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Fintech and Financial Inclusion in Southeast Asia and India

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Fintech and Financial Inclusion in S.E. Asia and India

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Abstract

Financial inclusion, i.e., access of excluded households and small firms to financial products and services, is seen as a way to promote more inclusive growth by providing the previously unbanked with access to means for savings, investment, consumption smoothing and insurance. Financial technology (Fintech), i.e., using software, applications and digital platforms to deliver financial services to consumers and businesses through digital devices such as smartphones, has become recognized as a promising tool to promote financial inclusion. This paper investigates the developments of financial inclusion and Fintech in the ASEAN member countries and India in order to identify the ways that Fintech is contributing and can potentially contribute to increased financial inclusion. It examines differences in the strategies and implementation of financial inclusion and Fintech between India and ASEAN and draws lessons and policy recommendations from these findings.

Keywords: Fintech, financial inclusion, digital currency, mobile money, India, ASEAN

JEL Codes: D14, E42, E51, G21

1. Introduction

Financial inclusion, i.e., access of excluded households and small firms to financial products and services, has been seen as a way to promote more inclusive growth by providing the previously unbanked with access to mechanisms for savings, investment, consumption smoothing and insurance. Financial technology (Fintech), i.e., using software, applications and digital platforms to deliver financial services to consumers and businesses through digital devices such as smartphones, has become recognized as a promising tool to promote financial inclusion. In 2010, the Group of Twenty (G20) endorsed the Financial Inclusion Action Plan (FIAP) and established the Global Partnership for Financial Inclusion (GPFI) to coordinate and implement it. The FIAP was updated at the 2014 G20 Leaders Summit in Brisbane. Acknowledging the importance of Fintech, the FIAP includes a commitment to implement the G20 Principles for Innovative Financial Inclusion under a shared vision of universal access (BIS and WB 2016). The COVID-19 pandemic has increased the demand for Fintech services, due to reduced ability to access banks and other financial institutions in person and the desire to minimize person-to-person contacts.

This paper reviews the development of financial inclusion and Fintech in the ASEAN region and India, and considers how Fintech can contribute to increased financial inclusion. It also examines related issues such as the connection between financial inclusion and financial stability and various risks associated with Fintech development.

Section 2 describes the overall development of Fintech in ASEAN and India. Section 3 reviews the current status of financial inclusion in ASEAN and India, and the actual and contributions of Fintech. Section 4 reviews regulatory aspects and Section 5 concludes and offers policy recommendations.

2. Scope of Fintech products and services in S.E. Asia and India

Digital financial services (DFS) are defined as financial services which rely on digital technologies for their delivery and use by consumers (Pazarbasioglu et al 2020). Fintech broadly refers to the latest wave of innovations in DFS, driven by developments such as smart mobile phones, artificial intelligence (AI), machine learning and big data. Fintech typically excludes more traditional digital transactions such as those using credit cards or internet banking, although the divide can be somewhat arbitrary. The Financial Stability Board (FSB) defines Fintech as "technologically enabled financial innovation that could result in new business models, applications, processes, or products with an associated material effect on financial markets and institutions and the provision of financial services" (FSB 2017). These functions may be viewed as continuing efforts to reduce financial frictions, such as information

asymmetries, incomplete markets, negative externalities, misaligned incentives, network effects and behavioral distortions (FSB 2017).

The FSB classifies Fintech activities into five major categories of financial services:

- Digital payments, clearing and settlement: Electronic money (e-money), mobile phone wallets, digital currencies (including traditional cryptocurrencies, stablecoins and central bank digital currencies (CBDCs)), remittance services, value transfer networks, digital exchange platforms, etc.;
- Deposits, lending and capital raising (alternative finance[1]): Crowdfunding, peer-to-peer (P2P) lending, online balance sheet lending, invoice and supply chain finance, etc.;
- Insurance: Insuretech;
- Investment management: Internet banking, online brokers, robo advisors, crypto asset trading, personal financial management, mobile trading, cryptocurrencies; and
- Market support: portal and data aggregators, ecosystems, data applications, distributed ledger technology (DLT), security, cloud computing, internet of things/mobile technology, artificial intelligence and machine learning (FSB 2017).

Fintech is also supported by what the FSB refers to as "policy enablers," including digital identification, the promotion of application program interfaces (APIs) to support open banking, data protection and cyber security, and innovation facilitators (Ehrentraud et al 2020). All these add up to a complex and rapidly changing ecosystem. In this paper we focus mainly on the first two categories—payments and alternative finance, as they show the greatest potential to enhance financial inclusion.

a. Digital payments

Digital payments consist of five broad categories: mobile point-of-sale (POS) payments, digital commerce, mobile money, remittances and digital currencies.

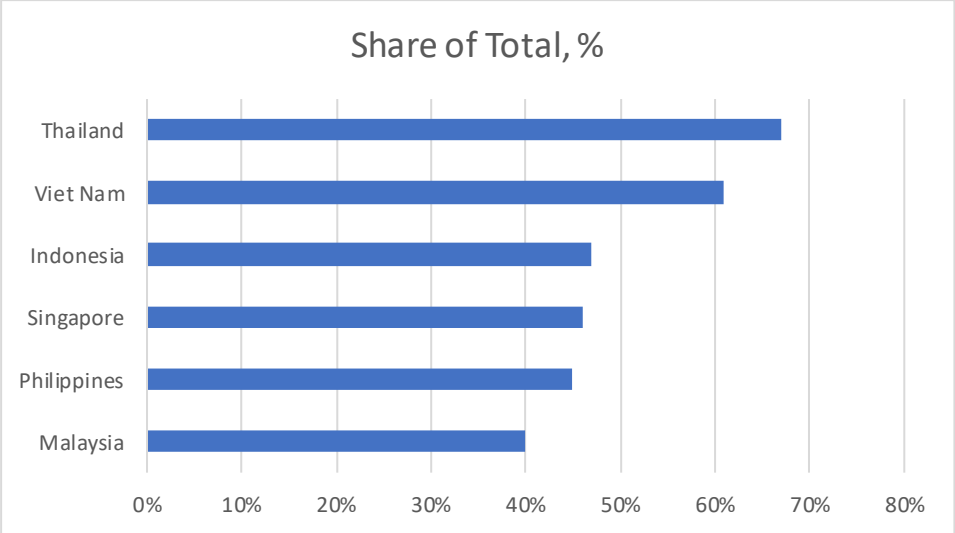
Mobile point-of-sale (POS) payments and digital commerce: Statista defines the digital payments market segment as being led by consumer transactions and "…includes payments for products and services which are made over the Internet as well as mobile payments at point-of-sale via smartphone applications. The following are not included in this segment: transactions between businesses (Business-to-Business payments), bank transfers initiated online (not in connection with products and services purchased online), and payment transactions at the point of sale where mobile card readers (terminals) are used (Statista 2020a). Digital payments

[1] Digital finance and alternative finance are referred to interchangeably here.

comprise two major subcategories: mobile point-of-sale (POS) payments and digital commerce. Mobile money represents a third category of digital payments not included in the Statista definition, since it does not necessarily involve either POS transactions or Internet-based transactions.

Figure 1 shows the share of mobile transactions in payments in stores in some ASEAN countries. Thailand and Viet Nam have the largest shares, over 60%, while Indonesia, Malaysia, Singapore and the Philippines all have shares in the 40%-50% range.

Figure 1: Share of Consumers Using Mobile Payments, 2019



Source: PWC (2019)

Mobile money: Mobile money is also a subcategory of digital payments, but is separate from mobile POS and digital commerce, and hence is not counted in the Statista statistics given above. The GSMA (2020) defines a mobile money service by the following characteristics:

• It includes transferring money and making and receiving payments using a mobile phone.

• It must be available to the unbanked, i.e., people who do not have access to a formal account at a financial institution.

• It must offer a network of physical transaction points which can include agents, outside of bank branches and ATMs, that make the service widely accessible. The agents enable cash to be added to or withdrawn from an individual's e-wallet without requiring a bank deposit, i.e., a "cash-in, cash-out" service. This makes it available to the unbanked.

The GSMA definition of mobile money excludes the following:

• Mobile banking or payment services that offer the mobile phone as just another channel to access a traditional banking product; and

• Payment services linked to a traditional banking product or credit card.

In other words, the definition excludes more conventional payment services linked directly to bank accounts or credit cards. Since the mobile POS and digital commerce services described above typically have some link to a bank account or credit card, they are not included in this definition.

Mobile money transactions have some significant advantages compared with other channels. First, they reduce variable costs considerably by taking advantage of the fixed costs of the mobile network already in place. As a result, even low-value and low-volume transactions can be profitable, unlike transactions through conventional banking channels. Second, mobile money relies on an agent network, which is much less costly than a bank branch network. Third, if accompanied by appropriate risk-based regulations that exempt clients with a smaller number and size of transactions from cumbersome documentation requirements, large parts of the population in the informal economy can have access to such payments. (Beck 2020).

Remittances and international money transfers: The World Bank estimates that inward remittances and international money transfers from migrants in ASEAN and India in 2019 totaled $78 billion and $83 billion, respectively, together about 22% of global inflows (World Bank 2020a). (However, remittances are estimated to have fallen in 2020 due to the Covid-19 pandemic.) Three countries accounted for most of the ASEAN total in 2019, including the Philippines (22%), Viet Nam (11%) and Indonesia (7.4%). The great bulk of these transfers are still made via traditional routes such as Western Union, but digital transactions are growing rapidly. According to Statista (2020a), total digital remittances in 2019 reached $73.9 billion, or about 11.1% of total global remittances, and the total number of users reached 7.1 million. Applying the same share figure to total remittances would to ASEAN and India imply values of total digital remittances of $8.4 billion and $9.2 billion, respectively. Digital remittances are projected to grow at an average rate of 14%, over twice the rate of overall remittances, so the share will gradually increase.

Digital currencies: According to BIS (2018) a digital currency is an asset that only exists electronically and that can be used as a currency (means of payment, store of value, unit of account) although it is not legal tender.[2] These include private currencies and digital versions of national bank currencies. Digital currencies that use cryptographic techniques to verify transactions are called "cryptocurrencies" or "cryptoassets".[3] Digital currencies issued as liabilities of central banks are called central bank digital currencies (CBDCs). There is little data on the use of cryptocurrencies for

[2] The last part of the definition seems to be out of date, since CBDCs are digital currencies but presumably are legal tender.

[3] The terms cryptocurrencies and cryptoassets are used interchangeably by institutions such as the Financial Stability Board and the Bank for International Settlements.

payments or evidence that they are used widely for other than speculative purposes, so we do not cover them further in this paper. However, central banks consider financial inclusion to be an important motive for developing CBDCs, so we discuss them at some length, even though implementation in the region is still mainly at the experimental stage.

Proponents of CBDCs claim that they can lower costs, expand financial inclusion, increase the efficiency of monetary policy implementation, counter competition from private digital currencies, ensure competition and contestability of the payment market, and offer a risk-free payment instrument to the public (IMF 2019, BIS 2021). CBDC proposals are of three types:

- Account-based CBDC targeting the general public;
- Value-based or digital-token-based CBDC targeting the general public; and
- CBDC based on DLT targeting financial institutions (Shirai 2020).

In developing countries, the focus is mainly on improving operational and cost efficiency. In countries with underdeveloped financial systems and a large portion of unbanked citizens, a CBDC is viewed as way to increase financial inclusion and support digitalization (IMF 2019, BIS 2021).

CBDCs can have varying degrees of anonymity in transactions. A non-anonymous CBDC could make the monitoring of transactions easier. Many central banks seem to favor a hybrid approach that allows the authorities to trace large-value transactions, which are more important for detecting tax-avoidance, money-laundering, terrorist financing and other illicit purposes, while small transactions remain anonymous. Several central banks are focusing research on a two-pronged approach with anonymous tokens for small holdings/transactions, and traceable currency for large ones (IMF 2019). Central banks in ASEAN are actively exploring the potential use of CBDCs (see Table 1).

Table 1: Research & Development in ASEAN Related to Central Bank Digital Currency

Country/project name	Characteristics	Progress
Cambodia Project Bakong	Retail 2-tier issuance; blockchain based system, but using Cambodian riel and US dollars, so technically not CBDC	Implemented 2020
Singapore Project Ubin	Wholesale, a collaborative project with the industry to explore the use of blockchain and DLT for clearing and settlement of payments and securities	Experiments, 5 phases of project completed in July 2020

Thailand Project Inthanon	Proof-of-concept for wholesale CBDC for interbank and cross-border settlements; also prototype development project for CBDC for business	Experiments

Source: BoJ and ECB (2020), BoT (2021), Huang (2020), Kishi (2019), MAS (2020), Shirai (2019), Supadulya et al (2019)

The National Bank of Cambodia (NBC) launched a blockchain-powered payment system, named Project Bakong, in October 2020, becoming the first central bank in Asia to implement such a system. The peer-to-peer payment system runs on top of the Hyperledger Iroha blockchain designed by the Japanese technology company Soramitsu. Unlike many CBDC prototypes, it does not involve the exchange of central-bank-backed tokens, but is based on fiat currencies and supports transactions in both Cambodian riel and US dollar. This quasi-central bank digital currency is similar to m-Pesa developed in Kenya, and the goals are to reduce money transfer costs and increase financial inclusion. Bakong connects all financial institutions and payment service providers under a single payment platform which allows for fund transfers to be processed on real-time basis without the need of a centralized clearing house (NBC 2020).

The Monetary Authority of Singapore (MAS) in November 2016 embarked on the collaborative Project Ubin with the financial industry to explore the use of DLT for clearing and settlement of payments and securities. The project aims to help MAS and the industry better understand the technology and the potential benefits it may bring (FSB 2017: 48). The Bank of Thailand has also been conducting research projects.

b. Alternative finance: Crowdfunding, P2P lending, online balance sheet lending, etc.

After digital payments, alternative finance is the second largest Fintech segment providing financial access for households and small firms. Market volume in Southeast Asian economies has continued to increase, although erratically in some cases. Most growth of the ASEAN market was contributed by Indonesia, which reached almost $1.45 billion in 2018 compared to only $80 million in 2017, although it has been flat since then (CCAF (2020, 2021) and CCAF, The Academy of Internet Finance at Zhejiang University, and ADBI (2018)).

However, despite rapid growth in recent years, the overall rate of penetration is still small. Column (5) in Table 2 shows the overall levels of new digital finance as percent of GDP in ASEAN countries and India. No country's share exceeded 0.1%, and only the figures for India, Indonesia and Singapore even reach this level. This reflects the small size of such loans, and their use being limited mainly to working capital. It may also reflect basic limitations of the model, such as the lack of collateral or any

collection mechanism in the case of default. Inadequate access to the internet may also inhibit participation, especially in rural areas. This suggests that concerns about the competition of digital finance with traditional bank lending should not be exaggerated, at least in the near term. The share of equity-related alternative finance is even tinier compared with conventional stock market issuance volumes. Overall, it seems that alternative finance has limited potential to contribute to financial inclusion at the macro level, even though it does widen funding opportunities for startups and small firms.

Table 2: Comparison of Alternative Finance Lending and Conventional Lending, 2019

	Loans, % of GDP				
	(1)	(2)	(3)	(4)	(5)
Economy	Total conventional (2)+(3)+(4)	Commercial banks	Credit unions and credit cooperatives	Microfinance institutions	Alternative finance
Brunei Darussalam	29.1	29.1	--	--	--
Cambodia	117.3	90.6	--	26.7	0.0
India	53.3	48.6	4.7	--	0.1
Indonesia	35.5	35.5	--	--	0.1
Lao PDR	46.0	45.3	0.1	0.6	--
Malaysia	109.4	109.4	--	--	0.0
Myanmar	24.3	22.8	--	1.5	0.0
Philippines	34.0	34.0	0.0	--	0.0
Singapore	136.4	136.4	--	--	0.1
Thailand	83.3	70.8	12.5	--	0.0
Viet Nam	134.9	133.0	2.0	--	0.0

Source: IMF Financial Access Survey database, IMF World Financial Outlook database, Cambridge Centre for Alternative Finance Global Alternative Finance Benchmarks database, Authors' estimates.

Note: '--' = Not available. Lao PDR = Lao People's Democratic Republic.

3. Financial inclusion measures, policies and impacts of Fintech

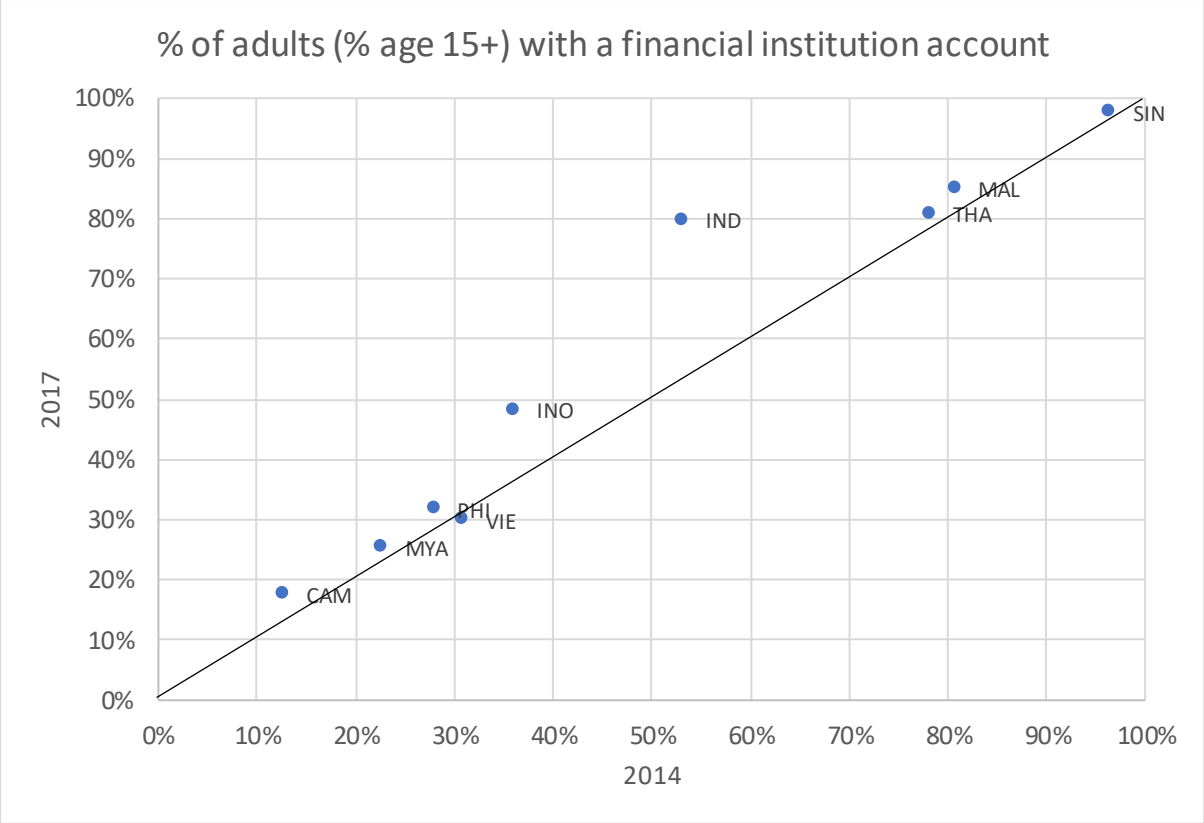
Financial inclusion has been adopted as a high-priority target by ASEAN countries and India. Improved financial access enables firms and households to smooth consumption, make long-term investment plans and cope with unexpected emergencies. People who hold accounts at banks and/or other financial institutions are more likely to use other financial services, such as credit and insurance, to start and grow businesses, invest in education or health, manage risk, and smooth consumption against shocks, which can improve their quality of life (GPFI 2016). This section

describes the overall status of financial inclusion in the region, the contribution of Fintech to financial inclusion and policies to promote Fintech innovation and financial inclusion.

a. Progress of financial inclusion

Individuals: The most commonly cited measure of financial inclusion is the percentage of adults age 15 and above who have an account at a formal financial institution. This can be either a bank, some other savings institution or a microfinance institution. Figure 2 shows the evolution of this figure for most ASEAN countries and India from 2014 to 2017, based on the World Bank's Global Findex Survey results from those years. The figure shows three distinct clusters: high-income countries with financial inclusion rates of over 90% (Singapore); countries with financial inclusion rates of 80%-90% (India, Malaysia and Thailand); and middle-income countries in the range of 15%-50% (Cambodia, Indonesia, Myanmar, Philippines and Viet Nam). (The figure for the Lao PDR was not available in 2014, but was 29% in 2017, putting it in the third group as well.) India showed by far the biggest increase from 2014, up 27 percentage points, putting it on a par with Thailand, and well above the level consistent with its per capita income. This reflected the success of its "JAM" strategy, described below. Most other countries showed modest improvements between the two years, except Indonesia, which had a large increase of 12 percentage points, and Viet Nam, which had a slight decrease. The level of financial inclusion generally correlates well with other development-related measures such as per capita GDP and overall financial development, except for India, for reasons explained below.

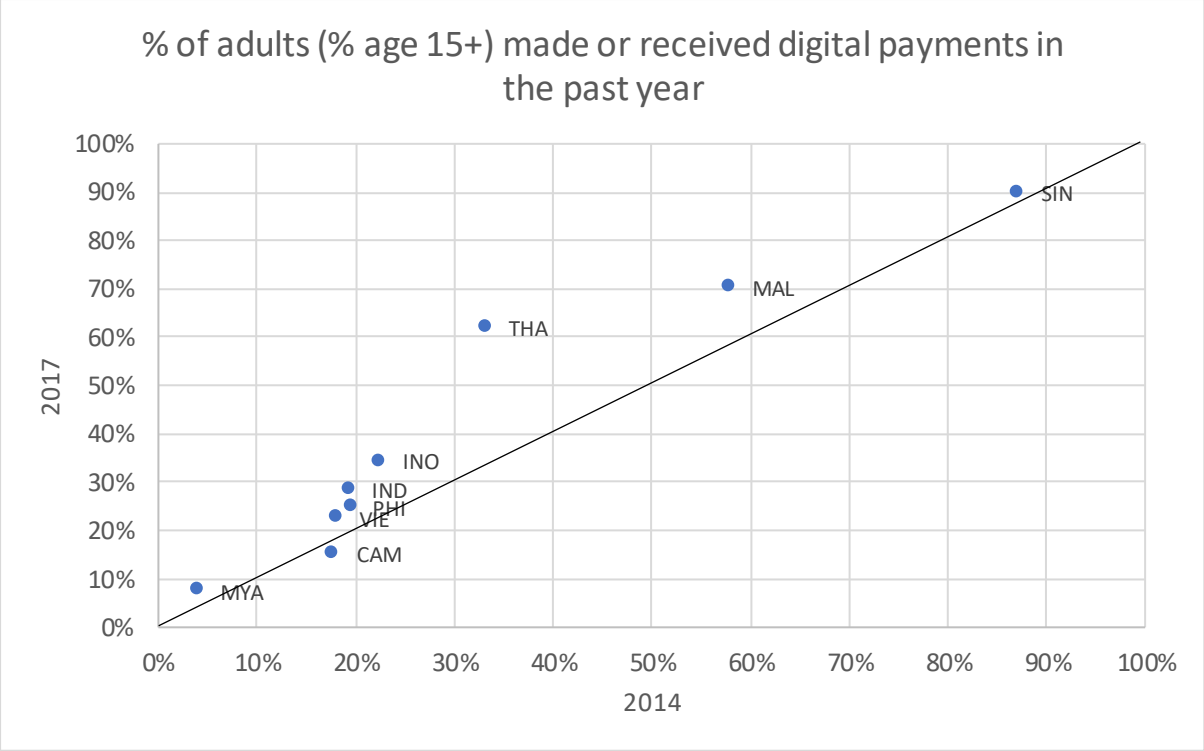
Figure 2. Share of adult population with a financial institution account



Source: World Bank Global Findex Database (2018).

Figure 3 shows the share of the adult population that have used digital payments based on the World Bank's Global Findex Database in 2014 and 2017. (Digital payments here include credit card payments, so the definition is broader than that given in Section II.) Countries appear to be divided into the same three groups as for the holding of financial accounts, except for India, which appears in the third group, much more consistent with its income level. An increasing trend of the use of digital payments can be seen in all countries except Cambodia, with especially large increases in Thailand (up 29 percentage points) and Indonesia and Malaysia (up 12-13 percentage points). The 2017 share for the Lao PDR was 13 percentage points, putting it in the third group.

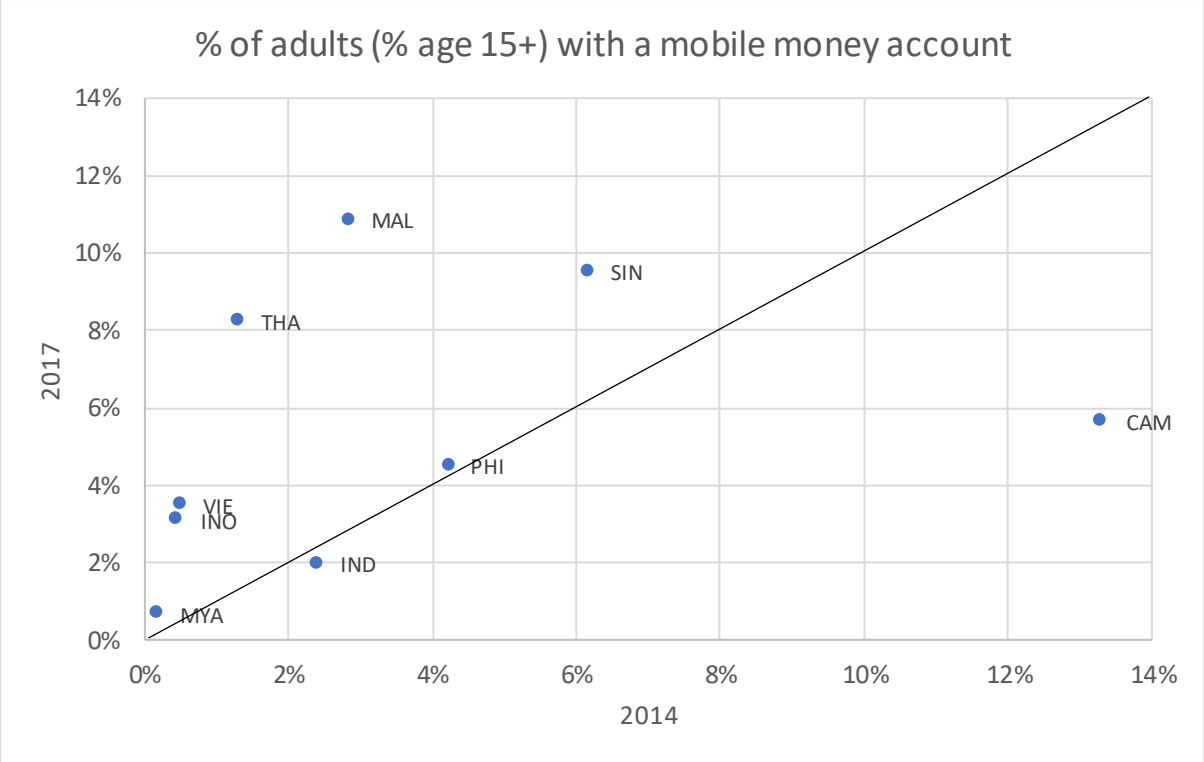
Figure 3: Share of adult population using digital payments



Source: World Bank Global Findex Database (2018).

Figure 4 shows the inclusion rates for adults with a mobile money account for the same periods. Data for the Lao PDR are not available. All countries except Cambodia and India showed increases, with the largest increases seen in Malaysia and Thailand. The reason for the large decline in Cambodia is not clear. The markets are still relatively small, with no country having a share above 11%. Nevertheless, this segment is likely to show rapid growth.

Figure 4: Share of adult population with a mobile money account



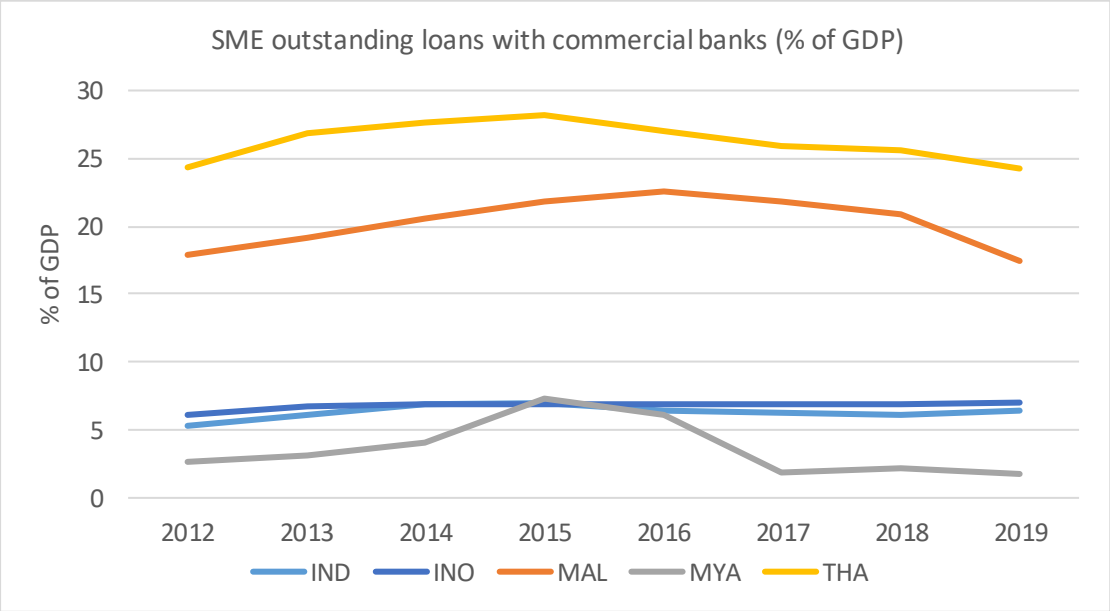
Source: World Bank Global Findex Database (2018).

Overall, the data for shares of adults making digital payments and having mobile money accounts improved significantly mainly in the higher income countries of Malaysia, Singapore and Thailand. This suggests that progress in these areas has been greatest in those countries which already have substantial financial inclusion and a strong internet infrastructure, and that the slower progress in lower income countries probably reflects a number of barriers such as greater difficulty of internet access, higher transaction costs and lower education levels. Interestingly, this finding also holds in individual countries as well, i.e., adopters of Fintech tend to have higher incomes and be more highly educated (see Morgan and Trinh 2018, 2019). This implies that the benefits of Fintech are uneven, and may be tending to increase divides in income and wealth rather than reducing them.

Firms: The participation of micro-, small and medium-sized enterprises (MSMEs) in capital markets remains limited. According to ADB (2020), the equity market capitalization in 2019 of MSMEs was about 14.8% of GDP in Viet Nam, followed by the Lao PDR (5.9%), Cambodia (2.6%), Singapore (1.9%), Myanmar (1.7% [2018]), Malaysia (1.4%), Thailand (1.3%), and the Philippines (0.1%). The development of MSME bonds markets in the region is still at an early stage (Shinozaki 2014). The burgeoning trend of bank-fintech partnerships and open banking initiatives also indicate that fintech is not only influencing bank operations through competition, but also through adoption of new ways to develop products, approach the market, and assess the risks (Chuard 2021; Fintech News Philippines 2021).

Bank lending to MSMEs also remains generally limited, especially for lower income countries. Figure 5 shows that the share of SME loans by commercial banks in GDP for Malaysia and Thailand is relatively high, although trending downward recently, but the ratios for other countries are in the range of 2%-7% of GDP.

Figure 5: Share of Commercial Bank Loans to SMEs in GDP



Source: IMF Financial Access Survey (2019).

b. Role of Fintech in expanding financial inclusion

Fintech can promote financial inclusion in the following ways:

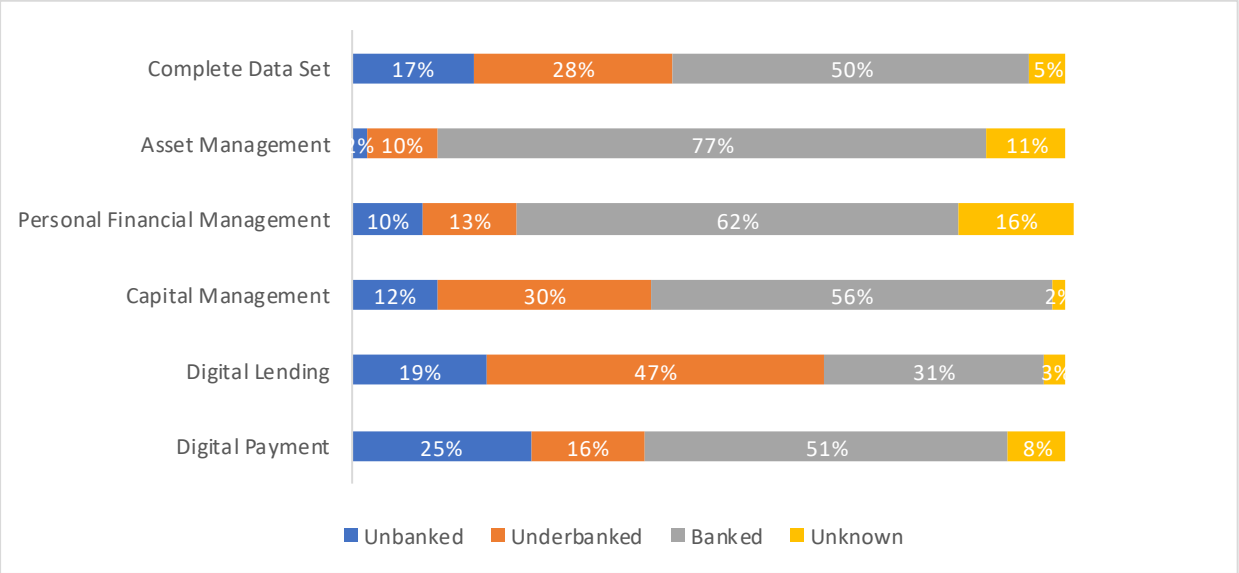
- Lowering the cost of transactions such as remittances, making them affordable for segments of the population who found them too costly before;
- Lowering the costs of business-related payments relative to the costs of credit-card payments;
- Enabling transactions to be made without having a bank account, such as mobile money;
- Enabling transactions to be made without the need to visit a bank branch or automatic teller machine, such as by using mobile phones or other internet connections;
- Enabling small firms to engage in e-commerce; and
- Making credit or other fund raising more obtainable and less costly by reducing information asymmetries and other costs related to credit applications.

The first five points are related to digital payments, while the last is related to alternative finance.

Digital payments:

Digital payments have significant penetration in groups which are non-banked or under-banked.[4] Figure 6 shows that 25% of digital payments customers in ASEAN countries are unbanked, the highest penetration for any Fintech segment, and another 16% are under-banked. This underscores the potential of digital payments for expanding financial inclusion. Presumably these are people who have mobile money accounts, which do not require the holder to have a bank account. Digital lending (part of alternative finance) has the next highest penetration rate of the un-banked, at 19% of the total.

Figure 6: Banked Status of Fintech Customers in ASEAN countries



Note: Complete data set refers to average of all of the segments shown below it.

Source: CCAF (2020)

India's financial inclusion strategy for payments: The "India Stack" approach to financial inclusion contains four layers of digital infrastructure that have been introduced gradually over the last decade:

- The Aadhaar digital ID system that allows for identity verification and for the mapping of information across datasets;
- The Unified Payments Interface's interoperable payments system, implemented by a set of open application programming interfaces (APIs);
- A system that for allows for the verification of digital documents that can replace traditional paper analogs; and

[4] Individuals who have a bank account, but limited or no access to other financial products and services are classified as under-banked.

- The "consent layer"—which is not yet fully operational—that will involve the operation of data fiduciaries that act as intermediaries between individuals and financial companies. (Swallow-Carrière et al 2021).

India's "JAM" strategy for financial inclusion provides a striking example of a successful program to increase financial inclusion. "JAM" refers to three key elements of the strategy: the Pradhan Mantri Jan Dhan Yojana scheme (PMJDY) for increasing bank deposits; the Aadhaar biometric identity scheme; and the widespread use of mobile phones. The Reserve Bank of India (RBI 2019) provides a guide to India's overall financial inclusion strategy in 2019-2024. Launched in 2014 by Prime Minister Narendra Modi, the PMJDY scheme required state-owned banks to open at least one account for every unbanked household. According to the PMJDY website, the total increase in bank accounts attributable to the program was 411.3 million as of 21 October 2020, of which private-sector banks accounted for just 12.7 million (PMJDY 2020). As a result, the share of adults in India having an account jumped from 52.8% in 2014 to 79.8% in 2017, on a par with the PRC (Global Findex Survey 2017). However, the World Bank's Findex Survey of 2017 (Demirgüç-Kunt et al 2018) estimated that 48% of Indian bank accounts were inactive, i.e., they saw no activity during the year. This implies that the degree of effective financial inclusion was much less. Unfortunately, no more recent figure is available. It is quite possible that the use of these accounts increased significantly during the Covid-19 pandemic as a result of government aid cash payments to households made via these accounts.

India's biometric identity scheme, Aadhaar, now covers almost all adults, making it easier for them to prove their identities and open accounts at formal financial institutions. The Unique Identification Authority of India reports that 1.21 billion Aadhaar numbers had been issued by June 2018. The World Bank's Global Findex Survey shows that 90 percent of unbanked adult Indians can now prove their identity. Furthermore, the 2018 State of Aadhaar report shows that 84 percent of people used their Aadhaar number to open their most recent bank account (Rahman 2018).

Government benefit programs have also helped to increase the demand for accounts among poor people. In the 2017/2018 fiscal year, the Indian government paid $28.92 billion in benefits to 1.24 billion people through their bank accounts. Among other, these payments included housing and cooking gas subsidies, rural employment wages, scholarships (Rahman 2018). This method is particularly important when trying to deliver aid during the COVID-19 pandemic, where hands-off transactions are much safer.

The JAM strategy is notable because it represents a straightforward extension of the traditional bank-centric and relatively strongly regulated payments system. The Aadhaar identity scheme solves

the "know-your customer" (KYC) problem, state-owned banks took on the main role of providing deposits, and Fintech payments companies are regulated as "payment banks." These features may limit its applicability to countries that lack one or both of the first two elements, as is the case for many ASEAN countries. Mobile money, i.e., payments systems that don't require bank accounts, has played only a very minor and non-growing role in India.

ASEAN financial inclusion strategies for payments: Almost all ASEAN countries have financial inclusion strategies related to payments, either at the national level or under the management of the central bank. These typically include one or more of the following elements: electronic or other ID; no frills bank accounts; support for mobile money systems, including development of QR codes and agent banking networks; and issuance of digital banking licenses.

Since 2011, Indonesians have held an electronic identity card known as e-KTP. It contains unique biometric data and, according to the Interior Ministry at the time, its implementation had at its core the improvement of government services and population census, as well as reducing fraud and monitor security threats. The e-KTP is the basis for the issuance of passports, driving licences, Taxpayer Identification Numbers (NPWP), insurance policies, land ownership certificates and other identity documents (Lago 2019).

In Malaysia, under the Bank Negara Malaysia (BNM) Financial Sector Blueprint 2011–2020 (FSBP), one of its key objectives is to achieve greater economic efficiency through e-payment. BNM has undertaken efforts to promote e-payment such as formulating an E-Payments Roadmap in the FSBP and creating an enabling environment to spur the adoption of e-payments (CCAF, ADBI and FinTechSpace 2019).

On 20 March 2018, BNM issued the Interoperable Credit Transfer Framework (ICTF) which came into effect on 1 July 2018. The ICTF is essentially the establishment of a shared payment infrastructure to enable interoperability of credit transfer services which would expand network reach and avoid market fragmentation. This would impact both inter-bank credit transfers and inter-scheme (e-money) credit transfers. All such credit transfers must be processed in Malaysia through the operator of the shared payment infrastructure, Payments Network Malaysia Sdn. Bhd. (PayNet), an entity partly owned by BNM (CCAF, ADBI and FinTechSpace 2019).

In 2001, Malaysia became the first country in the world to use an ID card, 'MyKad', that incorporated both photo identification and fingerprint biometric data on an in-built computer chip embedded in a piece of plastic. However, it is not verifiable, and a new ID system is being proposed, although it would not be mandatory (Lago 2021).

In August 2018 a law was passed in the Philippines to create a digital ID in the Southeast Asian country. Phil-ID, as it has been dubbed, will collect information and biometric data (including iris scans, fingerprint and facial images). The aim is to enrol everyone by 2022, starting with welfare beneficiaries and followed by undocumented individuals and minority ethnic people (Lago 2019).

In Thailand, the Proofing and Authentication of Digital Identity Bill was approved in principle by the cabinet in 2018. The Bill establishes a digital ID system that allows institutions to electronically identify and authenticate end-users of their services, by relying on the KYC results of those end-users held by another member of the system. Basically, it provides a channel of communication between members in a way that can eliminate the need to repeatedly undertake traditional KYCs. However, it is not mandatory and other means for checking individuals' identities will still be in use (Lago 2019).

It may take further technological and other innovations to fully unlock the potential of alternative finance to support financial inclusion. One possible approach is to integrate Fintech into other financial inclusion policies. Two such examples from the Philippines include: (i) regulations were changed to allow banks to open microfinance windows to cater to MSMEs' demand for small loans without collateral and (ii) the central bank established a nationwide Credit Surety Fund that would serve as surety for MSMEs' loans with participating banks. Loans granted under this scheme did not carry any requirement for collateral and credit history.

Alternative finance:

Alternative finance such as P2P lending and crowd funding can significantly expand access of individuals and MSMEs to finance. This can be accomplished in various ways, such as using non-traditional data including bill-paying records to generate credit scores and using DLT to record non-traditional assets as collateral. Nonetheless, as Table 2 shows, alternative finance has a long way to go before it moves the needle significantly in volume terms relative to more conventional finance.

However, fintech credit options can play a complementary role to the banking sector in addressing the financing needs of the MSMEs together with nonbank financial institutions whose outstanding credit is also still relatively small but continues to expand (ADB 2020).

4. Regulatory aspects

a. Digital payments

India:

India's case is somewhat special due to the large market share of state-owned banks. As noted above, private banks have participated in the PMJDY scheme to a much lesser extent than have state-owned banks. Also, India's regulation of Fintech payment firms is relatively strict compared with regulatory regimes in S.E. Asia. They either have to become licensed as payment banks (a newly created category of simplified bank which only takes deposits and makes transfers and remittances) and be directly regulated by the RBI, or run their payments through a licensed bank (Swallow-Carrière et al 2021). This may tend to limit entry into the sector.

ASEAN:

Since ASEAN consists of 10 different countries which differ markedly in terms of the level of economic and financial development as well as economic and political systems, it is difficult to generalize about their regulatory approaches to Fintech and financial inclusion. However, broadly speaking, in contrast to India, ASEAN countries have tended to develop separate and less stringent regulatory frameworks for Fintech firms operating in the payments and alternative finance segments. Eight out of 10 ASEAN countries have developed specific regulatory frameworks for digital payments, the only exceptions being Brunei (unregulated) and Cambodia (regulated under existing legislation (CCAF, ADBI and FinTechSpace 2019). On the other hand, progress on two other pillars of Fintech promotion—digital IDs and interoperability of payment systems—remains uneven.

Brunei: In the Brunei Banking Order of 2006 there is no legal requirement to seek approval from Autoriti Monetari Brunei Darussalam (AMBD), the de facto central bank, to launch or offer corporate mobile banking (CMB) services to the public. However, as a matter of practice, both Islamic and non-Islamic banks refer any new CMB products to AMBD (CCAF, ADBI and FinTechSpace 2019).

Cambodia: Despite rapid developments of cashless payments, Cambodia still lacks the necessary regulations needed to govern this method of payment. Cambodia is still in the process of drafting its legislation on e-commerce. Currently, only the first draft is available, and it has a very broad scope. It is unclear when this e-commerce law will be passed (CCAF, ADBI and FinTechSpace 2019).

Indonesia: Digital payment firms are common in Indonesia and may have existed long before the relevant laws and regulations were issued. Bank Indonesia is the main authority which oversees or regulates the industry. In 2016, it announced Five Bank Indonesia Initiatives for the Payment System under Decree No.18/73/DKom: the national payment gateway; implementation of the national standard for Indonesian Chip Card Specification; payment transaction processing; financial technology; and government to person social assistance (CCAF, ADBI and FinTechSpace 2019).

Lao PDR: The Law on Payment System also requires that the payment system operator and provider apply for business operation license with the BOL (CCAF, ADBI and FinTechSpace 2019).

Malaysia: Under the Financial Services Act 2013 (FSA), digital payments are governed as a payment instrument. Issuers of designated payment instruments (DPIs) are required to obtain BNM's prior approval. The BNM has prescribed e-money as a DPI under the Financial Services (Designated Payment Instruments) Order 2013 (DPI Order) (CCAF, ADBI and FinTechSpace 2019).

Myanmar: Digital payments are regulated by the CBM which categorizes mobile-based financial services into two categories, being (a) mobile banking under the MBD 2013 regime offered by a traditional bank or by a Fintech company in conjunction with a traditional bank; and (b) MFS under the MFSR 2016, which is operator-led (CCAF, ADBI and FinTechSpace 2019).

Philippines: The BSP has issued two circulars specifically regulating entities that provide digital payment services. BSP Circular No. 649, Series of 2009 provides guidelines for issuers as a retail payment medium in the Philippines. Issuers may be banks or non-banking financial institutions registered as a money transfer agent (CCAF, ADBI and FinTechSpace 2019).

Singapore: The Monetary Authority of Singapore (MAS) submitted a new Payment Services Bill for which aims to streamline existing regulations of payment services (currently regulated under the Payment Systems Oversight Act and the Money-Changing and Remittance Businesses Act enacted in 2006 and 1979 respectively) under a single activity-based legislation (CCAF, ADBI and FinTechSpace 2019).

Thailand: The main legislation governing the industry is the Payment System Act B.E. 2560 (2017) (PSA). The PSA focuses on the licensing of payment systems and other services such as systems for fund transfer handling, clearing or settlement for retail fund transfers, electronic cards services, e-money service and bill payment service (CCAF, ADBI and FinTechSpace 2019).

Viet Nam: Third-party payment service providers are defined as organizations other than banks that are licensed by the State Bank of Vietnam to provide third-party payment service (CCAF, ADBI and FinTechSpace 2019).

b. Alternative finance

India: In India, P2P/Marketplace Lending platforms are treated as non-bank financial companies. They must obtain a 'Certificate of Registration' from RBI to commence or carry out the business of P2P/Marketplace Lending. On the other hand, equity-based crowdfunding remains a grey area

awaiting further input from the Securities & Exchange Board of India (SEBI). While a number of platforms are operating in this space, there still is a lack of clarity on their authorization and legal status, which presumably inhibits growth of the sector (CCAF, Academy of Internet Finance and ADBI 2018).

ASEAN

Brunei: In September 2017, the Government set up an SME Bank, Bank Usahawan Berhad. This establishment has takes over all existing SME loans previously provided by the commercial banks. There are no P2P lending firms yet. Equity crowdfunding (ECF) platform operators must apply for a Capital Market Services License, allowing them to carry out the regulated activities of dealing and arranging deals in investments and investment advice (CCAF, ADBI and FinTechSpace 2019).

Cambodia: P2P lending is governed by the Law on Banking and Financial Institutions, primarily under the supervision of the NBC and to a certain extent the Securities and Exchange Commission of Cambodia (SECC), if securities is the subject of the transaction. P2P lending businesses are considered to be providing intermediary services which requires them to apply for a license from the NBC. The Law on the Issuance and Trading of Non-Government Securities (Law on Securities) is the primary legislation governing the operation of the security market in Cambodia. For equity crowdfunding, the law stipulates the conditions to be met for both the issuing entity and platform (CCAF, ADBI and FinTechSpace 2019).

Indonesia: OJK Regulation No.77/POJK.01/2016 provides guidelines regarding the organization of technology-based P2P lending services. OJK Regulation No.37/POJK.04/2018, concerning Information-Technology-Based Crowdfunding Services via Public Offerings, is the regulation issued to regulate and oversee the equity crowdfunding industry. As a recently regulated industry, there is currently no significant equity crowdfunding activity in Indonesia (CCAF, ADBI and FinTechSpace 2019).

Malaysia: The capital markets regulator, Securities Commission Malaysia (SC), is a statutory body entrusted with the responsibility of regulating and systematically developing the capital markets in Malaysia. P2P lending is relatively a new concept in Malaysia, and in order to promote it, the SC has appointed six operators to run P2P platforms. ECF are regulated by the SC of Malaysia where an ECF operator obtains and retains the self-declared risk acknowledgement forms from the investors prior to them investing on an ECF platform (CCAF, ADBI and FinTechSpace 2019).

Myanmar: P2P Lending has traditionally occurred in Myanmar under unlicensed and informal conditions where borrowing from friends or family member is common and the use of unlicensed

money lenders is also rampant. The legal framework in Myanmar does not provide guidance on the regulatory requirements on crowdfunding either (CCAF, ADBI and FinTechSpace 2019).

Philippines: There are no specific regulations governing online P2P lending. Lending companies are under the supervision and regulation of the Securities and Exchange Commission. Rules covering the operation and use of equity and lending-based crowdfunding only apply to registered persons such as brokers, investment houses, funding portals, issuers and investors (CCAF, ADBI and FinTechSpace 2019).

Singapore: Platforms which allow P2P-lending to non-accredited natural persons require a license under the Moneylenders Act. Those facilitating lending to businesses such as start-ups and SMEs do not require such a license, as this would fall under the exception for "excluded moneylenders". Equity crowdfunding platform regulations center around licensing requirements: any person carrying on business in any 'regulated activity' must be the holder of a Capital Market Services license (CCAF, ADBI and FinTechSpace 2019).

Thailand: In 2019, the BOT published rules for the Peer to Peer Lending Platform Business Operation for a public consultation. The draft notification focuses on the licensing, setting up platform operational standards and an assessment of borrowers. It specifically requires the interested business operators to join the regulatory sandbox prior to application for a license and only allows P2P lending to individual borrowers. The Securities and Exchange Commission oversees the operation of crowdfunding portals by granting permission and providing operational standards to ensure fair treatment for the investors (CCAF, ADBI and FinTechSpace 2019).

Viet Nam: Viet Nam still lacks an official legal framework for P2P lending. Fintech companies operating P2P platforms are not classified as credit institutions; therefore, their business is not definitely subject to a banking license under the Law on Credit Institutions. Equity crowdfunding platforms must obtain a license from the State Securities Commission (CCAF, ADBI and FinTechSpace 2019).

5. Potential for regional cooperation

The development of CBDCs provides a potential area for regional cooperation to help promote financial inclusion. Perhaps the main challenge is to develop mechanisms for carrying out foreign exchange transactions between CBDCs. This holds out the promise of substantially reducing the cost of foreign exchange transactions and increasing transparency. Multiple CBDC (mCBDC) Bridge is one such development. First initiated bilaterally by the Hong Kong Monetary Authority and the Bank of

Thailand under the name Inthanon-LionRock, the project was renamed mCBDC Bridge when the People's Bank of China and the Central Bank of the United Arab Emirates joined. The project explores the capabilities of DLT and studies the application of CBDC in enhancing multi-currency cross-border payments. By tackling pain points such as inefficiencies, high cost, low transparency and complexities related to achieving regulatory compliance, mCBDC is expected one day to build a real-time, 24-hour payment bridge between Asia and the Middle East (Auer, Haene and Holden, 2021).

The Singapore - Canada (Ubin - Jasper Project) effort is another such example. It handles transactions between tokenized depositary receipts of the respective currencies. It has tested cross-border payments with DLT systems under different models including wholesale CBDC, and has proved a prototype commercial blockchain network for multi-currency payments to improve cross border payment functionality (KPMG 2018).

6. Conclusions and recommendations

Policies to boost financial inclusion are seen as an important part of an overall strategy for supporting sustainable growth. Financial technology (Fintech), i.e., using software, applications and digital platforms to deliver financial services to consumers and businesses through digital devices such as smartphones, has become recognized as a promising tool to promote financial inclusion. Two segments of Fintech—payments and alternative finance—show the greatest potential to enhance financial inclusion.

Regarding payments, ASEAN member countries and India have pursued somewhat divergent paths to achieve goals of financial inclusion and encourage the development of Fintech products and services as a means of furthering that goal. India tackled the issue of increasing financial inclusion head on through its "JAM" strategy, including: requiring banks to open no-frills deposits for any applicants; implementing a national biometric identity scheme; and promoting use of mobile telephones for banking transactions. The large state-owned banking sector in India made this possible, as almost all of the new deposits under this program were opened at state-owned banks. Fintech payments companies were regulated relatively strictly, as they had to be licensed as payment banks under the authority of the RBI, or else channel their payments through licensed banks. This probably inhibited entry into the sector. On the face of it, the program was hugely successful, as the share of adults holding an account at a formal financial institution jumped from 53% in 2014 to 80% in 2017. However, this figure overstates the extent of effective financial inclusion, as 48% of the deposits were estimated not to be active in 2017.

In contrast, generally lacking large state-owned bank sectors, ASEAN member countries have adopted less strict regimes for regulating Fintech payments and alternative finance companies as way to promote financial inclusion. However, aside from Indonesia, they generally saw only very modest increases in the share of adults with an account at a financial institution between 2014 and 2017. Moreover, the shares of adults making digital payments and having mobile money accounts improved mainly in the higher income countries of Malaysia, Singapore and Thailand. This suggests that progress in these areas has been greatest in those countries which already have substantial financial inclusion, as well as relatively strong internet infrastructures. The slower progress in lower income countries probably reflects a number of barriers such as greater difficulty of internet access, higher transaction costs and lower education levels. The adoption of CBDCs, if and when it happens, may also promote financial inclusion, but it is too early to assess the potential magnitude of this effect.

The contribution of alternative finance to financial inclusion is still very modest. None of the countries in this study have shares of alternative lending larger than 0.1% of GDP. Thus, while alternative lending can provide financing alternatives for individuals and MSMEs, it seems far away from making a macro-level impact or posting a serious threat to traditional banks. The model appears to have fundamental limitations, especially the lack of collateral and means for enforcement of collection. Perhaps Fintech firms may make a relatively greater contribution to financial inclusion by partnering with banks to overcome the various barriers to expanding conventional lending, including reducing costs of transactions and information asymmetries.

On the whole, Fintech adoption is spreading faster in higher income countries, and, within countries, it is spreading faster among higher income and more highly educated groups. Thus, although Fintech has a net positive effect on financial inclusion, it may also tend to widen gaps in income and wealth. Therefore, greater policy efforts are needed to ensure that the benefits of Fintech are distributed in a more equal way. This calls for a multi-pronged effort to: promote the implementation of digital IDs; strengthen internet and mobile phone infrastructures, especially in rural areas; adopt appropriate regulatory frameworks for mobile payments and alternative finance; strengthen consumer protection for Fintech-related transactions; and promote financial literacy, including digital financial literacy.

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