wallet Go-Pay for the foreseeable future—Go-Jek CTO, Ajey Gore, inc42*, July 11, 2017 (<https://inc42.com/indonesia/go-jek-go-pay-digital-wallet-indonesia/>)
41. This is based on the results of a survey conducted in December 2016 by the research firm JakPat. Go-Jek’s “Go-Pay” system is being used by 27.1% of e-money users. Bank Mandiri’s “e-Money” was ranked first at 43.8%, followed by Bank Central Asia’s “Flazz” at 39.1%, and PT Telcomsel’s “T-Cash” at 29.1%. (“Indonesian ride-hailing unicorn Go-Jek accelerates digital payments,” eMarketer, January 17, 2017, <https://www.emarketer.com/Article/Indonesian-Ride-Hailing-Unicorn-Go-Jek-Accelerates-Digital-Payments/1015048>)
42. The companies are Kartuku, which processes face-to-face payments, Midtrans, which operates an online payment gateway, and Mapan, which operates a savings and loan network for people who do not have bank accounts.
43. *Go-Jek acquires three leading fintech business cementing its leadership in Indonesia’s fast-growing payments market*, Go-Jek press release, December 15, 2017 (<https://www.go-jek.com/blog/go-jek-acquires-three-leading-fintech-businesses-cementing-its-leadership-in-indonesias-fast-growing-payments-market/>)
44. Chief Executive Officer & Founder Nadiem Makarim made these comments at the Singapore FinTech Festival on November 14, 2017.

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45. *Indonesia's ride-hailing start-up Go-Jek wants to aggressively expand its payments services*, CNBC, September 14, 2017, (<https://www.cnn.com/2017/09/14/indonesias-go-jek-competes-with-grab-and-uber-now-it-wants-to-be-like-alipay-and-wechat-pay.html>)
46. *Grab moving into e-payment market*, *The New Paper*, August 31, 2017 (<http://www.np.sg/news/singapore/grab-moving-e-payment-market>)
47. Grab, *Grab delivers a cashless and seamless ride experience to everyone with GrabPay Credits*, (press release), November 29, 2016 (<https://www.grab.com/sg/press/tech-product/grab-delivers-cashless-seamless-ride-experience-everyone-grabpay-credits/>)
48. Grab, *Grab launches GrabPay e-wallet in hawker stalls, restaurants and shops in Singapore*, (press release), November 2, 2017
49. Kudo provides services under the following scheme.
- ① Individuals or retail store owners sign agency contracts with Kudo.
 - ② Customers go to an agent and look at products on the Kudo platform on a mobile phone provided by the agent. The products available are offered by companies with which Kudo has established partnerships, such as the e-commerce marketplaces Lazada and BukaLapak.
 - ③ If the customer wants to buy a product, he or she pays cash to the agent. The product is then delivered to the customer's home.
 - ④ The agent receives a commission from Kudo according to the sale price of the product.
 - ⑤ In addition to e-commerce, the system can also be used to pay utility charges and buy mobile phone credit.
50. *Grab solidifies leadership in digital payments with agreement to acquire Kudo, Indonesia's leading O2O Ecommerce platform*, Grab press release, April 3, 2017 (<https://www.grab.com/id/en/press/business/grab-kukuhkan-keunggulan-di-bidang-pembayaran-non-tunai-lewat-kesepakatan-untuk-mengakuisisi-kudo-platform-e-commerce-online-untuk-offline-o2o-terkemuka-di-indonesia/>)
51. Grab is also supporting efforts to achieve the Indonesian government's goal of making Indonesia the biggest digital economy in Southeast Asia by 2020. It will invest US\$700 million under the "Grab 4 Indonesia 2020" plan, which it announced in February 2017. The three main areas of investment will be ① human resources for technology, ② technopreneurship (technology-related entrepreneurship), and ③ mobile payments.
Grab, *Grab to invest US\$700 million in 'Grab 4 Indonesia' 2020 master plan*, (press release), February 2, 2017 (<https://www.grab.com/sg/press/business/grab-invest-usd-700-million-grab-4-indonesia-2020-master-plan/>)
52. These are deregulated environments in which regulations are eased within a limited scope for a fixed period, giving companies the freedom to try out new business ideas, just as children can play freely in sandboxes.

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53. MAS Managing Director Ravi Menon has identified three requirements for fintech regulation. First, regulation must not front-run innovation. Regulators need to watch the situation constantly and decide whether regulation is needed, or whether things should be left to evolve further. Second, regulation should be applied when risks emerge or exceed a certain level, but the weight of the regulation must be proportionate to the risk. Third, regulation must both mitigate risks and prevent the emergence of new risks. (Monetary Authority of Singapore, *Singapore's FinTech Journey – Where We Are, What is Next*, Speech by Mr. Ravi Menon, Managing Director, Monetary Authority of Singapore, at Singapore FinTech Festival —Fintech conference on 16 November 2016)
54. According to the World Bank, *Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs—transactions, payments, savings, credit and insurance—delivered in a responsible and sustainable way*. World Bank website, <http://www.worldbank.org/en/topic/financialinclusion/overview>
 In societies where financial inclusion has not been achieved, individuals lack suitable means to build assets in the form of deposits. Because they are unable to access financial products at reasonable prices, they are forced to compromise by borrowing money from informal sources at high interest rates, or by paying excessive money transfer commissions. They lack deposits and insurance to provide a buffer for unforeseen events, such as illness, injury, or unemployment. SMEs, micro-businesses, and self-employed people face similar disadvantages. These situations make it difficult to escape from poverty and hinder economic growth and the achievement of prosperity by society as a whole.
55. Comment by Korn Chatikavanij, Chairman, Thai Fintech Association, at the Singapore FinTech Festival on November 16, 2017
56. *VN financial inclusion focuses on tech*, Viet Nam News, May 20, 2017
57. Launched in 2007, the M-Pesa service is provided by the mobile phone company Safaricom. Its use has expanded rapidly among low-income people who have no bank accounts. M-Pesa has also been a starting point for the increasing use of mobile banking, including deposits and loans. The percentage of the adult population with no access to financial services has plummeted from 41.3% in 2006 to 17.4% in 2016. (Njuguna Ndungu, *Digitalization in Kenya*, edited by Sanjeev Gupta et al., *Digital Revolution in Public Finance*, International Monetary Fund, 2017
58. “Aadhaar” is a Hindi word meaning “foundation.”
59. This means “Prime Minister’s People Money Scheme” in English.
60. Pradhan Mantri Jan Dhan Yojana website, (<https://pmjdy.gov.in/>)
61. The government aims to increase Japan’s cashless payment ratio from the current level of around 20% to about 40% over the next 10 years (by June 2027) and is implementing a variety of initiatives to achieve this. (Headquarters for Japan’s Economic Revitalization, *Future Investment Strategy 2017*, June 9, 2017, P.60)

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62. These items were highlighted as advantages of cashless payments in policies formulated by related government agencies for the realization of a cashless society. (Cabinet Secretariat, Financial Services Agency, Ministry of Economy, Trade and Industry, Ministry of Land, Infrastructure, Transport and Tourism, other government agencies, *Kyasshuresuka ni muketa hosaku* [Policies toward the Realization of Cashless Society], December 26, 2014, P.1)
63. Bank Negara Malaysia, *Financial Sector Blueprint 2011-2020*, 2011, p.141

References

(Japanese)

1. Iwasaki, K. [2016], *The Rising of Japanese startups in Southeast Asia*, in Japan Research Institute, RIM, 2016 Vol.16, No.62
2. Iwasaki, K. [2017], *Tonan ajia ni okeru Nihon kigyo to sutatoappu no renkei no kanosei* [The potential for collaboration between Japanese companies and start-ups in Southeast Asia], in Japan Research Institute, *JRI Review*, 2017 Vol.8, No.47
3. Fujita, T. [2017], *Indo no dejitaru-ka seisaku to fintekku hatten no kanosei* [India's digitalization policy and the potential for fintech development], in Japan Research Institute, RIM, 2017 Vol.17, No.67

(English)

4. Asian Development Bank and Oliver Wyman [2017], "Accelerating Financial Inclusion in South-East Asia with Digital Finance"
5. McKinsey & Company [2017], "The Phoenix Rises: Remaking the Bank for an Ecosystem World—McKinsey Global Banking Annual Review 2017," October 2017
6. World Bank [2014], "Opportunities of Digitizing Payments," (prepared for the G20 Australian Presidency), August 28, 2014

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