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Analysis of the Fintech Landscape in the Philippines

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List of Acronyms

AEs	advanced economies
AI	artificial intelligence
APEC	Asia-Pacific Economic Cooperation
API	application programming interface
ASEAN	Association of Southeast Asian Nations
ATM	automated teller machine
AY	academic year
B2B	business-to-business
B2C	business-to-consumers
BaaS	Banking-as-a-Service
BaaP	Banking-as-a-Platform
BSP	*Bangko Sentral ng Pilipinas*
CBPR	Cross-Border Privacy Rules
COVID-19	coronavirus disease 2019
DFS	digital financing services
EMDEs	emerging markets and developing economies
EOS	Executive Opinion Survey
fintech	financial technology
FIRe	Fourth Industrial Revolution
HMO	health maintenance organizations
IC	Insurance Commission
ICT	information and communications technology
insurtech	insurance technology
IPOPHL	Intellectual Property Office of the Philippines
IT	information technology
KII	key informant interview
M&A	mergers and acquisitions
Mbps	megabits per second
MNO	mobile network operator
MSMEs	micro, small, and medium enterprises

NRPS	National Retail Payment System
NSSLA	nonstock savings and loan associations
P2M	person-to-merchant
P2P	person-to-person or peer-to-peer
PDP	Philippine Development Plan
PHP	Philippine peso
PSA	Philippine Statistics Authority
PSF	Philippine Skills Framework
QR	quick response
RA	Republic Act
regtech	regulatory technology
SEC	Securities and Exchange Commission
SMEs	small and medium enterprises
USD	United States dollar
VASP	virtual asset service provider
VC	venture capital
wealthtech	wealth technology
WEF	World Economic Forum

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Abstract

Financial technology (fintech) in the Philippines has gained more attention in recent years, especially during the onset of the COVID-19 pandemic when lockdowns were prevalent and cashless payments were encouraged. Thus, digital payments and engagements through various platforms have increased, resulting in more diversified financial products and services. Despite these developments, financial inclusion in the Philippines has lagged behind other Association of Southeast Asian Nations member-states. This paper analyzes the state of the fintech industry and investigates how the government can support the development of its ecosystem to ensure its contribution to the country's development goals. It concludes that the Philippines has a strong fintech industry, as indicated by a growing number of fintechs (particularly in payments, lending, and banking technology verticals) and increasing capitalization. Finally, for the fintech industry to support the country's financial inclusion goals, the availability of talent and credit for the sector must be improved.

Introduction

Financial technologies (fintechs) continue to grow globally despite the disruptions caused by the coronavirus disease 2019 (COVID-19) pandemic. According to a rapid market assessment, fintech firms reported a year-on-year average increase of 13 percent in the number of transactions and 11 percent in transaction volumes in the first to second quarters (i.e., first half) of 2020, consistent with other indicators, including new customer acquisition and customer retention (CCAF et al. 2020).

Using the Oxford COVID-19 Government Response Tracker dataset, it was found that fintech markets in economies with more stringent COVID-19 measures reported higher growth in transaction volume. The dataset classified countries based on their government's responses' level of stringency (low, medium, and high). On average, fintech transaction volume in high stringency markets grew by 50 percent higher than in countries with less stringent COVID-19 responses. This trend is most evident for digital payments, which grew by 29 percent in high stringency jurisdictions, twice the growth in low stringency jurisdictions during the same period. Following this trend is the demand for the market provisioning fintechs, which grew 20 percent in high stringency jurisdictions while only 2 percent in low stringency jurisdictions. Market provisioning fintechs enable or support infrastructure or key fintech and/or digital financial services markets functionalities and include enterprise technology provisioning, digital identity, alternative data and credit analytics, and regulatory technology (regtech), which account for 21 percent of the survey responses (CCAF et al. 2020).

Comparing the trends between fintechs in emerging markets and developing economies (EMDEs) and in advanced economies (AEs), the average growth rates of transaction volume and numbers in EMDEs are 12 and 15 percent, respectively, while only 10 and 11 percent in AEs. EMDEs also reported significant increases in operational challenges, costs, and risks, larger than in AEs retention (CCAF et al. 2020).

Fintech may help improve the efficiency of financial services and address economic and social issues. However, concerns about the use of cryptocurrency and initial currency offerings are recently surfacing, as these products can potentially make laws and regulations ineffective, particularly against illegal activities and cross-border capital flows,

such as money laundering (Hua and Huang 2020). This poses some regulatory challenges but also gives more weight to the importance of accurate and timely policies. Regulatory frameworks, however, need to be carefully crafted as they may not only inspire but may also potentially dissuade innovation and improvement and result in instability.

The use of digital payment platforms in Asia has skyrocketed during the pandemic. In the Philippines, the leading mobile wallet, GCash, reported a 700 percent year-on-year increase in transaction volume in June 2020 alone, with registered users doubling in the first half of the year (Susantono 2021). This trend has implications for fintech's role in achieving the country's development goals enshrined in the *Philippine Development Plan 2016–2022* strategy of "strengthening the effectiveness of financial inclusion initiatives by focusing on the efficient delivery of microfinance and micro-insurance products for Filipinos including those living abroad" (NEDA 2017, p.208).

To better understand the role, trends, benefits, and risks brought by fintech and the needs of the industry to ensure that it produces the intended benefits in line with the country's development agenda, this study aims to answer the following questions:

1. What is the state of the fintech industry in the Philippines?
2. How can the fintech industry support the achievement of the Philippine development goals?
3. How can the Philippines support the development of the fintech ecosystem?

To address these questions, this study brings to light the development and issues involving the fintech industry, given the various factors accelerating its adoption. Specifically, this study aims to (1) identify the players and stakeholders in the fintech landscape of the country and (2) assess the environment by identifying the strengths, weaknesses, opportunities, and risks faced by the sector.

The next part presents a definition of fintech, other countries' experiences in developing their fintech industry, and the conceptual framework for this study. It is followed by a description of the Philippines' fintech ecosystem. Finally, it identifies the current ecosystem's

strengths, weaknesses, opportunities, and threats and provides some general recommendations.

Defining Fintech

Fintechs encompass "advances in technology and changes in business models that have the potential to transform the provision of financial services through the development of innovative instruments, channels, and systems" (CCAF et al. 2020, p.6). Fintechs transform the financial industry by reducing the costs of providing services, improving the quality and variety of financial services/products, and establishing a more stable financial sector. The rise of the Fourth Industrial Revolution (FIRe) technologies, such as big data, data analytics, and artificial intelligence (AI), has also brought about startups disrupting the traditional financial sector. Highlighting the importance of technology to fintechs, Findexable (2019) defined fintechs as any enterprise that applies a technology-enabled innovation to provide financial services.

However, the Philippines has no official definition of fintechs (Fintech Alliance PH 2019; Javier 2019). Because of this lack of law or policy defining fintech, there is also difficulty in obtaining official indicators on the performance of the sector. However, there are documents assessing the fintech sector in the country, which can be the basis for a definition. The Fintech Alliance PH (2019, p.46) considers fintechs as "financial services that are deployed through the internet and/or mobile applications. These are usually characterized by more user-friendly interfaces, greater efficiency, transparency, and higher levels of automation than those offered by more traditional institutions".

In a presentation, Javier (2019) used the definition by FSB (2017, p.7) that defined fintech as "technology-enabled innovation in financial services that could result in new business models, applications, processes or products with associated material effects on the provision of financial services". For these financial services, the adoption of technological innovations brings about improvements in operational efficiency, enhanced customer experiences, and a more decisive competitive advantage.

One of the most recent definitions of fintech is by the Financial Sector Forum,[1] which defined fintech as any "software, a service, or a business that provides technologically advanced ways to make financial processes and transactions more efficient compared to traditional methods" (FSB 2017, p.2). The definition includes specific descriptions of activities that fintechs would cover. These include financial operations using digital technology or being delivered through digital means (e.g., electronic money, mobile financial services, online financial services); monetary transactions (e.g., depositing, withdrawing, sending/receiving money) and other financial products and services (e.g., payment, credit, savings, pensions, insurance); and nontransactional services incidental to the financial transaction (e.g., viewing personal financial information through digital devices). This definition, which is the closest the country has to a policy that explicitly defines fintechs, is adopted in this paper.

Fintech taxonomy

Considering the diversity of fintech institutions, products, and services and recognizing the need for a coherent understanding of the nature of fintech activities, the Cambridge Centre for Alternative Finance, World Bank, and World Economic Forum (WEF) developed a working taxonomy[2] for fintech in 2020. They categorized fintech verticals into two major groups: (1) retail facing, which provides financial products and services to general consumers, households, and micro, small, and medium enterprises (MSMEs) in business-to-consumer (B2C) schemes; and (2) market provisioning, which targets infrastructure and functionalities support of fintech and/or digital financing services (DFS) markets, as summarized in Table 1.

[1] Created in 2004, the Financial Sector Forum is a voluntary interagency committee composed of the *Bangko Sentral ng Pilipinas*, Securities and Exchange Commission, Insurance Commission, and Philippine Deposit Insurance Corporation. It aims to provide an institutionalized regulatory framework for coordinating the supervision and regulation of the financial system, facilitate consultation and the exchange of information and ideas among regulators, and provide a platform to harmonize the regulation of financial products offered by the various types of financial institutions.

[2] In 2019, the Fintech Alliance.Ph came up with a taxonomy of fintech in the Philippines. The definitions in that taxonomy are incorporated in this study.

Table 1. Summary of fintech taxonomy and classification

Category	Fintech Vertical/Business Model
Retail facing (consumers, households, and MSMEs)	Digital lending
	Digital capital raising
	Digital banking
	Digital savings
	Digital payments
	Digital asset exchange
	Digital custody
	Insurtech
	Wealthtech
Market provisioning	Regtech
	Alternative credit and data analytics
	Digital identity
	Enterprise technology provisioning

MSMEs = micro, small, and medium enterprises; insurtech = insurance technology; wealthtech = wealth technology; regtech = regulatory technology
Source: CCAF et al. (2020)

Digital lending is the process of providing loans in which application, disbursement, and management are made primarily through digital channels such as digitized data or cashless transactions (Beatrice 2020). Digital innovations can be used throughout the lending process (Figure 1). Using digitized data, digital lenders can formulate better decisions on credit applications and enhance customer engagement. It improves efficiency by shortening decisions on loans without sacrificing security. Disbursement and collection can also be done remotely through digital wallets. Customer data and automation can also be incorporated into the digital lending process.

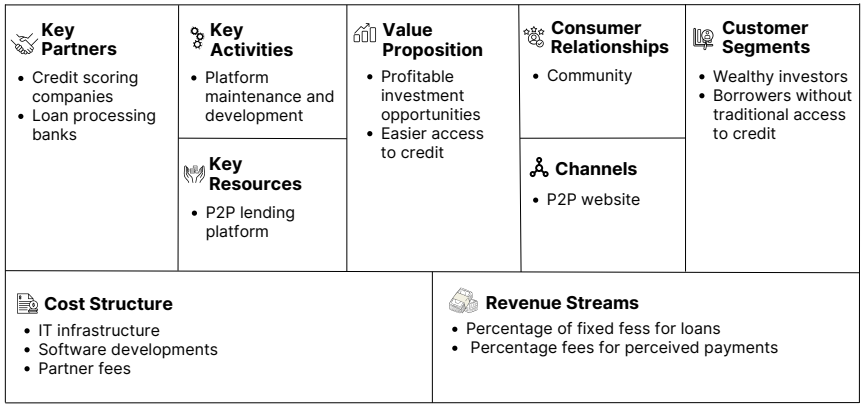
Another fintech lending subvertical is peer-to-peer or people-to-people lending (P2P), which offers individuals and businesses an opportunity to connect with one another (Figure 2). Fintechs involved in lending do not engage in the lending themselves but have an agreement with financial institutions operating it. Fintechs match lenders and borrowers and facilitate the collection of payments. In other words, P2P lending consolidates debt and credit card refinancing, among others.

Figure 1. The digital lending business process

Customer Acquisition	Approval Analytics	Disbursement and Repayment	Collection	Customer Engagement
Customers are acquired by using a mix of digital marketing tools and digital onboarding channels. Digital lenders make use of innovations in technology to access government- and private sector-verified records before lending.	The background of the applicants for a loan are analyzed using digital technology. Using digital data and process automation, quicker, automated, and more accurate underwriting decisions are reached. Digital lenders use various data sources, advanced algorithms, and data analytics to make secure decisions quickly and remotely.	Disbursement of loans and collection of repayments are done remotely through digital channels. These cashless channels improve operations and reduce security risks by providing lenders and customers access to their funds instantly.	Digital lenders leverage data and algorithms to support their collection process. To motivate repayment, digital lenders can blacklist identified delinquent customers. This blocks their access to future funds.	Digital lending does not end with disbursement and collection. Digital channels and customer data analysis can be used to customize services and improve customer experience throughout the lending process.

Sources: Chati (2019); Beatrice (2020); Beatty (2021)

Figure 2. P2P lending business model canvas



P2P = peer-to-peer or people-to-people; IT = information technology
Source: Modified from Lüftenegger et al. (2010)

For P2P lending, the value proposition is to provide profitable investments for lenders and easier access to credit for individuals wanting to borrow. The key partners for this type include credit scoring companies, who assess potential borrowers' creditworthiness and match them with appropriate lenders whose specified criteria they meet, and the loan processing banks (Lüftenegger et al. 2010).

Similar to P2P lending, where funding comes from different people, crowdfunding fintechs, which include rewards-based, donation-based, and equity-based crowdfunding, are digitally enabled modes of raising capital from different people. It empowers people (funders) to control the creation of new products and raising funds for them (World Bank 2017). Unlike other fintechs that usually only involve the institutions providing the products and services and the consumers, crowdfunding involves the entrepreneur who needs the funding, the contributors (or funders) who have an interest in supporting the project, and a third party who supervises the engagement between the entrepreneur and contributor. Crowdfunding schemes typically differ based on the benefits received by the funder. In rewards-based crowdfunding, the funder receives some interests set by the borrower, who also provides a guarantee of a refund at a certain time. In equity-based crowdfunding, the entrepreneur offers the funder a portion of the business in return for the funds. In contrast, in donation-based crowdfunding, the funder

or the donor does not expect monetary compensation in return for the funds. Donor-based crowdfunding is typical of projects aimed at charitable purposes, while the rest are more focused on entrepreneurial and income-generating projects (CCAF et al. 2020).

Banks can also create a digital arm or a digital subsidiary for them to be able to offer digital services without altering their existing operations and services. A more revolutionary step, however, is to engage in open banking infrastructure and transform into a digital bank, migrating the entire process into a digital ecosystem. In the digital banks and digital subsidiaries approach, banks partner with third-party providers to leverage fintech innovations that can help reach more customers, better manage information, and offer more services (Denyes 2019). In other words, traditional banks can adopt open banking technology through API and share information and partner with third parties who can operate platforms and provide financial services digitally.

In a bank-based model, the registered or licensed bank-led or nonbank-led financial institution may outsource or delegate some of the activities to a service provider, such as a mobile network operator (MNO), for the transmission of the transaction details and the maintenance of subaccounts. Here, the customers have contractual relationships with the business, and the financial product/service may or may not be bank-based. Still, the bank is primarily responsible for product delivery, marketing, branding, and customer relations. In a nonbank-based model, the digital or mobile financial service may also be bank-led or nonbank-led. The customers have a contractual relationship with a nonbank service provider licensed to provide the product/service that may also be bank-based or nonbank-based. Still, the nonbank provider can take the lead in marketing, branding, and delivery of products/services (AFI 2016).

These services can be viewed through the main streams of open banking schemes, the Banking-as-a-Service (BaaS) and Banking-as-a-Platform (BaaP). In the BaaS model, third parties are allowed to distribute financial products and services by integrating fintech products into the regulated financial infrastructure and allowing nonfinancial companies to embed the banking products and services into their own services. Operationalizing this integration depends on the path and roles banks and third-party

providers agreed upon, either as providers, aggregators, or distributors. In a traditional BaaS, banks build their own in-house systems and remain the main provider of products and services in their own distribution channels. Banks may also invest and acquire systems from vendors and customize or enhance these for their usage (Deloitte Consulting 2021). In a BaaS model, banks can tap third-party nonbank institutions to deliver services by allowing them to access information through an API-enabled environment. The bank owns the infrastructure layer, which manages databases, controls the network, and secures data. This layer is connected to third parties' own platforms, which may or may not be integrated into the bank's infrastructure (Rajan 2017).

In a BaaS scheme, incumbent banks integrate API-based platforms with their existing back-office ecosystem and provide nonbanks the opportunity to launch various financial products. This API-based open banking system provides a more efficient way to target more customers and offer more products and services without entirely transforming into a digital bank. For third-party nonbank institutions, this setup enables them to smoothly deploy financial products without dealing with banking regulations while still focusing on their main business operations and having their own customer base (Rajan 2017).

On the other hand, BaaP provides banks some flexibility in leveraging technology by not only tapping third-party services but also redefining their business models, including opening their secured databases, products, and services to external partners. Banks and nontraditional financial institutions are more integrated and can provide a more comprehensive set of products and services (Rajan 2017).

For nontraditional banks, leveraging technology is straightforward, as they are not constrained by existing legacy systems and cultures that incumbent banks have to endure changing when migrating to a digital ecosystem. Fintech startups, for example, can exploit the core advantages of blockchain to create value and offer diverse services without making too much bargaining (Welsch et al. 2020).

With digital banking comes digital savings, a type of savings where services are done entirely digital using the internet and gadgets (Serfiyani 2019) and targeted to younger generations who are more inclined to use the internet (Martin 2016, cited in Serfiyani 2019). Digital savings function the same way as conventional savings but are easier

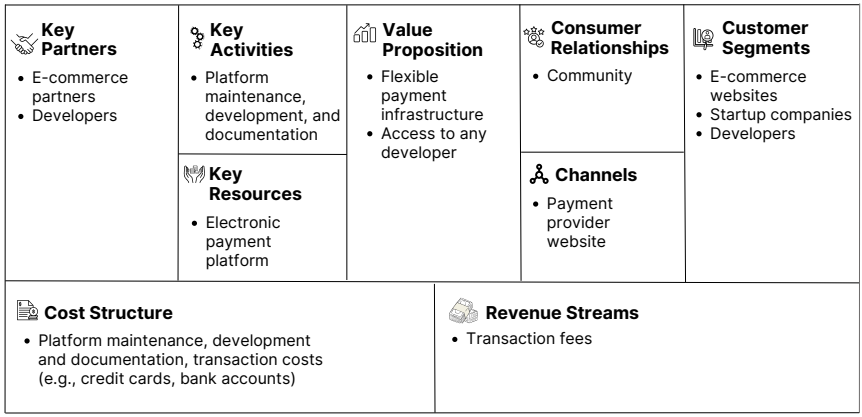
and faster to manage. In digital savings, traditional functions include using savings books summarizing other functions—automated teller machine (ATM) cards, internet banking tokens, and mobile banking applications—into one account. Digital savings not only pertain to incorporating technology into conventional savings or replacing manual transactions and making it online but also eliminating the need to rely too much on banks or financial consultants. In other words, digital savings allow customers to have more control over their deposits and monitor their transactions (Serfiyani 2019). Digital savings are also integrated with microcredit services (Donner 2017).

Digital payment systems are one of the fastest-growing fintechs, as these can accumulate more consumers by offering more accessible payment mechanisms at lower costs. It targets (1) consumer and retail payment and (2) wholesale and corporate payment (Lee and Shin 2018). Products and services under this type of fintech solution are mobile wallets, P2P mobile payments, and digital currency solutions (BNY Mellon 2015, cited in Lee and Shin 2018). Institutions engage in this type of transaction leverage on payment technologies that can offer speed, convenience, and multichannel accessibility (Lee and Shin 2018). Payments can be made through various approaches, including charging a phone bill, near-field communication, barcode or quick response (QR) code, credit card on mobile websites, mobile phone card reader, and direct mobile payment (Li 2016, cited in Lee and Shin 2018).

As for the electronic payment platform with a business-to-business (B2B) scheme, Figure 3 shows that value is created by offering a flexible payment infrastructure that can be accessed by any developers or integrated into various platforms (e.g., websites, mobile applications). It also allows the integration of various customer accounts or the incorporation of different payment schemes and channels. Customers of this type of fintech product are e-commerce merchants and other developers providing other types of services (Lüftenegger et al. 2010).

Digital asset is "generally referred to as an asset issued or transferred using distributed ledger technology, such as blockchain" (CCMC 2021, p.7). Digital assets are of different types and characteristics. Cryptography or blockchain-based assets are sometimes referred to as cryptocurrency. Other digital assets that leverage blockchain are virtual currency, digital currency, coin, and crypto assets (CCMC 2021).

Figure 3. EPP business model canvas (a B2B model)



EPP = electronic payment process; B2B =business-to-business
Source: Modified from Lüftenegger et al. (2010, p.30)

The Strategic Hub for Innovation and Financial Technology of the US Securities and Exchange Commission refers to digital asset as "an asset issued and transferred using distributed ledger or blockchain technology, including, but not limited to, so-called 'virtual currencies', 'coins', and 'tokens'" (US SEC 2019, p.12). These differences in terms create confusion, and digital asset sometimes becomes an umbrella term, which some companies use to offer not only products and services related to investment and securities but also as a "means by which blockchain-based good or service is provided to and accessed by consumers" (CCMC 2021, p.8). In the Philippines, the *Bangko Sentral ng Pilipinas* (BSP) uses the term virtual asset to refer to "any type of digital unit that can be digitally traded or transferred and can be used for payment or investment purposes. It can be defined as 'property', 'proceeds', 'funds', 'funds or other assets', and other 'corresponding value'" (BSP Circular 1108 [s. 2021], Section 1a). This definition also refers to virtual currencies as virtual assets (BSP 2021).

Another emerging digital service is digital custody, defined as "having control of private keys on behalf of clients" and "custody …, administration …, and safeguarding … of crypto assets or private cryptographic keys used to hold, store, or transfer cryptoassets as service for others" (ALFI 2020, p.8). It can also be defined as a service

that "allows institutional and private players to access and operate on the crypto market and to safely keep and use their funds" (PWC 2021).

Wealth technology (wealthtech) includes other wealth management subverticals like digital wealth management, social trading, robo advisors, robo retirement or pension planning, personal financial management or planning, and financial comparison sites. Wealthtech is a model for automated wealth advising or robo advisers, which provide financial advice and an array of investment options at a much lower cost based on a customer's investment preferences and attributes.

Meanwhile, capital market fintechs, which are concentrated on trading, currency exchange, and market research and analysis, provide a venue for investors to interact and share information regarding commodities and stocks. Financial institutions primarily operate them to provide investors with more accessible means to engage in trade and exchange in a more secure and real-time ecosystem at a lower cost.

The insurance services business model provides a room to directly connect potential customers and insurance institutions by matching them using certain algorithms that calculate risks, provide product options, and streamline healthcare billing processes (Lee and Shin 2018).

Fintech in other economies

Fintech is growing in other countries. In China, financial laws and policies were characterized as repressive, thus preventing financial institutions from functioning at full capacity. In addition, the financial sector is mainly dominated by state-owned banks that favor lending to state-owned enterprises and large private companies, leaving small and medium enterprises (SMEs) underserved. This prompted the growth and expansion of the P2P industry, which remained completely unregulated for quite some time (Chen et al. 2020). In 2016, a regulatory framework was announced, requiring P2Ps to function as information intermediaries only (Hua and Huang 2020). The regulation also resulted in stricter guidelines and capital requirements, resulting in uncertainty and a decline in the number of operating platforms (Chen et al. 2020). Due to economic and social unrest over the regulation, several changes and delays have occurred, indicating that the government favors retaining

the P2P sector. A guideline was released in 2019, allowing P2P platforms to operate as microloan companies under certain conditions. However, concerns about the sector's survivability remain (Chen et al. 2020).

In Indonesia, underdeveloped financial systems, coupled with a large rural population, hinder the achievement of financial inclusion, leading to low productivity, poverty, and unemployment. Thus, fintech and P2P lending are promoted as keys to addressing financial inclusion and reducing income inequality by reducing red tape to encourage investment and access to financial services (Anisa 2021).

Promoting financial inclusion is one reason why several countries in the Asia-Pacific region are looking at technology and developing mobile financial services. India, for instance, has introduced basic banking functions on basic handsets, removing the burden brought by complicated banking applications. Similarly, the State Bank of Vietnam developed a national strategy to enhance its legal framework to improve fintech and consumer protection, enhance financial literacy, and expand financial products and services to rural and agricultural communities (Jahan et al. 2019).

The development of fintech, particularly through crowdfunding schemes and the application of AI and blockchain, also benefits SMEs. Banks and traditional financial service providers have been SMEs' primary sources of financing, but access to credit has been hard for years. One considerable reason is insufficient, if not totally unavailable, sources of information to assess the creditworthiness of SMEs, which is understandably perceived to increase the risks for financial institutions. Therefore, blockchain technology can resolve this issue by advancing information management and creating a digital footprint, reducing credit risks, and increasing confidence in SMEs to access credit (Yesseleva-Plonka 2021). AI makes credit scoring, fraud detection, and matching borrowers and investors faster and more efficient. In Singapore, SMEs' access to credit improves with an increase of 300 percent in crowdfunding to SMEs and a reduction in bank lending, with debt repayment timelines also improving. Across the world, crowdfunding is strongly and positively associated with per capita gross domestic product, while lower financial access negatively affects alternative finance.

This demonstrates a need to implement policies promoting new financial innovation and schemes (Tok and Chansriniyom 2021).

Fintech also provides two streams of support for MSMEs. In Indonesia, financial products and services help MSMEs easily obtain credit and conduct business transactions. Fintech innovation provides secure, more affordable, and faster transactions, benefiting both sellers and buyers (Lestari et al. 2020). Fintech and intellectual capital both significantly improve the performance of MSMEs (Hamida et al. 2020). Thus, fintech companies not only enhance the delivery of financial services through digital channels and platforms but also provide better business solutions.

The development of fintech, however, does not automatically result in financial inclusion, as there are other factors to consider. Financial literacy, for instance, affects how fintech innovations are appreciated, which could alter their intended benefits.

In Viet Nam, financial literacy is positively associated with awareness of fintech products, including digital borrowing and lending, digital payment, digital insurance, and awareness index. It does not, however, correlate to the awareness of digital financial advisors. Fintech literacy is also positively associated with the adoption of fintech products, such as e-banking and e-payment services, but not on e-transfer. Moreover, low financial literacy does not only associate with a low level of fintech products awareness and adoption but also explains the underdevelopment of information and communications technology (ICT) infrastructure. This puts forwards the need to develop ICT infrastructure, in addition to financial education, as a requirement for fintech development (Morgan and Long 2020).

These observations are similar in Japan, where financial literacy is found to increase an individual's decision to engage in risky financial behavior and fintech adoption. Financial literacy positively contributes to using e-money, mobile applications, and at least one fintech service. At the same time, it has a negative effect on holding cryptocurrency, which indicates uncertainty over cryptocurrency's price volatility (Yoshino et al. 2020).

Therefore, fintech and fintech providers and startups help improve the deepening of financial inclusion and can potentially

alleviate poverty and resolve economic inequality. However, fintech is not a perfect game changer as the same innovation has regulatory impacts on the financial sector's stability and consumer protection, especially with the entry of nonfinancial corporations and fintech giants. Considering its magnitude, concerns arising from the impacts of fintech companies and innovation on traditional banks exist, whether they are substitutes or complements (Beck 2020). Thus, the role of a regulatory framework, which will guide how financial technology can be utilized better and safer, cannot be dismissed.

Singapore's fintechs complement incumbent banks, but the reasons for complementarity may differ. On the other hand, fintech startups do not seem to significantly affect incumbent financial sectors in Indonesia and Viet Nam, while no effect is observed in Malaysia and Thailand (Low and Wong 2021).

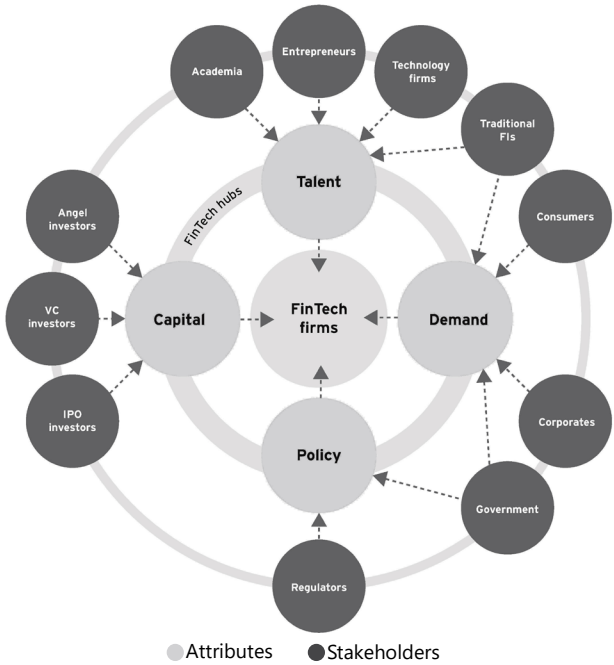
On the role of fintech in improving macroeconomic stability, preliminary evidence in China confirms a rapid convergence in fintech development in lagging and leading regions between 2013 and 2018. Another piece of evidence suggests that data-based credit scoring models improve financial and macroeconomic stability by taking out the "financial accelerator" that creates a vicious cycle of asset prices, credit policy, and real economic activities, which may result in financial crises. Also, the role of a fintech-supported economy and online shopping during the COVID-19 pandemic indicates that fintech can help mitigate the impact of economic shocks. Another preliminary piece of evidence suggests that the expansion of e-commerce helps integrate regional markets, reducing price volatility. Between 2001 to 2019, a structural break was observed for the consumer price index but not for the producer price index, following the fintech boom in 2013 (Huang 2020). Additionally, improving financial services' efficiency, which helps boost the productivity of SMEs, subsequently providing more entrepreneurship, jobs, and income to households, are also considered more valuable roles of fintech in China. Firms with more access to credit are able to expand their products, and farmers who adopt mobile payment are able to run informal businesses, increasing their income (Hua and Huang 2020).

Methodology

Review of conceptual frameworks

A number of conceptual frameworks have been developed to describe the fintech ecosystem. One such framework (Figure 4) was used to describe the United Kingdom's fintech ecosystem. The model identifies four attributes that support a well-functioning fintech ecosystem, namely, talent pool (Talent), availability of capital (Capital), policy environment (Policy), and demand for fintech services (Demand).

Figure 4. Attributes of the fintech ecosystem



FIs = financial institutions; VC = venture capital ; IPO =initial public offering
Source: Ernst & Young (2016)

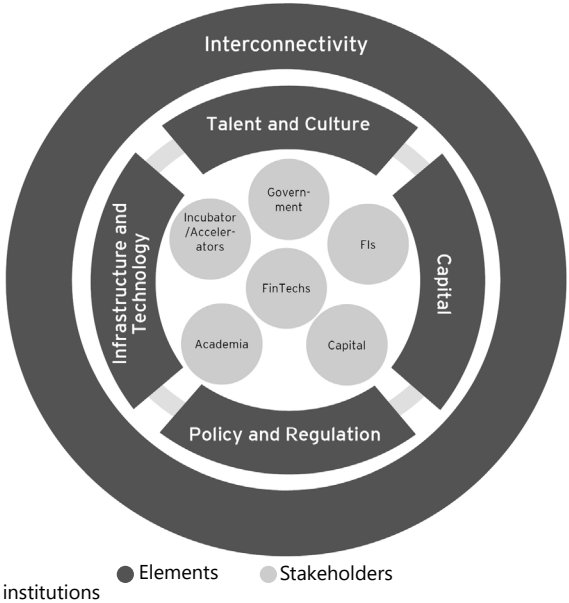
According to Figure 4, the four key attributes of the fintech ecosystem affect the operations of fintech firms. The availability of technical, financial services, and entrepreneurial talent ensures that fintechs are able to hire employees who can support the company's

operations. The availability of capital ensures that fintechs, often startups and scaleups, can fund the expansion of their operations. Government policies affecting fintechs include regulations on entry and operations, tax and incentives regulations, and other sector growth initiatives. Finally, demand consists that of consumers (end users), corporates, the government, and even traditional financial institutions.

Stakeholders in the fintech ecosystem participate through one or more of these attributes. For example, the government can participate in the fintech ecosystem as a user of fintech services (thereby affecting demand), or it can influence policy. The private (business) sector (technology firms, corporations, traditional financial institutions, and entrepreneurs) also participates in various attributes of the fintech ecosystem. Entrepreneurs and technology firms provide talent that the fintech firms can hire. Meanwhile, corporations demand fintech services, while traditional financial institutions provide talent to fintech firms and, at the same time, demand fintech services.

Ernst and Young (2020) developed a similar conceptual model for describing the Massachusetts fintech ecosystem (Figure 5).

Figure 5. Framework for a well-functioning ecosystem



FIs = financial institutions
Source: Ernst & Young (2020)

Similar to the previous framework, the ecosystem is composed of two parts: the stakeholders and the elements. The elements represent how the stakeholders contribute to the ecosystem. Each stakeholder may participate in one or more elements. The five elements—talent and culture, infrastructure and technology, policy and regulation, capital, and interconnectivity—serve as the pillars of a well-functioning fintech ecosystem.

In Figure 5, stakeholders represent the participants and contributors to the ecosystem. While these stakeholders may have different motivations, they are often independent and interconnected. This model has five major stakeholder categories: government, incubators/accelerators, capital sources, traditional financial institutions, and the fintech institutions themselves.

Fintechs at various stages of operations (i.e., startups, scaleups, and mature companies) are at the core of the ecosystem. Meanwhile, capital providers include angel investors,[3] venture capitalists, private equity, and corporate venture capitalists. The government comprises regulatory bodies managing and governing the sector, while the academe consists of all institutions engaged in education and research related to fintech. Finally, incubators and accelerators include collaborative programs, inclusive innovation labs, and trade associations offering access to capital, mentorship, and other legal and organizational support to early-stage companies.

In addition to the previously discussed elements, Lee and Shin (2018) identified financial customers and technology developers. In their model, financial customers include organizations and individuals, while developers consist of big data analytics, cloud computing, cryptocurrency, and social media developers.

Lee and Shin's model incorporates technology developers, which are not present in the previous models, into the ecosystem. Technology developers provide digital platforms for social media, big data analytics, cloud computing, AI, smartphones, and mobile services. Hence, they

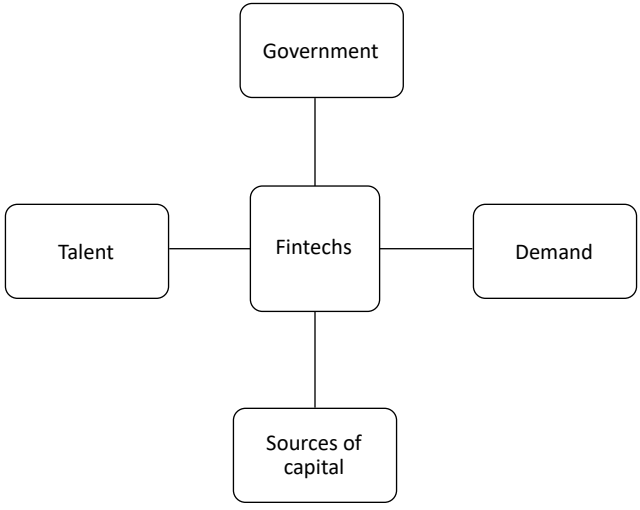
[3] Business angel investors are "high net worth, noninstitutional private equity investors who have the desire and sufficiently high net worth to enable them to invest part of their assets in high-risk, high-return entrepreneurial ventures in return for a share of voting, income, and, ultimately, capital gain" (McKaskill 2009, p.9).

create a favorable environment for fintech startups to launch innovative services rapidly. For instance, big data analytics can be used to provide unique personalized services to customers, and cloud computing may be used by cash-strapped fintech startups to deploy web-based services at a fraction of the cost of in-house infrastructure development. Meanwhile, algorithmic trading strategies can be used as the basis for robo-advisor wealth management services at much lower fees than traditional wealth management services. Moreover, social media facilitates the growth of communities in crowdfunding and P2P lending services, and the ubiquity of mobile devices supplants the advantages of physical distribution. MNOs also provide low-cost infrastructure for fintech companies' service development, such as mobile payment and mobile banking. In turn, the fintech industry is generating revenue for these technology developers.

Methodology and data

This study uses various fintech models (Ernst & Young 2016, 2020; Lee and Shin 2018) to describe the Philippine fintech ecosystem. The following aspects of the ecosystem are described in this study:

Figure 6. Framework for a well-functioning ecosystem



Source: Authors' illustration

To describe the Philippine fintech landscape, this study presents indicators of each aspect using secondary data. To assess the fintech companies operating in the Philippines, the authors used the following databases: The first set of data contains a list of platforms (e.g., payment, lending, digital wallets, e-commerce) from various sources, including Fintech Reports 2017, 2018, and 2020 and data from the Securities and Exchange Commission (SEC) on registered companies (e.g., year of registration, services provided, name, headquarters, description). Other pieces of information were sourced from various sources on the internet. For instance, indicators of talent and academe were derived from the Philippine Statistics Authority (PSA) website and the IMD World Competitiveness, which identified the characteristics of the Filipino labor force. Meanwhile, the demand side data were based on the BSP Financial Inclusion Survey, which contains information on the demand for fintech and key statistics on the consumers and users of financial services.

This study also collected primary data through key informant interviews (KIIs) to verify its findings. These interviews provided first-hand information on the experiences of fintech companies in doing business in the Philippines and the experience of regulators in managing the growth of the sector.

Philippine Fintech Ecosystem

The Philippine fintech industry is very promising, given that the country has been identified as one of the fast-growing fintech destinations. According to Masally et al. (2019), fintech and low-cost payment systems resulted in more adult Filipinos owning prepaid debit cards,[4] from 12.7 million in 2013 to 21 million in 2018. Likewise, fintech companies and QR code-enabled payments increased the number of active mobile money accounts by 5 million.

The growth of digital payments in the Philippines is estimated at 27–30 percent, compared to 25 percent in emerging Asian neighbors. In terms of women's participation, the country not only catches up on digitization but also leads in women's digital engagement,

[4] Fintechs and enterprises are leveraging prepaid cards as an alternative banking service because of their accessibility and affordability (Enfuce Financial Services 2022).

with 27 percent of women transacting digitally compared to only 23 percent of men. In 2019, faster growth in account ownership was observed among men (9%) compared to women (4%), but women remained to be more financially included (32.9%) than men (24.2%) (BSP 2019). Despite these developments, financial inclusion in the Philippines remains lagging at 34 percent compared to the Association of Southeast Asian Nations (ASEAN) average of 74 percent in 2017 (Masally et al. 2019). Nonetheless, it remains to evolve and grow.

During the COVID-19 pandemic, more banks have entered the digital space, delivering their services either through in-house platforms or through partnerships with a fintech service provider. This increased mobile banking and e-wallet services during lockdowns, as transacting online eased the potential danger of face-to-face and over-the-counter transactions. The use of e-money also gained support in Congress, with several bills promoting the use of e-money in all government transactions filed in the legislature (Bunyi et al. 2021). Thus, the pandemic has allowed the fintech industry to prosper rapidly and forced banks to undergo digital transformation, which takes several years under normal circumstances (Noble 2021).

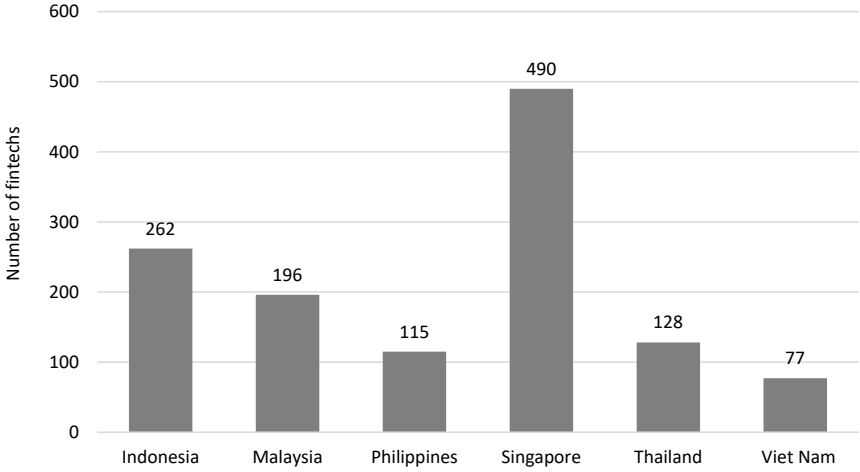
However, these developments still fail to give a complete picture of the fintech ecosystem in the country. In addition, the financial sector has already been disrupted by the digitalization of several financial products and services (with more expected to follow the same transformation). Hence, there is more to look into than just considering fintech as another service innovation.

The fintech elements may be easily defined, but the interplays across every stage of the transformation are not very well explored in the Philippine context, considering the existing policy space governing it or the lack of it. As fintech continues to develop, new models and products will continue to disrupt the financial sector at varying degrees, posing certain risks that must be identified and mitigated. Thus, the young and evolving fintech ecosystem in the country should be comprehensively examined not only from a generic linear approach but also as a continuous nonlinear process.

In 2017, there were 1,268 fintechs in ASEAN. Singapore had the highest concentration, followed by Indonesia. The Philippines had only 115 fintechs (Figure 7). However, the latest report of BSP showed that

the number of fintechs in the country grew to 212 as of December 2020, or an increase of about 46 percent. Most of these fintechs are involved in payments, lending, e-wallets, remittances, e-commerce, insurance investments, and even in regulatory technologies.[5]

Figure 7. Number of fintechs in ASEAN, 2017



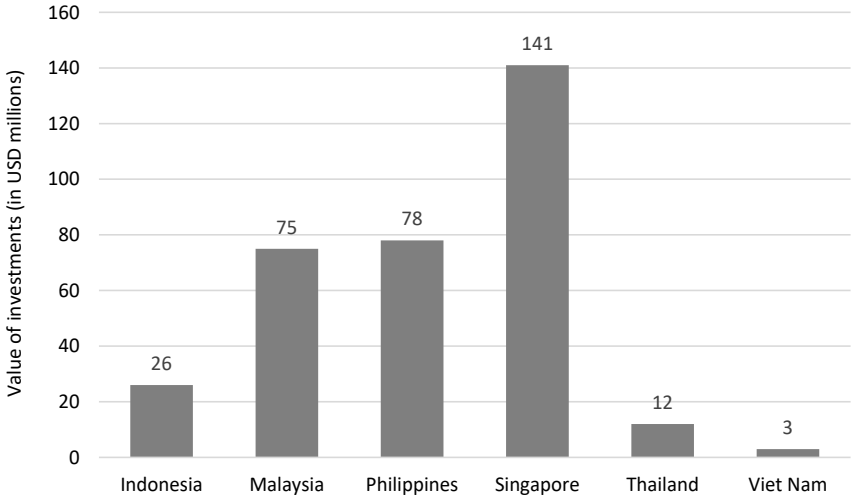
ASEAN = Association of Southeast Asian Nations
Source: Authors' illustration based on Tracxn in ASEAN Fintech Census 2018 Ernst & Young (2018)

In terms of the value of investments in fintech, Singapore also topped in 2017 with a total investment of USD 141 million, while the Philippines came in next with USD 78 million (Figure 8). These include investments in payments, investment tech, insurtech, consumer finance, and alternate lending (Ernst & Young 2018).

In the Philippines, new fintech companies were created annually from 2010 to 2018. It peaked in 2014 with 34 new firms. However, the number of companies launched each year has dropped steadily since then, with 2018 registering only 9 new fintech companies. However, fintech investments continued to increase exponentially from 2016 to 2018 at 762.5 percent (Figure 9).

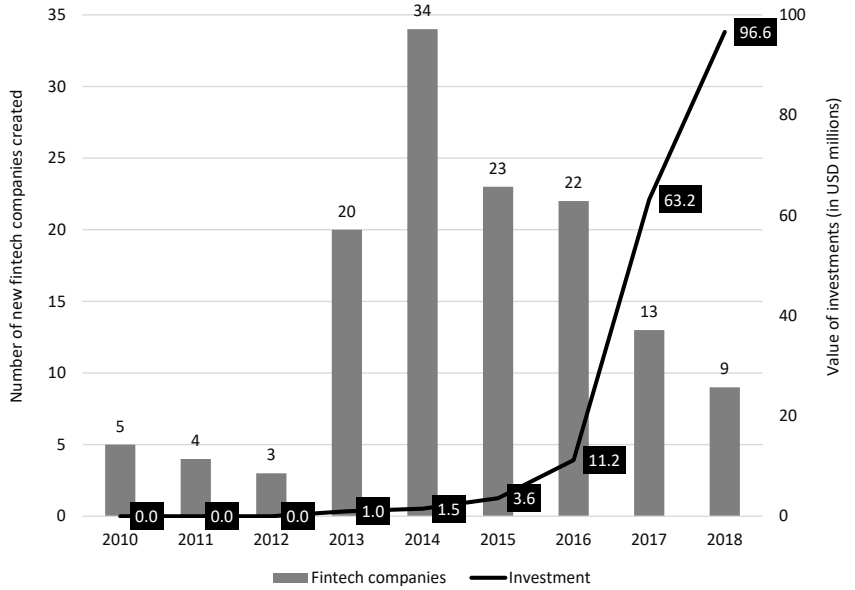
[5] Based on a KII conducted by the authors on October 29, 2021.

Figure 8. Value of fintech investments in ASEAN, 2017 (in USD millions)



ASEAN = Association of Southeast Asian Nations; USD = United States dollar
Source: Authors' illustration based on Tracxn in ASEAN Fintech Census 2018 Ernst & Young (2018)

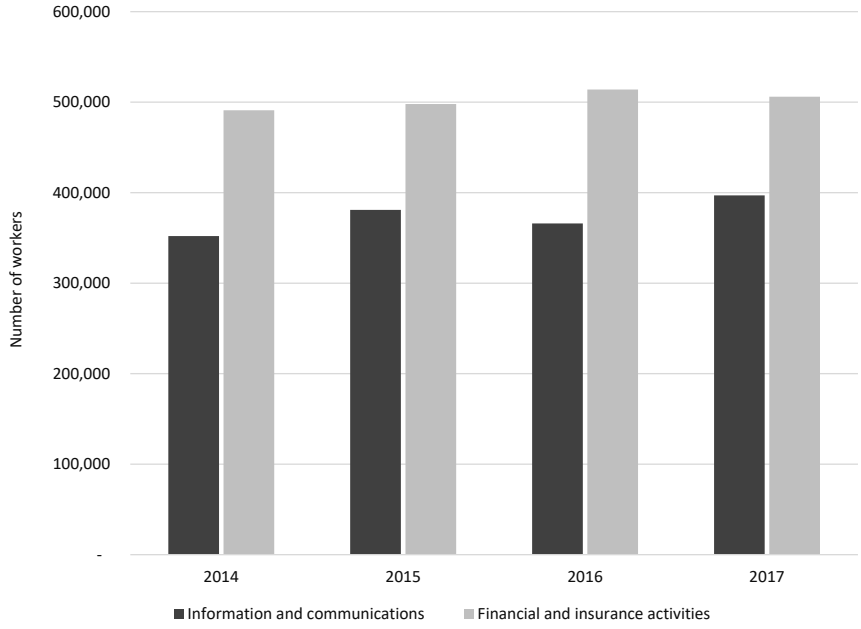
Figure 9. Investment and new fintech companies created in the Philippines, 2010–2018



USD = United States dollar
Source: Adopted from Schellhase and Garcia (2019, p.20)

Employment in fintech companies has not been reported, but employment in business and IT-related industries can be used as proxy measures of employment. Data from PSA indicates that employment in these sectors has not changed significantly since 2014 (Figure 10).

Figure 10. Employment in business and IT-related industries, 2014–2017



IT = information technology
Source: Authors' construct based on PSA (various years)

Meanwhile, the Global Fintech Index 2020 (see Box 1) named the Philippines among the countries to watch, given its fast-growing fintech sector. Figure 11 presents the Fintech Index scores of the other ASEAN countries. Besides the Philippines, the Global Fintech Index 2020 also identified Viet Nam as among the countries to watch because of its rapidly increasing fintech scores. Findexable also found that the Philippines excels in payments, enabling processes and technology, and banking and lending.

Box 1. The Global Fintech Index

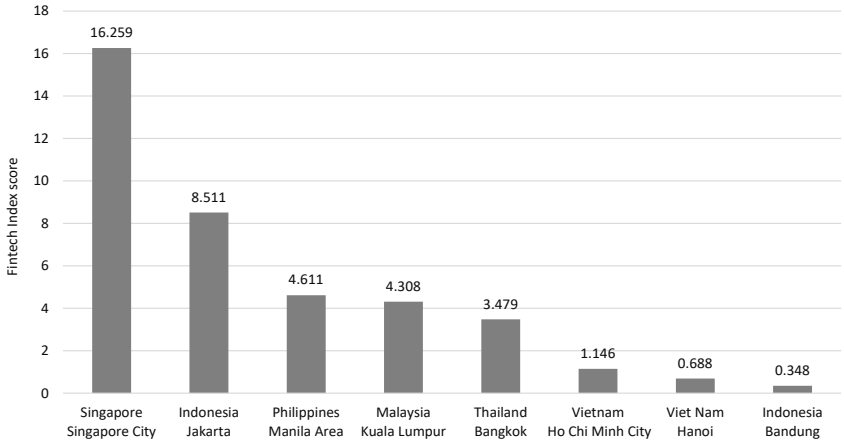
In 2019, Findexable released the first country and city rankings of fintech ecosystems based on its Global Fintech Index. The index is calculated by aggregating scores for each location based on the following:

- **Quantity of privately owned fintech companies.** Starting from a universe of more than 11,000 individual fintechs, the index groups them by location. According to the report, locations with multiple hubs are clustered under a larger city.
- **Quality of privately owned fintech companies.** The Global Fintech Index considers the impact of a given company on the wider ecosystem by factoring in data from SEMrush and Crunchbase on metrics, including web presence, monthly visits, customer base, and valuation. The index also looks at the presence of major industry gatherings and "gateway" fintech events and the population of the country to assess the scale of the ecosystem.
- **Local business environment.** The Index uses global measures such as the World Bank's Doing Business Report to gauge the ease and attractiveness of a specific location based on levels of local "red tape" and technology infrastructure. Ease of doing business metrics are only applied at the country level, which means cities are judged on the merits of the ecosystems they have managed to build, rather than the economic environment the government has created.

The first report was released in 2020. It included 65 countries and 230 cities involving more than 7,000 fintechs. In 2021, the second fintech report included more than 264 cities from 80 countries and more than 11,000 fintech companies.

Source: Findexable (2019)

Figure 11. Findexable scores of ASEAN cities, 2021

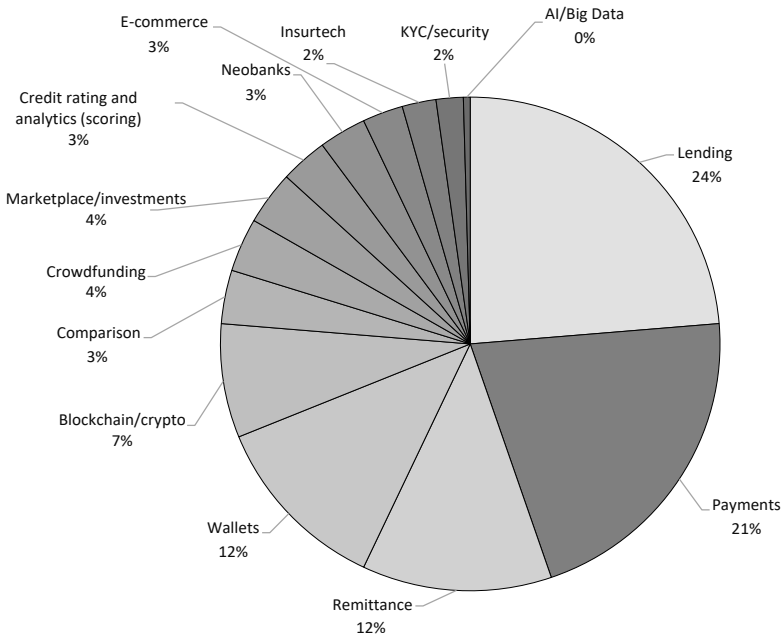


ASEAN = Association of Southeast Asian Nations
Source: Findexable (2021)

Who are the fintech players?

In 2020, Fintech Alliance PH identified 8 categories of fintech companies. Many of these firms covered mobile payments and wallets, followed by alternative finance. A total of 197 platforms/companies were included in the list, showing a notable increase from only 60 startups in 2017 (Figure 12). The increasing number of fintechs and verticals in the Philippines indicates an evolving fintech sector and a diversifying industry.

Figure 12. Fintechs in the Philippines, 2020



KYC = know your customer; AI = artificial intelligence
Source: Fintech Alliance PH (2020)

Based on the list of SEC-registered companies identified to engage in fintech activities, it can be seen that most of the companies in 2020 were into the issuance of virtual currencies, remittances, credit and finance, and lending. Companies engaged in currency exchange and those supervised by the BSP trailed behind. Moreover, there were no significant changes in the figures from 2020 to 2021 (Table 2).

Table 2. SEC-registered fintech-related companies, 2020–2021

Types	2020		2021	
	Number	Incidence (%)	Number	Incidence (%)
Banks	5	6	6	9
Marketplace solutions providers	2	3	3	5
Credit and finance	10	13	7	11
Customer support	3	4	2	3
Lending	10	13	10	15
Virtual currency, e-money, and e-wallet	12	1	9	14
IT solutions	6	8	5	8
Currency exchange	8	10	8	12
Investment	2		1	2
Insurance	4	5	3	5
Payment	3	4	2	3
Remittance	12	15	10	15
Securities	4	5	1	2
Other FIs subject to BSP's supervision and/or regulation	9	11	11	17
Others	5	6	3	5
Total regardless of type	79		66	

SEC = Securities and Exchange Commission; IT = information technology; FIs = financial institutions; BSP = *Bangko Sentral ng Pilipinas*
Note: Incidence rates do not add up to 100 percent as some companies belong to more than two types.
Source: Authors' compilation

Another source of information on the fintech ecosystem of the Philippines is the Global Fintech Index by Findexable (Table 3). Findexable listed 170 fintechs in the Philippines in 2020, which increased slightly to 183 in 2021. Most fintechs listed in 2021 were based in the National Capital Region (178 of the 183), while the rest were from Cebu. Among the verticals/sectors, lending and marketplaces (34%) and payment and transfers fintechs (31%) dominated the industry in 2020. This trend remained in 2021, although the shares declined slightly. From 2020 to 2021, banking technology, infrastructure, and

automation increased sharply. This is possibly due to BSP's policy on digital banks, particularly BSP Circular 1105, which sets the guidelines for establishing digital banks.[6]

Table 3. Philippine fintech companies listed in Global Fintech Index

	2020		2021	
	Number of Fintechs	% of Total	Number of Fintechs	% of Total
Analytics and scoring	3	2	3	2
Authentication, cyber, and fraud	3	2	3	2
Banking	7	4	7	4
Banking technology, infrastructure, and automation	2	1	10	5
Blockchain	16	9	16	9
Insurance	9	5	8	4
Investing and trading (retail and institutional)	1	1	1	1
Lending and marketplaces	58	34	61	33
Payments and transfers	53	31	55	30
PFM and wealth management	2	1	2	1
Services for SMEs	2	1	2	1
Virtual and cryptocurrency	1	1	1	1
Other fintech	13	8	14	8
Total	170	100	183	100

PFM = personal financial management; SMEs = small and medium enterprises
Source: Findexable (2019, 2021)

Demand for fintech

Demand for fintech looks at three aspects: (1) how much local market consumers use fintech, (2) how many businesses utilize fintech, and (3) how financial institutions adopt fintech services. Given the paucity

[6] The Monetary Board, in its Resolution L536 dated November 26, 2020, approved the inclusion of "digital banks" as a distinct classification of banks and the corresponding guidelines for their establishment.

of data on fintech transactions by customers (e.g., consumers, businesses, financial institutions, government), this study looks at proxy indicators for fintech demand.

Filipinos still rely on traditional institutions to access financial services. For instance, in 2019, Filipinos were more aware of ATMs (90%), pawnshops (82%), and banks (77%) as access points or institutions for obtaining financial services or making financial transactions. However, relative to 2017, it was noticeable that more Filipinos became more aware of nonstock savings and loan associations (NSSLA) and e-money agents, which showed exceptionally substantial growth in 2019. In terms of accessibility, pawnshops (61%) and ATMs (51%) were the most accessible for Filipinos in 2019. The highest change in the perceptions of accessibility was observed for insurance agents (900% increase) and NSSLA (233% increase), although they remained the least accessible. Looking at the use of different access points in 2019, most Filipinos transacted with pawnshops (31%), *bayad* centers (27%), and remittance agents (21%) (Table 4). Meanwhile, e-money agents (the closest proxy for fintech services) had the most significant increase in usage (300%), indicating that awareness has been translated to use.

One of the industry's strengths is the growing participation of consumers in electronic money transactions. From 2018 to 2019 alone, e-money transactions increased by 36 percent from PHP 1.09 trillion to PHP 1.5 trillion. Likewise, active e-money accounts increased by 76 percent (Table 5).

The composition of the demand for fintech services also differs across countries. For instance, in 2019, demand in Indonesia was mainly comprised of individual demand at 47 percent, followed by SME demand at 38 percent, and very small demand from corporate (8%) and public (7%) sectors. In the Philippines, individual demand also dominated (43%); however, the demand from the corporate sector (32%) is much larger than the demand from SMEs (19%) (Figure 13). For the Philippines, the composition of the demand for fintech has implications on equity as benefits from the technology could accrue to larger corporations while SMEs lag behind.

Table 4. Usage, accessibility, and awareness of access points, 2019

	Awareness		Accessibility		Usage	
	Distribution (%)	Change 2017–2019 (%)	Distribution (%)	Change 2017–2019 (%)	Distribution (%)	Change 2017–2019 (%)
Bayad Center	63	43	42	75	27	59
ATM	90	48	51	104	15	36
Pawnshop	82	58	61	144	31	138
Bank branch	77	10	18	-5	15	88
Remittance agent	65	59	39	129	21	110
Microfinance NGO	59	84	19	111	16	167
Financing company	59	31	10	43	4	33
Cooperative	52	49	8	100	3	50
E-money agent	36	260	6	100	8	300
Money Changer	62	82	3	0	3	200
NSSLA	13	333	1	233	0	-100
Insurance agent	27	50	1	900	0	-100

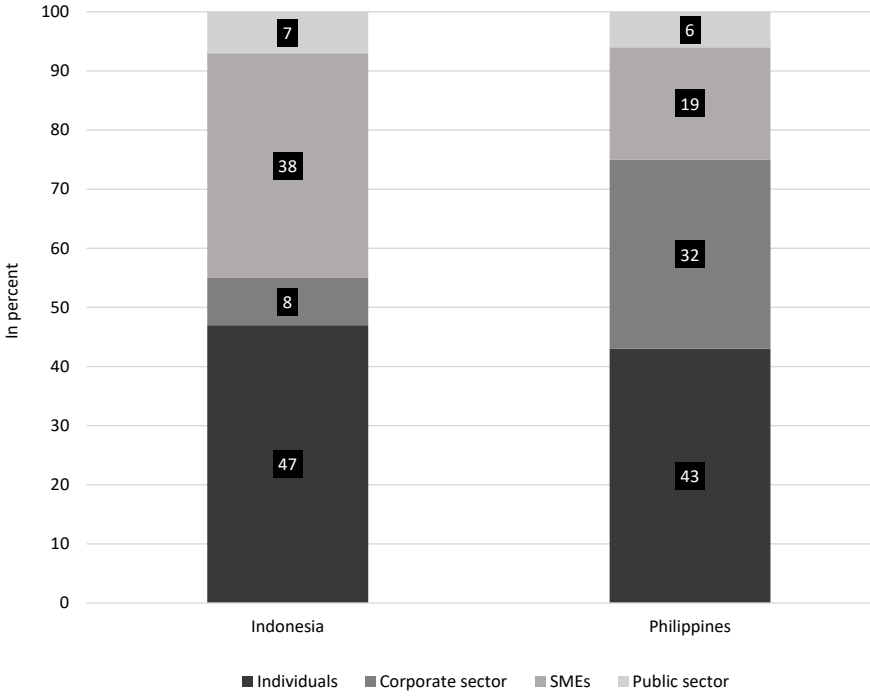
ATM = automated teller machine; NGO = nongovernment organization; NSSLA = nonstock savings and loan association
Source: Authors' compilation based on BSP (2017, 2019)

Table 5. E-money transactions

E-Money	2017	2018	2019	Growth Rate 2018–2019
Total amount of transactions (inflow + outflow) (in billion PHP)	963	1,090.1	1,485.3	36%
Active e-money accounts (in millions)	2.2	5.0	8.8	76%
Prepaid cards linked to e-money	25.2	28.2	20.6	-27%

PHP = Philippine peso
Source: BSP (n.d.-a)

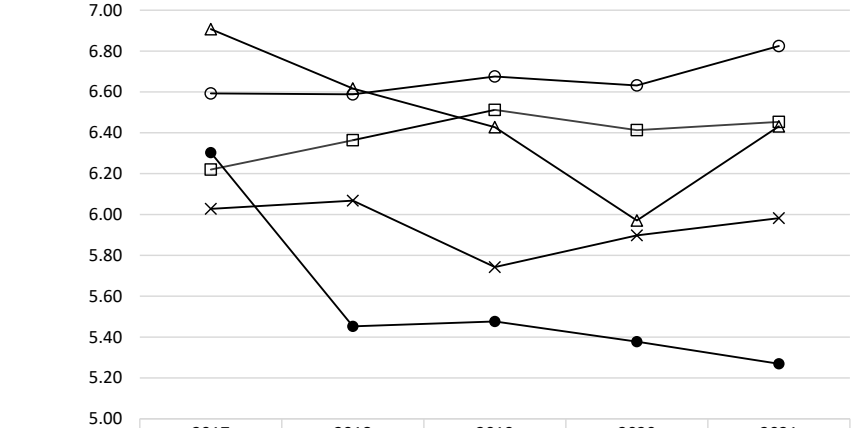
Figure 13. Fintech customers in Indonesia and Philippines by sector (%), 2019



SMEs = small and medium enterprises
Source: Soriano et al. (2019)

Companies' demand for fintech services is related to their openness to utilizing digital technology in their businesses and transactions. According to the IMD World Competitiveness Index in 2021, corporate interest in digital transformation in the Philippines has deteriorated since 2017 (IMD 2021). The Philippines fell significantly behind its ASEAN neighbors in 2021 regarding transforming their companies (Figure 14).

Figure 14. Digital transformation of companies in ASEAN, 2017–2021

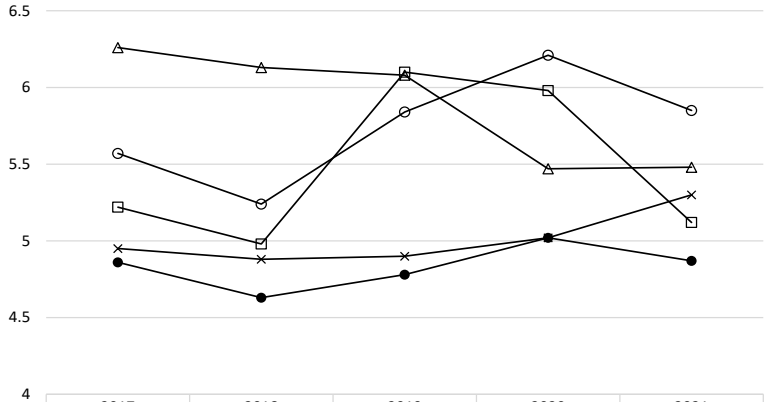


	2017	2018	2019	2020	2021
Indonesia	6.22	6.36	6.51	6.41	6.45
Malaysia	6.91	6.62	6.43	5.97	6.43
Philippines	6.30	5.45	5.48	5.38	5.27
Singapore	6.59	6.59	6.68	6.63	6.82
Thailand	6.03	6.07	5.74	5.90	5.98

ASEAN = Association of Southeast Asian Nations
Source: Author's construct based on IMD (various years)

Related to the digital transformation of companies is the adoption of FIRe technologies such as big data and analytics, as companies can use these to understand their fintech needs. The country also has the lowest usage of big data and analytics. Only Thailand has continued growth in using these technologies among companies in ASEAN from 2018 to 2021 (Figure 15).

Figure 15. Use of big data and analytics of companies in ASEAN, 2017–2021



	2017	2018	2019	2020	2021
Indonesia	5.22	4.98	6.10	5.98	5.12
Malaysia	6.26	6.13	6.08	5.47	5.48
Philippines	4.86	4.63	4.78	5.02	4.87
Singapore	5.57	5.24	5.84	6.21	5.85
Thailand	4.95	4.88	4.90	5.02	5.30

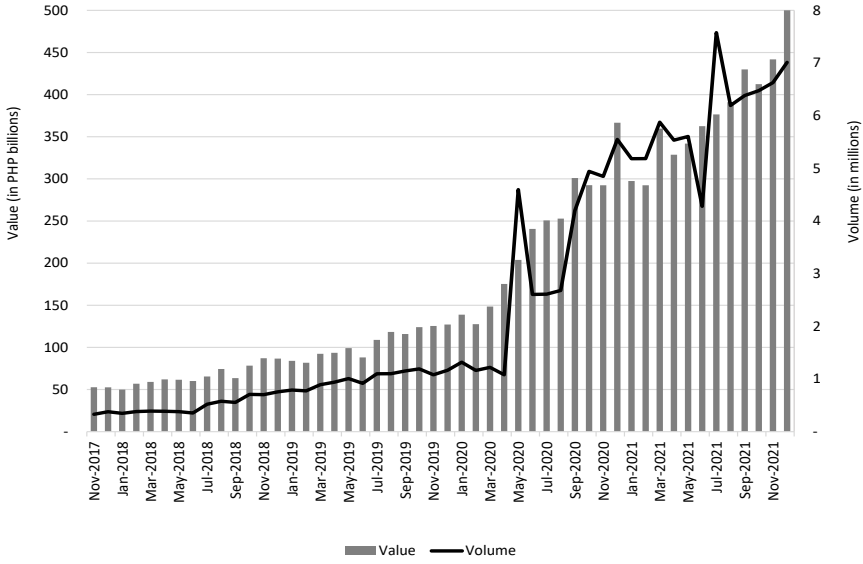
ASEAN = Association of Southeast Asian Nations
Source: Author's construct based on IMD (various years)

For the Philippines, digital payment platforms have eased a transition from offline to online transactions—and their use has skyrocketed, especially during the pandemic. The leading mobile wallet company GCash saw a 700-percent year-on-year increase in transaction volume in June alone and doubled its registered users in the first half of 2020 (Susantono 2021). The BSP also reported continued increases in the PESONet[7] and Instapay[8] transactions during the pandemic (Figures 16 and 17). Consequently, the value of the transactions also increased during the period.

[7] Philippine EFT System and Operations Network (PESONet), launched in 2017, is the first automated clearinghouse under the National Retail Payment System. It is a batch electronic fund transfer (EFT) credit payment scheme and can be considered an electronic alternative to the paper-based check system. PESONet enables individuals, businesses, and the government to conveniently transfer funds and pay from their accounts to other recipient accounts in other financial institutions.

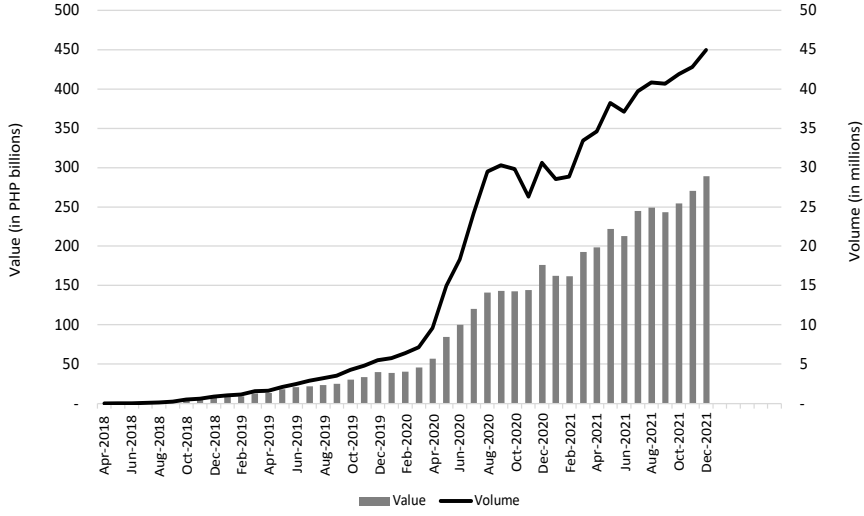
[8] Instapay, launched in 2018, is a real-time low-value EFT credit push payment scheme designed to facilitate small-value payment for transactions amounting up to PHP 50,000.

Figure 16. PESONet transaction volume and value, 2017–2021



PESONet = Philippine EFT System and Operations Network; PHP = Philippine peso
Source: Data from BSP (n.d.-b)

Figure 17. Instapay transaction volume and value, 2017–2021



PHP = Philippine peso
Source: Data from BSP (n.d.-b)

Data on financial institutions' demand for fintech services is limited. However, information on their participation in digital payments can be proxied by the number of banks participating in the National Retail Payment System (NRPS); as more banks participate in the NRPS, the ease of conducting banking and financial transactions also increases. As of October 2021, there were 90 PESONet participants composed of 42 universal or commercial banks, 17 thrift banks, 27 rural banks, and 4 e-money issuers.

Meanwhile, Table 6 shows the QR P2P and QR person-to-merchants (P2M) participants of Instapay. It can be noted that most of the participants use automated clearing house (ACH) system in electronic money transfers, while only less than 50 percent of the participants use QR codes. Hence, there is room for expansion in the QR P2P and P2M among participants.

Table 6. Instapay participants as of October 2021

Type	Sender/Receiver	Receiver Only	Sender Only	Total
ACH Participants				
Total	49	10	0	59
U/KBs	20	1	0	21
TBs	11	4	0	15
RBs	8	4	0	12
EMI/others	10	1	0	11
QR Ph Person-to-Person Participants				
Total	24	1	0	25
U/KBs	12	0	0	12
TBs	5	0	0	5
RBs	4	0	0	4
EMI/others	3	1	0	4
QR Ph Person-to-Merchant Participants				
Total	8	4	2	14
U/KBs	3	3	2	8
TBs	1	0	0	1
RBs	1	0	0	1
EMI/others	3	1	0	4

ACH = automated clearing house; U/KBs = universal and commercial banks ; TBs = thrift banks; RBs = rural banks; EMI = electronic money issuers; QR Ph = Quick Response Code Philippines
Source: BSP (n.d.-d)

Availability of capital

The availability of capital ensures that fintechs, often startups and scaleups, can fund the expansion of their operations. Using data on investment deals in the fintech sector from private data provider PitchBook Data Inc., Cornelli et al. (2021) analyzed the funding sources of fintechs worldwide and found a rapidly increasing trend in terms of investments in fintech over the last decade. This can be observed in terms of both the number and value of deals. The same trend is observed for ASEAN countries (see Figure 8).

Singapore has seen a sharp increase in fintech deals since 2010, with the number of deals peaking in 2020 (Table 7). Meanwhile, the number of deals for the other ASEAN economies has also been increasing but at a slower pace. For the Philippines, the number of fintech deals grew from 2010 to 2016, when it reached a peak of 15 fundraising deals. However, the number of deals has been declining steadily since 2016, with a slight rebound in 2020.

Table 7. Number of fintech fundraising deals in selected ASEAN countries, 2010–2020

Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Cambodia	0	0	0	0	0	0	0	1	0	1	2
Indonesia	1	2	4	1	10	18	22	43	46	55	32
Malaysia	0	1	4	8	6	6	7	21	13	15	14
Philippines	0	0	2	5	5	13	15	12	7	9	11
Singapore	3	11	9	24	39	59	87	100	143	133	151
Thailand	0	1	1	1	6	7	15	14	13	9	8
Vietnam	0	1	0	1	3	2	6	1	5	18	4

ASEAN = Association of Southeast Asian Nations
Source: BSP (n.d.-a)

The value of fundraising deals has also been increasing steadily in ASEAN. In 2020, Indonesia, with a total value amounting to USD 3,544 million, overtook Singapore in terms of the value of fintech fundraising deals. For the Philippines, the value has also been increasing, reaching a peak of USD 288 million in 2018. This declined to

USD 74 million in 2019 but increased slightly to USD 95 million in 2020 (Table 8). The increase in funding in 2018 can be attributed to a growing number of investors noticing the country's potential, directing more funds into the domestic fintech ecosystem, and the positive demographic and economic fundamentals, supportive regulatory framework, and the creation of several new companies in the previous years (Schellhase and Garcia 2019).

Table 8. Value of fintech fundraising deals in selected ASEAN countries (in USD millions), 2010–2020

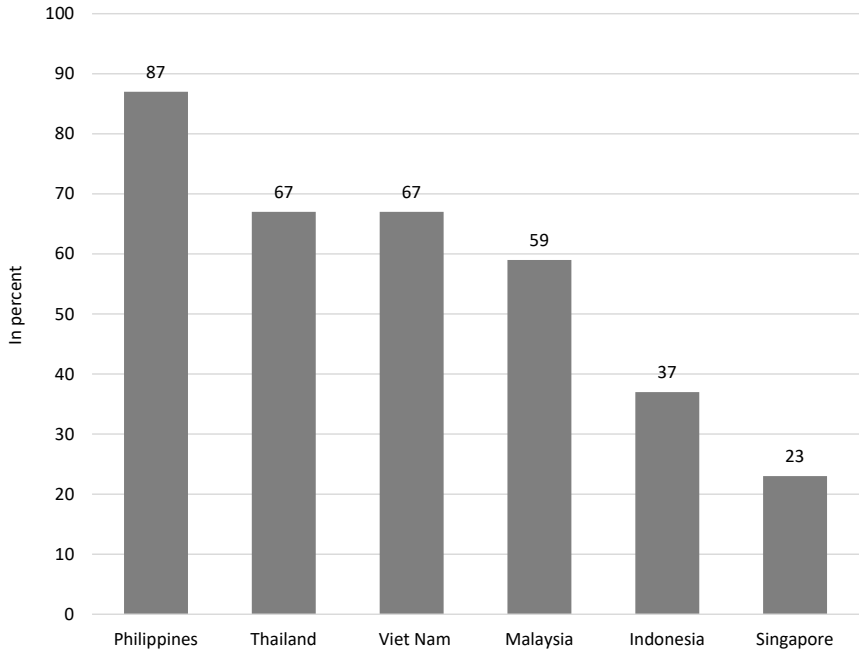
Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Cambodia	–	–	–	–	–	–	–	0	–	0	6
Indonesia	39	0	95	70	54	10	568	201	1,964	299	3,544
Malaysia	–	5	56	17	178	6	2	33	153	16	10
Philippines	–	–	3	1	4	24	6	26	288	74	95
Singapore	4	73	23	200	367	556	986	405	3,001	5,461	2,091
Thailand	–	–	0	17	9	6	22	9	11	3,075	114
Viet Nam	–	–	–	6	2	1	29	–	3	451	1

ASEAN = Association of Southeast Asian Nations; USD = United States dollar
"–" = no data available
Source: BSP (n.d.-a)

With regard to the sources of capital, Cornelli et al. (2021) found that venture capital (VC) investment and mergers and acquisitions (M&A) are the most common sources of funding. M&A funding is more commonly observed in the US and the United Kingdom, while rapid VC activity is observed in China. In terms of the life cycle of the companies, VC funding is more common among younger companies (startup and early stage) as this allows them to raise small amounts of equity.

VC is also an important source of funding for fintechs in the Philippines. When asked if there is a need for more venture capitalists for fintech firms, 87 percent of fintech respondents from the Philippines mentioned a need for more VCs. In contrast, the proportion is only 67 percent for Thailand and Viet Nam and 37 percent for Indonesia (Figure 18).

Figure 18. Need for more venture capital investors in fintech, 2018

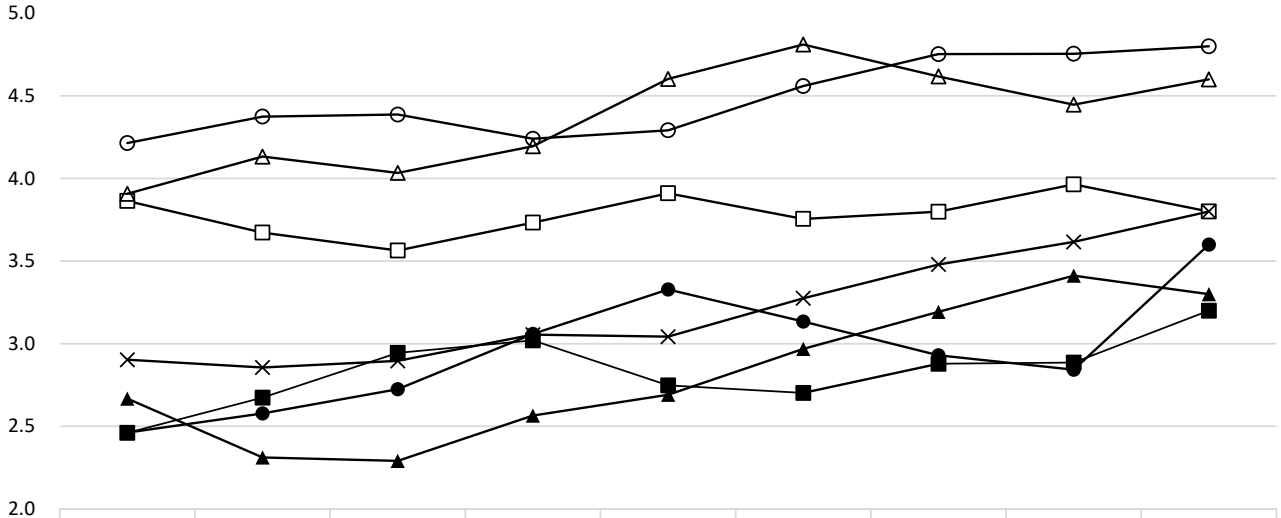


Source: Ernst & Young (2018)

Given that VC has been identified as a key source of funds for fintechs, it would be good to look at indicators related to VC for the Philippines. The Philippines has barely improved in terms of VC funding availability from 2010 to 2017, as reflected by its low score in the WEF Global Competitiveness Index. More recently, the Philippines' performance has improved since 2017, with a score of 3.3 in 2018 and 3.6 in 2019 (Figure 19). Despite this, the Philippines still needs to enhance the availability of VC for entrepreneurs, as ASEAN countries leading in the VC availability have scores above 4.

Meanwhile, Google et al. (2021) have found a resurgence in investors' confidence in the first half of 2021, as indicated by an uptick in dealmaking activities (Figure 20). The report is optimistic that investment in digital services is on track to hit the highest record in recent years, as the first half of 2021 has already surpassed the value of deals in 2020.

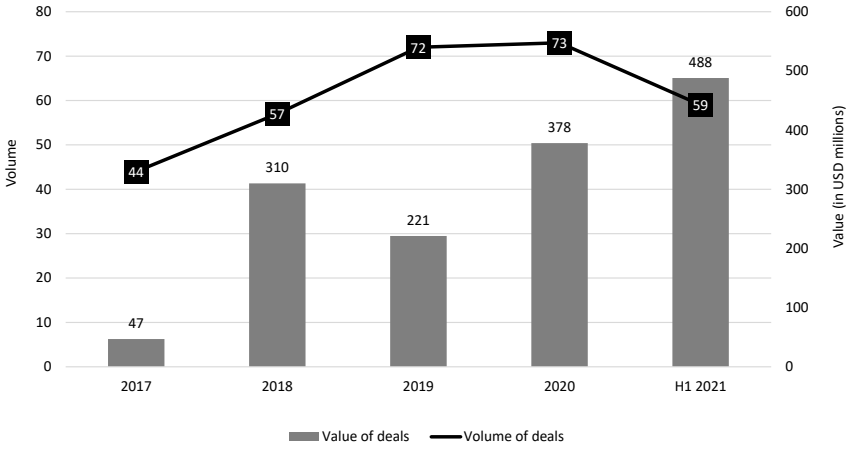
Figure 19. Ease for entrepreneurs with innovative but risky projects to find venture capital (1–7 best), 2010–2019



	2010–2011	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016	2016–2017	2017–2018	2018–2019
Cambodia	2.5	2.7	2.9	3.0	2.7	2.7	2.9	2.9	3.2
Indonesia	3.9	3.7	3.6	3.7	3.9	3.8	3.8	4.0	3.8
Malaysia	3.9	4.1	4.0	4.2	4.6	4.8	4.6	4.4	4.6
Philippines	2.5	2.6	2.7	3.1	3.3	3.1	2.9	2.8	3.6
Singapore	4.2	4.4	4.4	4.2	4.3	4.6	4.8	4.8	4.8
Thailand	2.9	2.9	2.9	3.1	3.0	3.3	3.5	3.6	3.8
Viet Nam	2.7	2.3	2.3	2.6	2.7	3.0	3.2	3.4	3.3

Source: WEF (2019)

Figure 20. Deals in the digital sector, Philippines



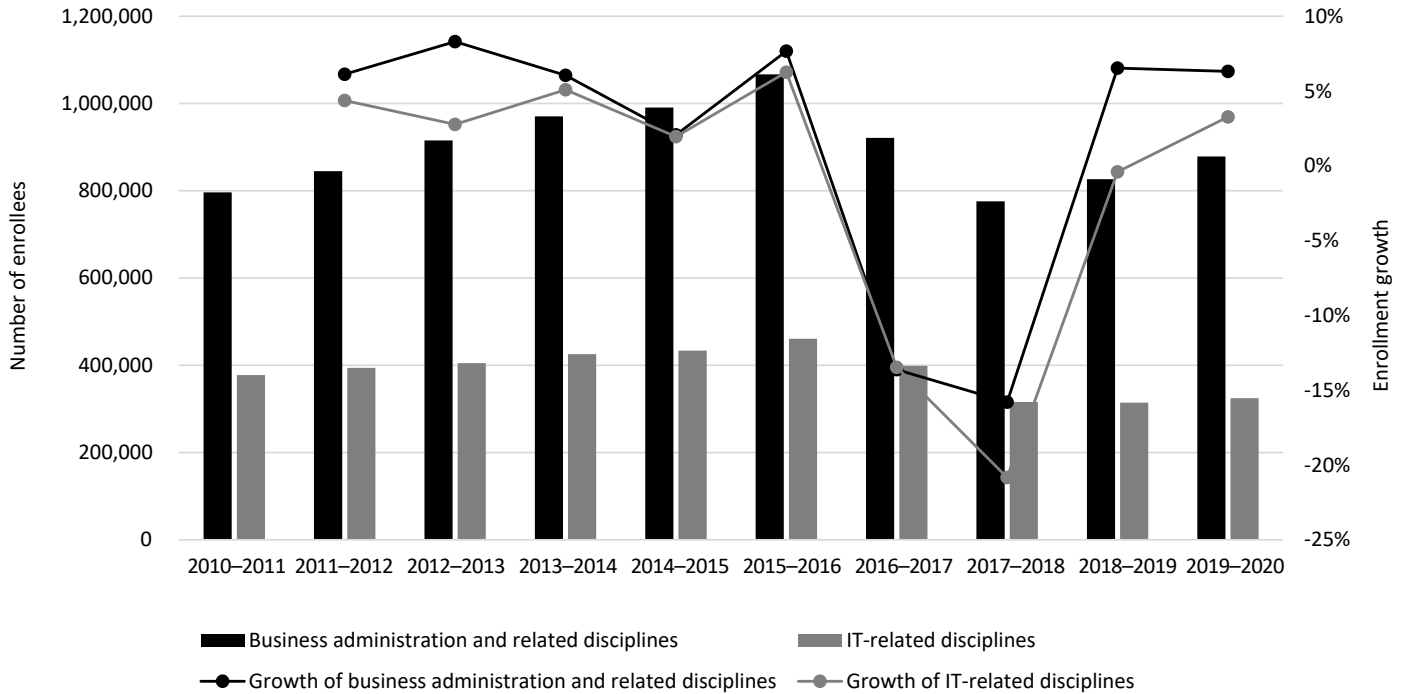
USD = United States dollar; H1 = first half
Source: Google et al. (2021)

Talent formation and the role of the academe

One of the requirements of the fintech industry to grow and sustain its progress is the availability of competent, talented, and skilled workers and entrepreneurs. The availability of highly skilled, technical financial services and entrepreneurial workers and stakeholders through academia and organizational development ensures that the industry can expand with low search costs. This pillar of the ecosystem also looks at the ability of the sector to attract, develop (train), and retain its workforce.

Thus, the continuous formation of skills for all individuals to fill in the demands of fintech is an important aspect of talent formation. In the country, enrollment in fintech-related disciplines, such as business administration and information technology (IT), has fluctuated over the years. Huge enrollment drops in these courses were experienced in Academic Year (AY) 2016–2017 and 2017–2018, although enrollment recovered in AY 2018–2019 and has been sustained since then (Figure 21). Business administration courses are essential in developing business skills that can support the financial services industry in adopting emerging technologies. With the adoption of emerging technologies, workers highly skilled in business can differentiate the delivery of services by improving operational efficiency, understanding customers, and relationship management (John Wiley & Sons 2021).

Figure 21. Higher education enrollment by discipline group, AY 2010–2011 to 2019–2020



AY = academic year; IT = information technology
Source: Authors' construct using CHED (n.d.) data

Meanwhile, data for business and technology-related graduates suggest a limited supply of fintech talent in the country. This is because the share of graduates from critical courses related to data science, such as engineering, mathematics, physics, and IT-related disciplines, has not improved since 2010 (Table 9). Data science and analytics are related to fintech, as data analytics is often used in delivering customized financial services to customers. According to the Coursera Industry Skills Report, finance CEOs plan to employ cloud computing, cybersecurity, data science, AI, and machine learning technologies by 2025 (John Wiley & Sons 2021).

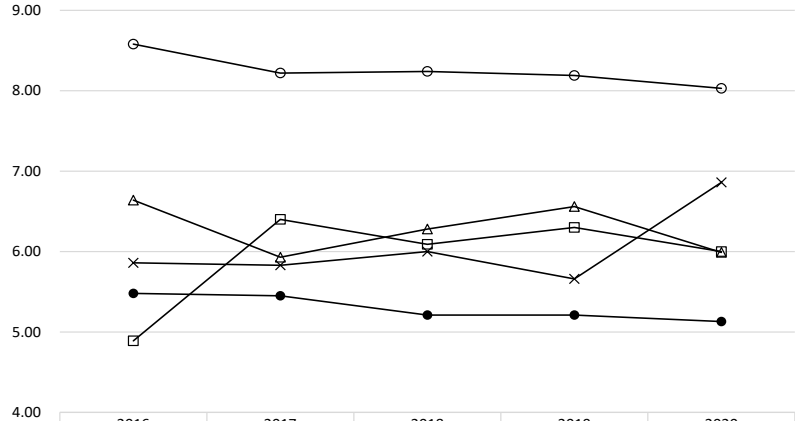
Relative to other ASEAN member-states, the country's performance across different fintech-relevant aspects varies as reflected in the results of the Executive Opinion Survey (EOS) (IMD 2021). With regard to attracting foreign highly skilled personnel, the country has been behind Singapore, Thailand, Malaysia, and Indonesia since 2017 (Figure 22). Meanwhile, on the availability of digital/technological skills in the labor force, the country scored 7.23 in 2016, following Singapore (8.52) and Malaysia (7.65). The trend has been decreasing since 2016, with the country scoring 6.27 in 2020. This puts the country last among the five ASEAN countries surveyed by the EOS (Figure 23). On the other hand, the country has been performing well in terms of skilled labor availability. Since 2016, the Philippines has consistently scored above 6.7 in this aspect. However, in 2020, Singapore overtook the Philippines, as its score slipped to 6.62.

Table 9. Higher education graduates by discipline group: AY 2010–2011 versus 2018–2019

Discipline Group	2009–2010		2018–2019	
	No. of Graduates	Share	No. of Graduates	Share
Business administration and related disciplines	117,399	24.4	233,194	29.3
Engineering and technology	49,373	10.3	87,083	10.9
IT-related disciplines	49,786	10.3	81,477	10.2
Mathematics	2,021	0.4	3,192	0.4

AY = academic year; no. = number; tech = technology; IT = information technology
Source: CHED (n.d.)

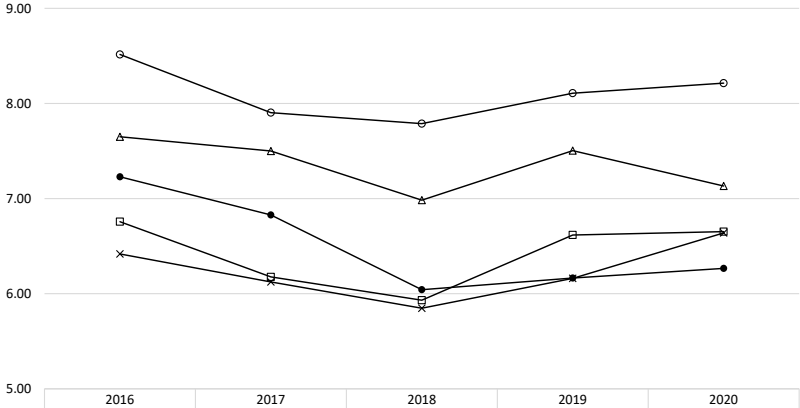
Figure 22. Attractiveness of business environment to foreign highly skilled (digital) personnel (based on 0–10 [best]) index, 2016–2020



	2016	2017	2018	2019	2020
Indonesia	4.89	6.40	6.09	6.30	6.00
Malaysia	6.64	5.93	6.28	6.56	5.99
Philippines	5.48	5.45	5.21	5.21	5.13
Singapore	8.58	8.22	8.24	8.19	8.03
Thailand	5.86	5.83	6.00	5.66	6.86

Source: Authors' construct based on IMD (various years)

Figure 23. Availability of digital and technological skills (based on an index 0–10 [best]), 2016–2020



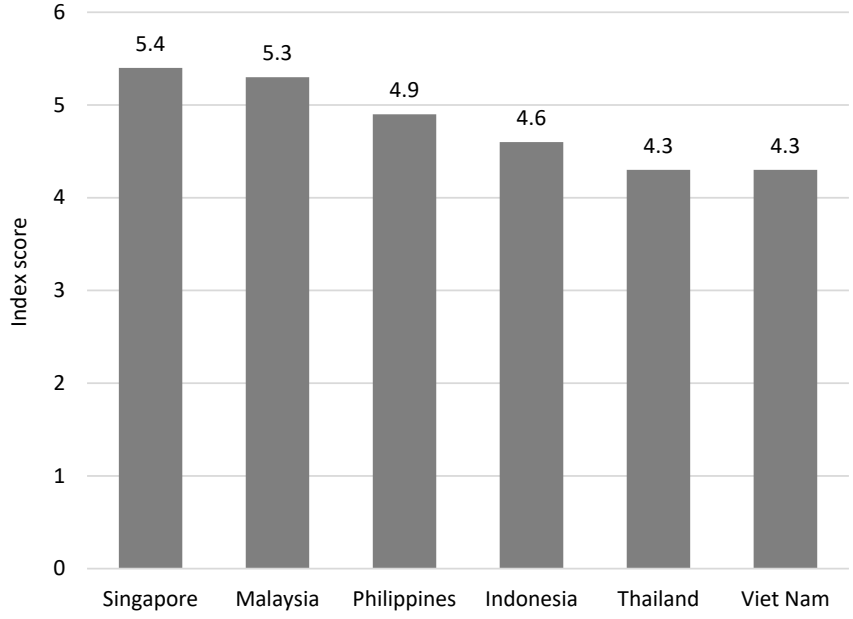
	2016	2017	2018	2019	2020
Indonesia	6.76	6.18	5.93	6.61	6.65
Malaysia	7.65	7.50	6.98	7.50	7.13
Philippines	7.23	6.83	6.04	6.16	6.27
Singapore	8.52	7.90	7.79	8.11	8.21
Thailand	6.42	6.12	5.85	6.16	6.64

Source: Authors' construct based on IMD (various years)

The academe's role in forming talents and skilled individuals is crucial for the fintech industry's growth. In the Philippines, several higher education institutions offer degrees related to business and IT. However, very few, if none, are directly dedicated to fintech. Two of the country's top universities initiated activities to address the industry's demand. One is the Ateneo de Manila University, which has set up the first university-based blockchain lab in the country; this, however, has been put on hold indefinitely. The other is the University of the Philippines, with its Junior Finance Association partnering with the Union Bank of the Philippines' fintech group to organize a fintech immersion program for finance students.

The extent to which companies invest in digital training and employee development indicates the strength of a country's training institutions. Thus, John Wiley & Sons (2021) measured the extent employees receive digital training among ASEAN economies in its Digital Skills Gap Survey. In this survey, the Philippines scored 4.9, indicating a relatively strong training environment among corporates (Figure 24).

Figure 24. Extent of employee digital training by corporates, 2019



Source: John Wiley & Sons (2021)

The role of the government in fintech development

Three government agencies that directly supervise and regulate the fintech industry in the country are the BSP, SEC, and Insurance Commission (IC). The BSP, with its mandate to continue to "create a supportive environment for financial inclusion", aims to "see a digital financial ecosystem with the right mix and range of financial service providers, digital solutions and delivery channels to promote the efficiency and reach of financial products and services" (BSP 2018, p.6). On the other hand, the SEC regulates lending and other financial industries, while the IC regulates and guides the insurance, preneed, and health maintenance organizations (HMOs). Other relevant agencies also regulate the fintech industry on data privacy, security, money laundering, and information systems (Table 10).

Table 10. Fintech regulators and their functions

Regulator	Functions
BSP	Supervises bank and nonbank e-money institutions, virtual asset service providers, remittance agents, remittance platform providers, payment systems operators, and banks, including digital banks
SEC	Regulates securities offering and sale and investment activities as the main regulatory body for lending and financing companies
IC	Oversees and regulates insurance firms, health maintenance organizations, and preneed companies in the Philippines
DICT	Formulates, recommends, and implements policy and program frameworks for the rapid development and improved global competitiveness of the ICT industry and ensures efficient and effective ICT infrastructure and information systems
NPC	Oversees matters involving data privacy
NTC	Regulates value-added services, including mobile applications and online platforms used for the delivery of financial services
AMLC	Oversees compliance with the AML law and matters concerning financing of terrorism

AMLC = Anti-Money Laundering Council; BSP = *Bangko Sentral ng Pilipinas*; SEC = Securities and Exchange Commission; IC = Insurance Commission; DICT = Department of Information and Communications Technology; NPC = National Privacy Commission; NTC = National Telecommunications Commission; ICT = information and communications technology; AML = Anti-Money Laundering
Source: Authors' compilation

Despite the various agencies regulating the sector, there is a formalized framework for coordination among them. Created in 2004, the Financial Sector Forum is a voluntary interagency committee composed of the BSP, SEC, IC, and Philippine Deposit Insurance Corporation. It aims to provide an institutionalized regulatory framework for coordinating the supervision and regulation of the financial system, facilitate consultation and the exchange of information and ideas among regulators, and provide a platform to harmonize the regulation of financial products offered by the various types of financial institutions.

Support to innovation, infrastructure, and promotion

In 2015, the BSP launched the NRPS to "create a safe, efficient, and reliable electronic retail payment system that is interconnected and interoperable" (BSP 2018, p.8). Operationalized through BSP Circular 980, issued in 2017, the NRPS has been key in fostering digital payments and supporting the growth of fintechs, especially payments and e-wallets.

The BSP also issued other policies, such as BSP Circular 1108 (s. 2021), which regulates the operation of virtual asset service providers (VASPs). The Circular redefines virtual currency exchange as VASPs and virtual currencies as virtual assets, directly regulating the use and exchange of cryptocurrencies or crypto assets. On the other hand, an earlier BSP Circular 1105 (s. 2020), which took effect on December 23, 2020, provides guidelines for establishing digital banks. Several other existing, amended, or newly created regulatory and provisionary laws mandate different agencies individually or collaboratively to support the growth of fintechs in the country. For instance, the Philippine government encourages the development of emerging industries, including fintechs, through the Philippine Innovation Act of 2019 or Republic Act (RA) 11293, which promotes the diffusion of knowledge as a driver of national development and provides technical and financial support for scaling up and marketization of industries.

Likewise, the IC has issued several circulars guiding the operation of insurance companies and insurance technology companies (insurtechs) concerning e-commerce and the use of mobile and digital applications, capturing of digital or electronic consents, and the adoption of regulatory sandboxes for the insurance industry, including preneed companies and HMOs (Annex 1).

During the pandemic, the BSP implemented measures encouraging financial institutions to minimize their requirements when lending to MSMEs. Likewise, as a pioneer in e-money since the early 2000s, the BSP allows innovations in the country to prosper. For instance, the BSP introduced the test-and-learn approach to enable industries to test their new products and technologies in a controlled environment to manage the risks. The BSP also adopted the *Coopetition* approach, where players can compete based on their products and services and cooperate on areas needing improvement. Thus, the public-private coordination in a regulatory sandbox brings fintech stakeholders to learn together.[9]

[9] Based on KII conducted in October 2021

Box 2. National Retail Payment System

The National Retail Payment System (NRPS) promotes, among others, interoperability—the state when end users or consumers are able to transfer funds from one account to another in any participating BSP-supervised financial institution (bank or electronic money issuer). By enabling interoperability, sustained adoption of electronic payments is plausible as electronic transactions are made more convenient. The NRPS likewise facilitates and supports the delivery of a wide range of financial products that cater to the needs of all users, especially the small-value, high-frequency payers of the low-income segment. As more end users or consumers avail of electronic payment services, the growth in transaction volume will help achieve economies of scale, which may further bring down consumer costs.

Automated clearing houses (ACHs) under the NRPS

PESONet

The Philippine EFT System and Operations Network (PESONet), the first ACH under the NRPS, was launched on November 8, 2017. It is a batch electronic fund transfer (EFT) credit payment scheme, which can be considered an electronic alternative to the paper-based check system. Under the rules of PESONet, the fund transfer and/or payment instructions will be processed in bulk and cleared at batch intervals. Each payee will then receive the full value in their account within the same banking day, provided the payment instruction was sent within the cut-off time.

InstaPay

InstaPay is a real-time low-value EFT credit push payment scheme for transactions amounting up to PHP 50,000. This retail payment system, launched on April 23, 2018, is designed to facilitate small-value payments, which are especially useful for the purchase of retail goods, paying toll fees and tickets, as well as for e-commerce, which shall enable, among others, micro, small and medium enterprises.

BSP = *Bangko Sentral ng Pilipinas*; PHP = Philippine peso
Source: BSP (2020a)

SWOT Analysis

Strengths

Coherent government initiatives

The government has several initiatives supporting sectors related to fintech, such as data science, AI, e-commerce, and cloud computing. An example of these initiatives is the Department of Trade and Industry's Artificial Intelligence Roadmap launched in 2021. Through this roadmap, DTI (2021a) aims to ensure that the country has clear metrics for tracking the progress toward a competitive AI economy with respect to the global arena. Central to this roadmap is creating a National Center for AI Research that houses full-time scientists and research engineers, serving as the nexus to the country's AI competitiveness. Among its goals are to assist MSMEs interested in using computational tools, especially AI technology, to help them improve their efficiency and productivity. The roadmap identified 4 dimensions for AI readiness: (1) digitization and infrastructure, (2) research and development, (3) workforce development, and (4) regulation. These dimensions are supported by 7 measurable strategic imperatives and 42 strategic tasks.

Rollout of a national identification system

Industry players have lauded the Philippine government's initiative to launch the Philippine Identification System (PhilSys ID) through the Philippine Identification System Act (RA 1105). In an ADB (2018) report, it was noted that "adopting a digital ID platform can, at best, trigger a cascade effect regarding technology adoption, awareness, and competitive pricing, but a systemic approach is needed to achieve the ambitious goal of providing access to affordable and client-centered financial services" (p.8). As the lack of a thriving fintech sector was considered one of the barriers for Filipinos having access to financial services, the rollout will strengthen and increase the credit evaluation system coverage of the bureaus, financial institutions, and fintech firms. It will also facilitate the identification of social welfare recipients accurately, assure prompt delivery of public services, and reduce fraud in conditional and unconditional cash payments (ADB 2018).

Less stringent maintaining balance requirements

In traditional banking, minimum balance and dormancy rates required to maintain accounts are considered a common barrier to account ownership and financial inclusion. Considering this, the BSP is developing policies for opening basic deposit accounts and allowing the opening of e-wallets or e-money accounts as cost-effective means of owning transaction accounts with minimal or even zero balance requirements. Not requiring minimum balance and not charging dormancy rates encourage people to adopt fintech products and services, thus improving traction for fintech to contribute to financial inclusion.

Weaknesses

Distrust in technology and poor ICT infrastructure

Among the weaknesses of the fintech sector are issues arising from access points and distrust of technologies.

From 2017 to 2019, the levels of awareness, accessibility, and usage of access points increased remarkably. The Alliance of Financial Inclusion defines access points as regulated entities where both cash-in and cash-out transactions can be performed (BSP n.d.-e). Of the total number of Filipino adults who transacted with access points in 2019, 37 percent encountered issues (e.g., long lines/queues, long service time, personal data privacy issues), significantly larger than those who experienced problems in 2017 at only about 6 percent. Although 84 percent of the issues encountered were resolved, a noticeable 16 percent were not addressed. Of those who encountered issues, only 10 percent contacted the regulators, as many of them either were not aware that regulators can be contacted (40%), did not know how to contact the regulators (35%), wanted to avoid the hassle (35%), or do not know the regulators' contact information (32%) (BSP 2019).

About half of mobile phone and internet users were unaware that these could be used for financial transactions, while others distrusted using these technologies. Some experienced unreliable internet connection, and others preferred to transact at the branch or through ATM (Table 11).

Table 11. Reasons for not using mobile phones and internet for financial transactions

Reasons	Mobile Phones (%)	Internet (%)
Not aware that it can be used	52	48
No trust	32	39
Weak signal or lacking	16	22
Prefer to transact at branch or ATM	14	14

ATM = automated teller machine
Source: Authors' compilation based on BSP (2017a, 2019)

Other factors that may restrict the growth of fintech in the country are poor connectivity and high internet cost. As of October 2021, the country ranked 67th in the global mobile download speed ranking at only 38.12 megabits per second (Mbps), way lower than the global average and that of Singapore, which topped the ASEAN-5.[10] Regarding broadband download speed, the Philippines, at 71.08 Mbps, ranked 67th globally and only 4th among the ASEAN-5. Likewise, the Philippines ranked 32nd globally and 5th among ASEAN-5 as having the costliest monthly internet subscription rate at USD 44.93 or PHP 2,280.16[11] (Table 12).

In an interview with the authors in October 2021, the BSP expressed that poor connectivity is important since the internet powers fintech platforms. However, it is trying to find a solution to allow offline transactions. Nonetheless, connectivity issues still need to be addressed, as offline transactions are only an alternative. For instance, data and transaction details need to be synchronized.

Meanwhile, in another interview, fintech players TagCash and CIS Bayad stated that lack of trust and people's preference for cash hinder fintech's widespread acceptance and growth.

The regulators and fintech players also recognize the need to improve competition among industry players. For instance, big companies dominate the industry, making it more difficult for small players to penetrate the market.

[10] ASEAN-5 refers to Indonesia, Malaysia, the Philippines, Singapore, and Thailand.

[11] Based on the average Philippine peso-US dollar exchange rate for October 2021 (https://www. bsp.gov.ph/SitePages/Statistics/ExchangeRate.aspx [accessed on November 19, 2021]).

Table 12. Speed and cost of internet as of October 2021

	Mobile Download Speed (Mbps)	Global Rank (Out of 141)	Country	Fixed Broadband Download Speed (Mbps)	Global Rank (Out of 181)	Country	Cost (USD)	Global Rank (Out of 109)
Global	**68.44**			**116.86**			**39.95**	
Top 5						**Bottom 5**		
UAE	273.87	1	Monaco	189.27	1	Ukraine	6.04	109
South Korea	214.47	2	Hong Kong	219.05	2	Russia	6.77	108
Qatar	178.83	3	Singapore	112.81	3	Romania	8.39	107
Norway	178.70	4	Romania	173.88	4	Moldova	9.88	106
Kuwait	170.67	5	Switzerland	152.51	5	India	10.36	105
ASEAN-5								
Singapore	107.12	18	Singapore	257.15	3	Thailand	20.23	82
Thailand	67.35	36	Thailand	223.72	8	Malaysia	28.92	66
Philippines	38.12	67	Malaysia	110.84	46	Indonesia	32.38	59
Malaysia	34.46	77	Philippines	71.08	67	Singapore	32.77	58
Indonesia	23.10	108	Indonesia	29.55	116	Philippines	44.93	32

Mbps = megabits per second; USD = United States dollar; UAE = United Arab Emirates; ASEAN-5 = Indonesia, Malaysia, Philippines, Singapore, and Thailand
Note: The higher the rank, the costlier the internet is. The bottom 5 are the countries with cheaper internet costs.
Source: Authors' compilation based on Speedtest (2021) and Numbeo (2021)

Still, there remain some gaps in the policy and regulatory environment. For instance, on insurtech, Baker McKenzie (n.d.) identified the lack of formal regulation or policy on fintech/insurtech as a sector's weakness because it makes the approval process for fintech services solely reliant on the regulator. Instead, a regulation/policy should set the principles or conditions for prospective fintech players to follow.

Another weakness is the existence of archaic policies imposed on the new sector, at least on insurtech. Baker McKenzie (n.d.) identified provisions in Presidential Decree 1718 declared in 1980 to be detrimental to the sector. In particular, Section 2 of the law prohibits the transfer of documents or information relating in any manner to any business carried in the Philippines unless it is

1. consistent with and forms part of a regular practice of furnishing to a head office or parent company or organization outside of the Philippines;
2. in connection with a proposed business transaction requiring the furnishing of the document or information;
3. required or necessary for negotiations or conclusions of business transactions in compliance with an international agreement to which the Philippines is a party; or
4. made pursuant to the authority granted by the designated representative of the President of the Philippines.

Baker McKenzie (n.d.) cautioned that while Presidential Decree 1718 has not been strictly enforced, it nevertheless imposes criminal penalties for violating it.

Lack of financial and digital literacy and low level of digital or technological skills

On the consumers' side, technical know-how on the procedural requirements to access financial products and services and using digital platforms and technology may hinder the interest in fintech and digital platforms. Low levels of interest and knowledge can be associated with more reliance on traditional sources and less complex forms of

financial products. This may also result in financial institutions' reluctance to offer products and services digitally.

Opportunities

Nonrestrictive policy environment for data transfers

The Philippines generally has a nonrestrictive policy environment for cross-border data flows. For instance, the country has recently participated in the APEC Cross-Border Privacy Rules (CBPR), "which aims to promote interoperability of privacy regulation through the enforcement of minimum standards" (Quimba et al. 2021, p.43). The initiative expects the country to adopt common standards for privacy and eliminate barriers in data flows so that local companies can be certified as CBPR-compliant. Once certified, local companies will be able to transfer and receive data within the region, which is a good step to encourage integration with other economies (Quimba et al. 2021).

Growing adoption of fintech for market transactions

The sustained use of digital payments and fintechs in the country at the onset of the COVID-19 pandemic in 2020 has forced people to use alternative means of doing things, such as purchasing. The use of online marketplaces and e-money for buying items have increased, considering health and safety issues. Accordingly, this catalyzes the industry to grow faster than anticipated pre-pandemic.

In addition, incentives provided by the government, such as tax incentives, to support SMEs during the pandemic have also encouraged companies to recalibrate and move their timelines to an earlier period to avail of these incentives and launch their products and services. Regulators and fintech players are optimistic that the positive development during the pandemic will continue in the coming years.

One of the industry's strengths is the growing participation of consumers in e-money transactions. From 2018 to 2019 alone, e-money transactions increased by 36 percent from PHP 1.09 to PHP 1.5 trillion. On the other hand, active e-money accounts increased by 76 percent (Table 13).

Table 13. E-money transactions

E-Money	2017	2018	2019	Growth Rate 2018–2019
Total amount of transactions (inflow + outflow) (in PHP billions)	963	1,090.1	1,485.3	36%
Active e-money accounts (in millions)	2.2	5.0	8.8	76%
Prepaid cards linked to e-money	25.2	28.2	20.6	-27%

PHP = Philippine peso
Source: BSP (n.d.-a)

Reasons for using mobile phones and internet for financial transactions

Fintech institutions or aspiring providers can benefit from people's incessant and increasing financial needs and behaviors. For instance, the number of people who used their regular income to spend on expensive things and unexpected incidents increased by 40 and 60 percent, respectively, from 2017 to 2019. There is also an increase in the number of people who borrowed to meet these planned and unplanned spending and to put up a business, most of which were informally acquired (i.e., family and friends) (Table 14).

The fintech industry can also benefit from improving access to technologies, such as smartphones and internet, which are important infrastructural factors for people to get acquainted with more digital financial products and services.

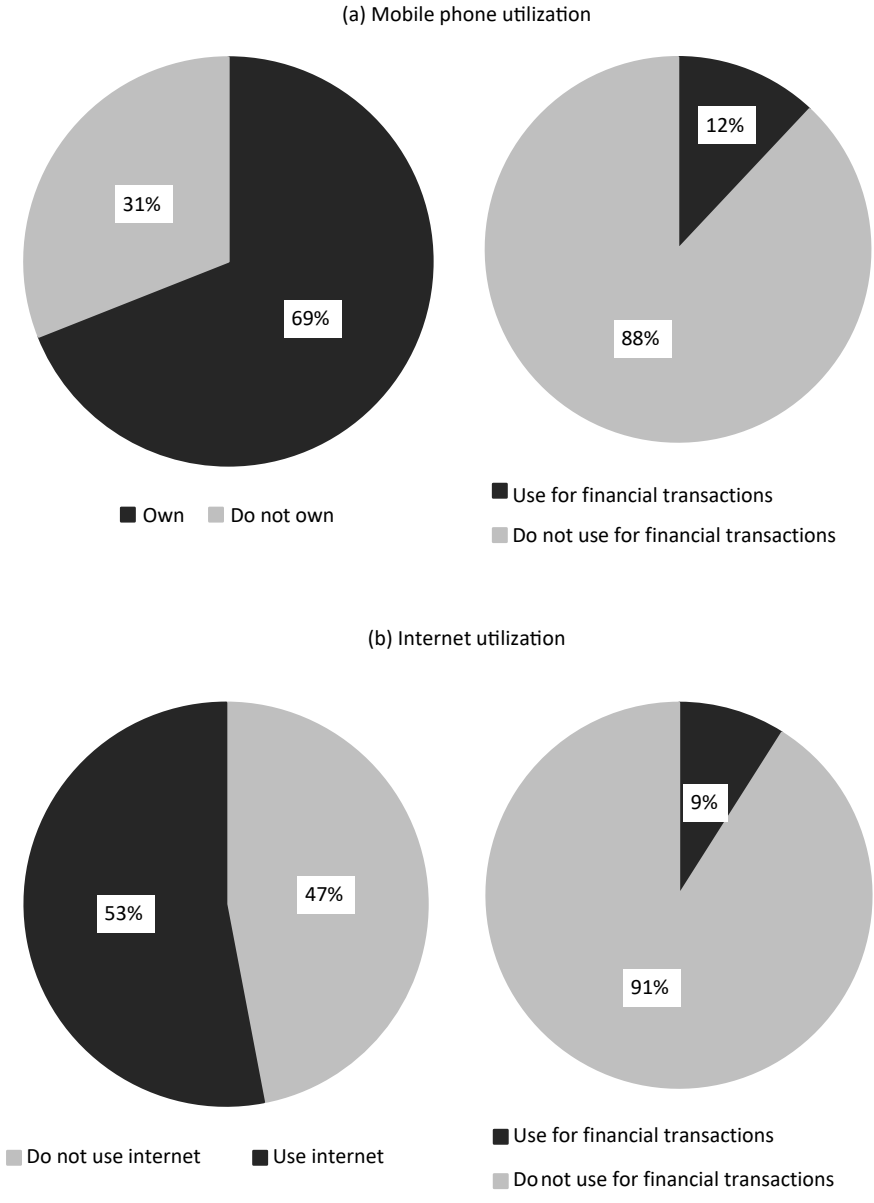
In 2019, 69 percent of adult Filipinos owned mobile phones. However, only 12 percent used mobile phones for financial transactions. On the other hand, while 47 percent of Filipino adults used the internet, only 9 percent used the internet for financial transactions. Meanwhile, 89 percent of internet users access the internet using mobile data and 11 percent through home subscriptions. Others access the internet by visiting an internet shop (5%) or connecting to a public Wi-Fi (5%) (BSP 2017a, 2019) (Figure 25).

Table 14. Composition of financial needs and sources of spending, 2017–2019

	Spent Money on Expensive Things (Planned to Buy or Pay) (%)			Spent Money to Cope with Effects of Expensive Risks (Unexpected Incidences) (%)			Unable to Meet Weekly or Monthly Spending Needs (%)			Spent to Start or Put Up a Business (%)		
	2017	2019	Change	2017	2019	Change	2017	2019	Change	2017	2019	Change
Mechanism												
Borrowed	13	16	23	34	32	-6	45	44	-2	53	56	6
Used regular income	30	42	40	20	32	60	17	28	65	18	19	6
Own savings	50	28	-44	26	20	-23	17	13	-24	28	14	-50
Requested financial assistance	8	5	-38	30	17	-43	18	10	-44	3	4	33
Income from sideline work	13	6	-54	4	3	-25	5	7	40	3	3	0
Source												
Salary/income	–	17	–	–	10	–	–	7	–	–	2	–
Savings (informal)	49	33	-33	23	20	-13	18	16	-11	25	13	-48
Family, friends, relatives	47	33	-30	68	49	-28	72	62	-14	29	33	14
Microfinance NGOs	2	6	200	5	5	0	2	4	100	32	32	0

NGOs = nongovernment organizations
"–" = no data available
Source: Authors' compilation based on BSP (2017a, 2019)

Figure 25. Mobile phone and internet usage for financial transactions, 2019



Source: Authors' rendition based on BSP (2017a, 2019)

In addition, the number of mobile phone owners and internet users across demographic groups is quite remarkable, although at varying levels. Across socioeconomic classes,[12] the incidence of ownership and access is higher in classes ABC1 and C2. However, the incidence in lower classes is non-negligible. This trend is also true across geographical groups, with the Visayas and Mindanao having non-negligible ownership incidence and access levels despite lagging behind Metro Manila and Luzon areas. Similarly, urban and rural areas do not seem to differ much. On the other hand, the concentration of mobile phone and internet users is higher in the younger age groups, which may indicate more future opportunities, as this trend may most likely continue (Table 15).

[12] Following the standard ABCDE socioeconomic classification, with the AB class roughly corresponding to those with monthly incomes of PHP 100,000 and up; Class C with incomes PHP 20,000–100,000; and class D and E with incomes PHP 10,000–20,000 or less, respectively (Chua and Tiongson 2012).

Table 15. Profile of mobile phone owners and internet users, 2019

Categories		Smartphone Ownership	Internet Usage
Socioeconomic class	ABC1	98	98
	C2	78	78
	D	53	56
	E	42	43
Area	Metro Manila	72	75
	North and Central Luzon	60	62
	South Luzon	60	61
	Visayas	36	40
	Mindanao	34	37
Locale	Urban	61	64
	Rural	42	43
Age	15–19	65	80
	20–29	73	74
	30–39	58	55
	40–49	35	34
	50–59	22	21
	60 and above	13	8

Source: BSP (n.d.-a)

The number of mobile phone and internet users continues to grow, with mobile subscribers increasing annually at 13.7 percent. In 2018, mobile subscribers reached 150 million, or 138 percent of the total population, indicating that some people have more than one subscription. Similarly, the country has around 73 million internet users, growing at an average of 3.6 percent annually. On the other hand, 76 million, or 70 percent of the population, are active social media users, representing an annual growth of 11 percent. With population growth, the number of mobile subscribers and internet users is also expected to increase (Table 16). This represents a potential market for fintech and tech industry to penetrate.

Table 16. Profile of mobile subscriptions and internet usage, 2018–2021

	2018	2019	2020	2021	Average	Average Growth (2018–2021)
Population (millions)	105.7	107.3	108.8	110.3	102.0	1.4%
Urbanization (%)	44.0	47.0	47.0	47.6	46.4	2.7%
Mobile subscriptions and connections (millions)	–	124.2	173.2	152.4	149.9	13.7%
Mobile connections as percentage of population (%)	–	116.0	159.0	138.2	137.7	12.0%
Internet users (millions)	67.0	76.0	73.0	73.9	72.5	3.6%
Internet penetration (%)	63.0	71.0	67.0	67.0	67.0	2.4%
Active social media users (millions)	67.0	76.0	73.0	89.0	76.3	10.5%
Penetration (%)	63.0	71.0	67.0	80.7	70.4	9.2%

"–" = no data available
Source: Authors' compilation based on Dataportal (n.d.)

Having forward-looking and coordinated government regulators is also a strength of the industry. The open and supportive regulatory environment of the fintech sector can be considered an advantage. The regulatory sandboxes for fintech and insurtech allow for innovation in the delivery of digital financial services without sacrificing market security.

Regulators in the Philippines are generally receptive to new fintech products and services that have been introduced in many other countries as long as certain conditions for public protection are met. They view fintech as a way of pursuing financial inclusion through digital technology.

For instance, the BSP is known for encouraging innovations in financial services. With the advent of e-money in the Philippines, the central bank established a supervisory unit that brings together the skills of regulators from its IT and banking supervisory areas. Through this newly established supervisory unit, BSP strengthened its regulatory capacity to oversee e-money issuers and closely monitor the progress of fintech in the Philippines and its impact on the local banking industry.

The Intellectual Property Office of the Philippines (IPOPHL) fully supports technological innovation, including financial technologies. To this end, IPOPHL created a nationwide network of Innovation and Technology Support Offices to assist local innovators in claiming and protecting their intellectual property rights.

Threats

Limited support and lack of an institutional framework to meet skills requirements

Chief executive officers of financial institutions are more concerned about the scarcity of digital and technological talent in the country. They recognize that the absence of the right skills can break their efforts to effectively adopt new technologies (John Wiley & Sons 2021).

Lack of framework to evaluate industry performance

The rapidly evolving fintech landscape may pose some risks; hence, it is essential to devise ways to measure and understand its performance. This study relied on a combination of sources and proxy indicators to describe the fintech environment. Most of the information was obtained from international sources, which produced some of these indicators through perception surveys. While these data are helpful, there needs to be a more detailed and systematic source of information on fintech for tracking the sector's progress.

Regional market penetration

The Philippines faces stiff competition with other ASEAN members positioning themselves as fintech hubs in the region. Aside from Singapore, which is already a fintech powerhouse, Indonesia is a strong contender with high scores in the Findexable Global Fintech Index. Likewise, Viet Nam's presence in the fintech space is also worth noting, as Findexable identified it as among the countries to watch. Meanwhile, the Philippines needs to improve its environment for attracting businesses and foreign workers to increase the scale of entrepreneurs and fintechs in the country.

Conclusions and Recommendations

The Philippines has a strong fintech industry, as indicated by an increasing number of fintechs (particularly in payments, lending, and banking technology verticals) and capitalization.[13] There is a sharp increase in demand as indicated by digital payments driven by pandemic-related restrictions. Studies have shown that the adoption of e-wallets, digital payments, and digital technology has increased and will be sustained in the next two years (Google et al. 2020, 2021). However, the ecosystem must be strengthened for the sector to flourish. While the sector benefits from a collaborative and forward-looking group of regulators, some policies and laws must be reviewed. In particular, there must be a policy that would define and monitor the progress of the fintech sector. The lack of statistics on the sector prevents a thorough assessment of its progress. Information regarding the number of transactions per user, complexity or mix of products and services offered by platforms, and depth of integration of fintech apps, among others, would help evaluate the industry's performance. For instance, it would be good to know the number of transactions users make per type of product or service, which product or service is more problematic, and whether there is a need to formulate product- or service-specific policies. It would also help to have a concrete framework that facilitates reporting of transactions of platform operators to report product and transaction information which can be the basis for taxing digital transactions.

[13] Based on a list of fintech companies compiled from SEC, Findexable, and Fintech reports (available upon request from the authors)

Fintech has the potential to help the country reduce the spread of COVID-19 by providing a mechanism for contactless and cashless transactions. The increasing trend in online payments and the adoption of digital technology was driven by the restrictions imposed to curb the spread of the virus. Companies have also adopted digital payments and fintech to reduce costs and improve efficiency. Google et al. (2021) reported that around 39 percent of companies credited their survival to digital platforms, which allowed establishments and economic activities to thrive during the pandemic.

Aside from addressing the weaknesses of the sector, this paper recommends the following initiatives to support the growth of the fintech industry:

- **Strengthen and ensure that the Philippine Skills Framework (PSF) is utilized.** Financial technologies are fast growing and changing, and most academic institutions in the country need to catch up. The government should revisit its policies concerning higher education institutions and update the curriculum of related disciplines to prepare the graduates better and make them more competent, particularly those considering careers in fintech. As the Philippines continues to grow and develop competitive and innovative enterprises, the need to reskill and upgrade the skills of human capital and workforce becomes more crucial. This is essential, especially for the fintech industry, to increase and sustain its competitiveness under the FIRe (DTI 2021b).

  Though there are numerous Filipino-led fintech enterprises and a wide array of Filipino tech talents, human resources and enterprises must be developed to keep up with international competitors. Moreover, the challenges created by FIRe, coupled with the acceleration of the COVID-19 pandemic, have made it more imperative than ever to reskill and upskill the country's workforce.

  The PSF Initiative approach relies on the active collaboration among government, industry, and the academic and training community, which employ an instrumental tool for the three key actors to communicate using the same language: the PSF, which is an interagency effort to build the skills and competencies of the human capital and better prepare

the country's present and future workforce (DTI 2021b). This involves developing sector-specific skills frameworks that will guide the country's workers in enhancing their skills for particular job roles. Therefore, the fintech industry may benefit from this framework and may be included in the priority sector for the PSF. This may help the talents and enterprises thrive more in this industry, in and out of the Philippines.

- **Address the weaknesses of the fintech sector through the new/upcoming *Philippine Development Plan*.** The new administration can address the existing weaknesses and threats to the country's fintech sector in the next PDP in 2023–2028. For instance, the unequal access to fintech among Filipinos, caused mainly by hesitancy and lack of trust, could be tackled through education, information dissemination, and improvements in access to reliable ICT services and quality infrastructure. Likewise, given the potential of fintech to boost financial inclusion in the country, the new administration must empower Filipinos in all socioeconomic strata by promoting fintech and providing an enabling environment for the sector to thrive.

  Over the years, there have been shifts in priorities and outlooks among people from different classes. For example, for classes D and E, significant increases in bank account savings, insurance, and investments can be observed relative to the incidence of ownership in class ABC. Among age groups, adults aged 15–39 displayed higher interest in using smartphones and the internet, indicating a potential inclination to adopt fintech products and services among younger generations and a promising opportunity for the financial industry. This is also true across different locations in the country. There is a huge potential for people in the Visayas and Mindanao, as well as those in rural areas, to be more active in owning accounts, particularly in microfinance nongovernment organizations and e-money accounts.

  Appropriating more relevant and targeted financial programs and initiatives for these groups may incentivize them to engage more in financial-related activities. This will increase the inclusivity of financial products and services.

It is also essential to adopt the lessons learned during the pandemic to improve further the processes as the country braces for the new normal. It is also important to address issues on technology, data privacy and security, education, talent formation, and financial literacy to ensure the sustainability and growth of fintech.

Furthermore, as highlighted in KIIs for this study, COVID-19 has accelerated the use of fintechs for convenience and safety. However, most interviewees agree that the fintech industry will flourish even after the pandemic and health threats are resolved. Respondents also noted the importance of having regulators and bureaucrats with advanced skills and the need to reskill them so they can properly access and manage the fintech environment. Therefore, the government must prioritize having futures thinking and growth mindset training to anticipate potential scenarios and determine the most technologically, economically, or politically feasible regulatory design. For the government to also ensure and improve the quality of regulations, regulatory impact assessment must be done to understand the consequences of regulations in terms of the benefits and costs. Systemic regulatory communication, consultation, and coordination should also be done systematically to ensure a strong constructive feedback mechanism across regulatory affairs.

Lastly, the government must develop policies providing incentives to support the growth of startups encountering a lack of funding and talent shortage. There have been several projects and initiatives to support startups in place. However, as a regulator and provider of an enabling environment, the government should realize the vast opportunities fintechs can contribute to the country's development. Hence, aside from providing skills-related initiatives, the government must also include provisions in the PDP to promote investments in fintech startups. The government should be able to improve and provide a fair playing field to allow new entrants to participate and penetrate the market.

References

Alliance for Financial Inclusion (AFI). 2016. Digital financial services basic terminology. Guideline Note 19 (August 2016). https://www.afi-global. org/sites/default/files/publications/2016-08/Guideline%20Note-19%20 DFS-Terminology.pdf (accessed on October 7, 2021).

Association of the Luxembourg Fund Industry (ALFI). 2020. Tokenisation and digital custody. In *The world of the investment fund: A collaborative book*. Luxembourg: ALFI.

Anisa, N. 2021. Fintech peer-to-peer lending as approach to encourage economic inclusion for rural communities in Indonesia. In *Fintech to enable development, investment, financial inclusion, and sustainability*. ADB conference highlights, May 2021. https://www.adb.org/publications/fintech-development-investment-financial-inclusion (accessed on July 14, 2021).

Asian Development Bank (ADB). 2018. Financial inclusion framework strengthening-Digital national identification for financial inclusion: Final report. https://www.adb.org/sites/default/files/project-documents/49386/49386-001-tacr-en.pdf (accessed on November 18, 2021).

Baker McKenzie. n.d. Guide to insurtech innovation and utilization. https://resourcehub.bakerBakerMcKenzie.com/en/resources/asia-pacific-insurance/asia-pacific/japan/topics/guide-to-insurtech-innovation-and-utilization (accessed on July 20, 2021).

Bangko Sentral ng Pilipinas (BSP). 2017a. *2017 Financial Inclusion Survey: Moving towards digital financial inclusion*. Manila, Philippines: BSP. https://www.bsp.gov.ph/Inclusive%20Finance/Financial%20Inclusion%20Reports%20and%20Publications/2017/2017FISToplineReport.pdf (accessed on November 18, 2021).

———. 2017b. BSP Circular 980: Adoption of National Retail Payment System framework. Manila, Philippines: BSP. https://www.bsp.gov.ph/Regulations/Issuances/2017/c980.pdf (accessed on December 14, 2021).

———. 2018. *Financial inclusion in the Philippines*. Issue No. 8. https://www.bsp.gov.ph/Media_And_Research/Financial%20Inclusion%20in%20the%20Philippines/FIP_1Sem2018.pdf (accessed on November 18, 2021).

———. 2019. *Financial Inclusion Survey 2019*. Manila, Philippines: BSP. https://www.bsp.gov.ph/Inclusive%20Finance/Financial%20Inclusion%20Reports%20and%20Publications/2019/2019FISToplineReport.pdf (accessed on July 20, 2021).

———. 2020a. Payments and settlements: National Retail Payment System. Manila, Philippines: BSP. https://www.bsp.gov.ph/Pages/PAYMENTS%20AND%20SETTLEMENTS/National%20Retail%2Payment%20System/Empowering-Every-Juan-and-Maria.aspx (accessed on October 14, 2021).

———. 2020b. BSP Circular 1105: Guidelines on the establishment of digital banks. Manila, Philippines: BSP. https://www.bsp.gov.ph/Regulations/Issuances/2020/c1105.pdf (accessed on December 14, 2021).

———. 2021. BSP Circular 1108: Guidelines for virtual asset service providers (VASPs). Manila, Philippines: BSP. https://www.bsp.gov.ph/Regulations/Issuances/2021/1108.pdf (accessed on December 14, 2021).

———. n.d.-a. BSP digital payments transformation roadmap 2020–2023. https://www.bsp.gov.ph/Media_And_Research/Primers%20Faqs/Digital%20Payments%20Transformation%20Roadmap%20Report.pdf (accessed on August 9, 2022).

———. n.d.-b. PESONet volume and value (November 2017–October 2021). https://www.bsp.gov.ph/PaymentAndSettlement/PESONet.pdf (accessed on November 18, 2021).

———. n.d.-c. Instapay volume and value (November 2017–October 2021). https://www.bsp.gov.ph/PaymentAndSettlement/Instapay.pdf (accessed on November 18, 2021).

———. n.d.-d. Instapay participants (as of 31 October 2021). https://www.bsp.gov.ph/PaymentAndSettlement/InstaPay%20Participants.pdf (accessed on November 18, 2021).

———. n.d.-e. Financial inclusion dashboard (as of Fourth Quarter 2020). Manila, Philippines: BSP. https://www.bsp.gov.ph/Media_And_Research/Financial%20Inclusion%20Dashboard/2020/FIDashboard_4Q2020.pdf (accessed on August 9, 2022).

Beatrice, A. 2020. Digital lending: Revolutionizing the loan process using technology. *Analytics Insight*. November 18. https://www.analyticsinsight.net/digital-lending-revolutionizing-the-loan-process-using-technology (accessed on November 15, 2021).

Beatty, A. 2021. Digital lending and the new financial ecosystem. *Finextra*. March 25. https://www.finextra.com/blogposting/20072/digital-lending-and-the-new-financial-ecosystem (accessed on November 15, 2021).

Beck, T. 2020. Fintech and financial inclusion: Opportunities and pitfalls. ADBI Working Paper Series 1165 (July 2020). Tokyo, Japan: Asian Development Bank Institute. https://www.adb.org/sites/default/files/publication/623276/adbi-wp1165.pdf (accessed on July 20, 2021).

Bunyi, D., J.C. Ipac, E.R.J. Aguilar, and S.C.S. Esquivel. 2021. Philippines: Fintech laws and regulations 2021. https://iclg.com/practice-areas/fintech-laws-and-regulations/philippines (accessed on September 1, 2021).

Cambridge Centre for Alternative Finance (CCAF), World Bank (WB), and World Economic Forum (WEF). 2020. The global COVID-19 fintech market rapid assessment report. https://www.jbs.cam.ac.uk/wp-content/uploads/2021/03/2020-ccaf-global-covid-fintech-market-rapid-assessmentstudy-v2.pdf (accessed on October 26, 2021).

Center for Capital Markets Competitiveness (CCMC). 2021. Digital assets: A framework for regulation to maintain the United States' status as an innovation leader. https://www.centerforcapitalmarkets.com/resource/digital-assets-a-framework-for-regulation-to-maintain-the-unitedstates-status-as-an-innovation-leader (accessed on October 14, 2021).

Chati, S.K. 2019. Digital Lending in Retail Business. *International Journal of Research in Engineering, Science and Management* 2(3):549–554.

Chen, D., A.S. Kavuri, and A. Milne. 2020. The future of peer-to-peer lending in China. https://repository.lboro.ac.uk/articles/journal_contribution/The_future_of_peer-to-peer_lending_in_China/13092878 (accessed on July 23, 2021).

Chua, R.T. and E.R. Tiongson. 2012. Multiple borrowing in the Philippines: A pilot area study based on a household survey. Philippine Microfinance Discussion Paper 2012-03. Pasig City, Philippines: Microfinance Council of the Philippines. https://microfinancecouncil.org/wp-content/uploads/2012/11/DP-2012-3_Multiple-Borrowing_Household-Survey.pdf (accessed on November 18, 2021).

Commission on Higher Education (CHED). n.d. Higher education enrollment by discipline group: AY 2018-19. Quezon City, Philippines: CHED. https://ched.gov.ph/higher-education-enrollment-by-discipline-groupay-2018-19 (accessed on July 23, 2021).

Cornelli, G., S. Doerr, L. Franco, and J. Frost. 2021. Funding for fintechs: Patterns and drivers. *BIS Quarterly Review* (September 2021):31–43.

Datareportal. n.d. Digital in the Philippines. https://datareportal.com/digital-in-the-philippines (accessed on October 25, 2022).

Deloitte Consulting. 2021. Banking as a service explained: What it is, why it's important and how to play. https://www.deloittedigital.com/content/dam/deloittedigital/us/documents/blog/offering-20210727-blog-baas.pdf (accessed on October 14, 2021).

Denyes, L. 2019. Basic business models for banks providing digital financial services in Africa. International Finance Corporation World Bank Group Note 68 (June 2019). https://www.ifc.org/wps/wcm/connect/7db6ab09-c30c-4315-bfe5-f761f2a14159/EMCompass-Note-68-Business-Modelsfor-Banks-DFS-Africa.pdf?MOD=AJPERES&CVID=mIutwXh (accessed on October 8, 2021).

Donner, J. 2017. Learning advances in digital finance 2017. Partnership for Finance in a Digital Africa. https://www.financedigitalafrica.org/2017/11/07/learning-advances-in-digital-finance-2017 (accessed on October 8, 2021).

Department of Trade and Industry (DTI). 2021a. Artificial intelligence. Makati City, Philippines: DTI. http://innovate.dti.gov.ph/resources/roadmaps/artificial-intelligence (accessed on December 13, 2021).

———. 2021b. Keynote remarks of Secretary Ramon M. Lopez at the launch of the Philippine Skills Framework Initiative. Makati City, Philippines: DTI.

https://www.dti.gov.ph/speeches/launch-of-the-philippine-skillsframework-initiative (accessed on December 13, 2021).

Enfuce Financial Services. 2022. Card as a service for fintechs. https://enfuce.com/enfuce-payment-services/card-as-a-service-for-fintechs (accessed on September 1, 2022).

Ernst & Young LLP. 2016. UK Fintech: On the Cutting Edge. EYG No. CQ0341. https://euagenda.eu/upload/publications/untitled-107589-ea.pdf (accessed on October 26, 2021).

———. 2018. ASEAN Fintech Census 2018. APAC No. 07316-175GBL. https://assets.ey.com/content/dam/ey-sites/ey-com/en_sg/topics/financial-services/ey-asean-fintech-census-2018.pdf?download (accessed on October 26, 2021).

———. 2020. Now, next and beyond: Analysis of the fintech ecosystem in the Commonwealth of Massachusetts. https://fintechsandbox.org/sites/default/files/EY-Massachusetts-FinTech-Ecosystem-Assessment-October-2020.pdf (accessed on October 26, 2021).

Financial Stability Board (FSB). 2017. Financial stability implications from fintech: Supervisory and regulatory issues that merit authorities' attention. https://www.fsb.org/wp-content/uploads/R270617.pdf (accessed on November 25, 2021).

Findexable. 2019. The Global Fintech Index 2020. https://findexable.com/wp-content/uploads/2019/12/Findexable_Global-Fintech-Rankings-2020exSFA.pdf (accessed on December 2, 2021).

Findexable. 2021. Global Fintech Rankings Report: Bridging the gap 2021. https://findexable.com/wp-content/uploads/2021/06/Global-Fintech-Rankings-2021-v1.2_30_June.pdf (accessed on December 14, 2021).

Fintech Alliance PH. 2019. Uncharted beyond: The taxonomy of fintech in the Philippines. https://api.fintechalliance.ph/document (accessed on November 25, 2021).

Fintech Alliance PH. 2020. The Philippine fintech report 2020. https://fintechnews.ph/41725/fintech/fintech-report-philippines-2020 (accessed on November 25, 2021).

Fintech Singapore. 2017. Fintech Philippines Startup Report 2017. https://fintechnews.sg/12240/fintechphilippines/fintech-philippinesstartup-report-and-infographic-2017 (accessed on December 14, 2021).

Google, Temasek, and Bain & Company. 2020. At full velocity: Resilient and racing ahead. https://aric.adb.org/pdf/rcipod/episode_17/_e-Conomy_ADB_event.pdf (accessed on October 12, 2021).

———. 2021. E-conomy SEA 2021. Roaring 20s: The SEA digital decade. https://www.thinkwithgoogle.com/intl/en-apac/consumer-insights/consumer-trends/e-conomy-sea-2021 (accessed on October 12, 2021).

Hamida, N., R. Prihatni, and I. Ulupui. 2020. The effect of financial literacy, fintech (financial technology), and intellectual capital on the performance of MSMEs in Depok City, West Java. *Journal of Social Science* 1(4).

Hua, X. and Y. Huang. 2020. Understanding China's fintech sector: Development, impacts, and risks. https://core.ac.uk/download/pdf/334410228.pdf (accessed on July 11, 2021).

Huang, Y. 2020. Fintech development in the People's Republic of China and its macroeconomic implications. ADBI Working Paper Series No. 1169. Tokyo, Japan: Asian Development Bank Institute. https://www.adb.org/sites/default/files/publication/629396/adbi-wp1169.pdf (accessed on July 11, 2021).

Institute Management Development (IMD). 2021. IMD World Digital Competitiveness Ranking 2021. https://www.imd.org/centers/world-competitiveness-center/rankings/world-digital-competitiveness (accessed on December 1, 2021).

———. Various years. The reference database on world competitiveness. https://worldcompetitiveness.imd.org (accessed on July 11, 2021).

Jahan, S., J. De, F. Jamaludin, P. Sodsriwiboon, and C. Sullivan. 2019. The financial inclusion landscape in the Asia-Pacific region: A dozen key findings. IMF Working Paper No. 19/79. Washington, DC: International Monetary Fund. https://www.imf.org/en/Publications/WP/Issues/2019/04/19/The-Financial-Inclusion-Landscape-in-the-Asia-Pacific-Region-A-Dozen-Key-Findings-46713 (accessed on July 22, 2021).

Javier, L.I. 2019. BSP's thrust on digital financial innovation: A regulatory perspective. Powerpoint presentation at the forum on Rethinking Regulations in the Era of the Fourth Industrial Revolution (FIRe), January 18, Manila, Philippines.

John Wiley & Sons. 2021. Digital Skills Gap Index (DSGI). https://dsgi.wiley.com (accessed on December 1, 2021).

Lee, I. and Y.J. Shin. 2018. Fintech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons* 61(1):35–46.

Lestari, D., D.C. Darma, and M. Muliadi. 2020. Fintech and micro, small, and medium enterprises development: Special reference to Indonesia. *Entrepreneurship Review* 1(1):1–9.

Low, C.S. and M.F. Wong. 2021. The effect of fintech on the financial institution in six ASEAN countries: Fama-french five-factor asset pricing model approach. In Proceedings of the Ninth International Conference on Entrepreneurship and Business Management (ICEBM 2020). *Advances in Economics, Business and Management Research*, Volume 174. https://www.researchgate.net/publication/351652415_The_Effect_of_Fintech_on_the_Financial_Institution_in_Six_ASEAN_Countries_Fama-French_Five-Factor_Asset_Pricing_Model_Approach (accessed on July 20, 2021).

Lüftenegger, E., S. Angelov, E. van der Linden, and P. Grefen. 2010. The state of the art of innovation-driven business models in the financial services industry. https://www.researchgate.net/publication/254870665_The_state_of_the_art_of_innovation-driven_business_models_in_the_financial_services_industry (accessed on October 14, 2021).

Masally, K.N., R.M. Ricart, M. Bambawale, S. Totapally, and V. Bhandari. 2019. The state of digital payments in the Philippines. Country Diagnostic, December 2019. https://btca-production-site.s3.amazonaws.com/documents/436/english_attachments/The_State_of_Digital_Payments_in_the_Philippines.pdf?1577119102 (accessed on July 11, 2021).

McKaskill, T. 2009. An introduction to angel investing — A guide to investing in early stage entrepreneurial ventures. https://www.angelcapitalassociation.org/data/Documents/Resources/McKaskill-_Intro_to_Angel_Investing.pdf (accessed on November 23, 2022).

Morgan, P. J. and T.Q. Long. 2020. Fintech and financial literacy in Viet Nam. ADBI Working Paper Series No. 1154. Tokyo, Japan: Asian Development Bank Institute. https://www.adb.org/sites/default/files/publication/616781/adbi-wp1154.pdf (accessed on July 20, 2021).

Moufakkir, M. and Q. Mohammed. 2020. The nexus between fintech adoption and financial. In *Impact of financial technology (fintech) on Islamic finance and financial stability*, edited by N. Naifer. https://www.researchgate.net/publication/338304842_The_Nexus_Between_Fintech_Adoption_and_Financial_Inclusion (accessed on July 20, 2021).

National Economic and Development Authority (NEDA). 2017. *Philippine Development Plan 2016–2022*. Pasig City, Philippines: NEDA.

Noble, L.W.T. 2021. Enabling regulations, pandemic pushed fintech sector's expansion. *BusinessWorld*. July 15. https://www.bworldonline.com/enabling-regulations-pandemic-pushed-fintech-sectors-expansion/ (accessed on September 1, 2021).

Numbeo. 2021. Prices by country of internet (60 Mbps or more, unlimited data, cable/ADSL) (utilities [monthly]). https://www.numbeo.com/cost-of-living/prices_by_country.jsp?itemId=33 (accessed on October 26, 2021).

Philippine Statistics Authority (PSA). Various years. Labor Force Survey. Quezon City, Philippines: PSA. https://psa.gov.ph/statistics/survey/labor-force/lfs-index (accessed on September 1, 2021).

Presidential Decree 1718. 1980. Providing for incentives in the pursuit of economic development programs by restricting the use of documents and information vital to the national interest in certain proceedings and processes. Manila, Philippines: Office of the President of the Philippines. https://www.officialgazette.gov.ph/1980/08/21/presidential-decree-no-1718-s-1980 (accessed on July 20, 2021).

PwC. 2021. *3rd Annual global crypto hedge fund report 2021*. https://www.pwc.com/gx/en/financial-services/pdf/3rd-annual-pwc-elwood-aima-cryptohedge-fund-report-(may-2021).pdf (accessed on September 1, 2021).

Quimba, F.M., J.R. Albert, S.C. Calizo Jr., and J.C. Carlos. 2021. How ready are we? Measuring the Philippines' readiness for digital trade integration with the Asia-Pacific. PIDS Discussion Paper Series 2021-17. Quezon City, Philippines: Philippine Institute for Development Studies. https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidsdps2117.pdf (accessed on October 1, 2021).

Rajan, D. 2017. Why banks should reinvent banking in the era of platform economy? *The Digital Transformation People*. September 21. https://www.thedigitaltransformationpeople.com/channels/strategy-andinnovation/why-banks-should-reinvent-banking-in-the-era-of-platformeconomy (accessed on October 10, 2021).

Republic Act 1105. 2017. An act establishing the Philippine Identification System. https://www.officialgazette.gov.ph/downloads/2018/08aug/20180806-RA-11055-RRD.pdf (accessed on November 18, 2021).

Republic Act 11293. 2019. An act adopting innovation as vital component of the country's development policies to drive inclusive development, promote the growth and national competitiveness of micro, small and medium enterprises, appropriating funds therefor, and for other purposes. https://www.officialgazette.gov.ph/downloads/2019/04apr/20190417-RA-11293-RRD.pdf (accessed on December 14, 2021).

Schellhase, J. and A. Garcia. 2019. FinTech in the Philippines: Assessing the state of play. https://milkeninstitute.org/sites/default/files/reports-pdf/FinTech-in-the-Philippines-Update%20%281%29_0.pdf (accessed on October 10, 2021).

Serfiyani, C. 2019. Characteristics of digital savings account as the latest innovation in digital banking services. International Conference on Science, Technology & Environment (ICoSTE) 2019. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3487002 (accessed on October 26, 2021).

Sipko, J. 2011. Derivatives and the real economy. *Creative and Knowledge Society* 1(1):33–43.

Soriano, M., T. Ziegler, Z. Umer, H. Chen, P. Jenweeranon, B. Zhang, D.C. Donald, L. Lin, N. Alam, C.S. Luo, R. Hao, R. Vig, V.D.D.H. Thien, N. Rethda, C.R. Jessica, T. Bunruangthaworn, R.A. Rahman, G.O.K. Yan, T. Kitcharoen, P.P. Plaza, C.L.D. Ocampo, and K. Liu. 2019. *The ASEAN fintech ecosystem benchmarking study*. Cambridge, UK: CCAF, ADBI, FinTechSpace. https://www.jbs.cam.ac.uk/wp-content/uploads/2020/08/2019-ccafasean-fintech-ecosystem-benchmarking-study.pdf (accessed on July 23, 2021).

Speedtest. 2021. Speedtest Global Index. https://www.speedtest.net/globalindex (accessed on October 26, 2021).

Susantono, B. 2021. Fintech can drive a strong post-COVID-19 recovery in Asia. Asian Development Blog. January 18. https://blogs.adb.org/blog/fintech-can-drive-strong-post-covid-19-recovery-asia (accessed on October 26, 2021).

Tok, Y.W. and T. Chansriniyom. 2021. Does innovation in lending help SMEs? In *Fintech to enable development, investment, financial inclusion, and sustainability*. ADB Conference highlights, May 2021. https://www.adb.org/publications/fintech-development-investment-financial-inclusion (accessed on July 14, 2021).

US Securities Exchange Commission (US SEC). 2019. Framework for "investment contract" analysis of digital assets. Washington, DC: US SEC.

Welsch, G., F. Thiesse, and A. Dürr. 2020. A consolidated business model canvas of blockchain-based fintech startups: Evidence from initial coin offerings. https://www.researchgate.net/publication/338209637_A_Consolidated_Business_Model_Canvas_of_Blockchain-Based_FinTech_Startups_Evidence_from_Initial_Coin_Offerings (accessed on October 10, 2021).

World Bank. 2017. The Global Findex Database 2017. https://globalfindex.worldbank.org (accessed on July 20, 2021).

World Economic Forum (WEF). 2019. *The global competitiveness report 2019*. Geneva, Switzerland: WEF. https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf (accessed on December 2, 2021).

Yesseleva-Plonka, M. 2021. Blockchain network system for assessing SMEs' creditworthiness. In *Fintech to enable development, investment, financial inclusion, and sustainability*. ADB Conference highlights, May 2021. https://www.adb.org/publications/fintech-development-investment-financial-inclusion (accessed on July 14, 2021).

Yoshino, N., P.J. Morgan, and T.Q. Long. 2020. Financial literacy and fintech adoption in Japan. ADBI Working Paper Series No. 1095. Tokyo, Japan: Asian Development Bank Institute. https://www.adb.org/sites/default/files/publication/574806/adbi-wp1095.pdf (accessed on July 20, 2021).

Annex: Laws Regulating and Supporting the Operations of Fintech

Laws	Definition	Responsible Agencies
Philippine Innovation Act RA 11293	Promotes the diffusion of knowledge and information for national development; generates and scales up action in all levels and areas of education, training, research, and development toward promoting innovation and internationalization activities of MSMEs as a driver of sustainable and inclusive growth; provides technical and/or financial support programs for entrepreneurs	NIC
Innovation Startup Act RA 11337	An act providing benefits and programs to strengthen, promote, and develop the Philippine Startup Ecosystem; streamlines government and nongovernment initiatives to foster inclusive growth through an innovative economy	DOST, DICT, DTI
Bayanihan to Recover as One Act RA 11494	Provides low-interest credit to MSMEs, payable within 3 years without the need for collateral if not exceeding PHP 3 million	DTI-SBCorp
Corporate Recovery and Tax Incentives for Enterprises Act RA 11534	Contains amendments to several provisions of the National Internal Revenue Code of 1997 ("Tax Code"), primarily on the reduction of the corporate income tax rate and the introduction of a new title on tax incentives; previously known as the Corporate Income Tax and Incentives Reform Act bill; subject to conditions, critical domestic enterprises shall be entitled to a special corporate income tax of 5 percent of gross income earned in lieu of all national and local taxes	DOF
Anti-Money Laundering Act RA 11521	Amended RA 9160 to make it more responsive to emerging issues; AMLA investigates money laundering and other financial crimes to protect financial institutions and deter criminals from making the Philippines a money laundering site for criminal proceeds	AMLC
Cybercrime Prevention Act of 2012 RA 10175	An act defining cybercrime; safeguards the integrity of computer and communications systems, networks, and databases, and the confidentiality, integrity, and availability of data stored therein	NBI, PNP

Annex *(continued)*

Laws	Definition	Responsible Agencies
Data Privacy Act of 2012 RA 10173	Regulates the collection, use, and transmission of personal data	NPC
Lending Company Regulation Act RA 9474	Governs the establishment, operation, and regulation of lending companies	SEC
Electronic Commerce Act of 2000 RA 8792	Facilitates domestic and international transactions, contracts and exchanges, and storage of information through the utilization of electronic, optical, and similar mediums, mode, instrumentality, and technology to recognize the authenticity and reliability of electronic documents related to such activities and to promote the universal use of electronic transaction in the government and general public	DTI
Financing Company Act of 1998 RA 8556	Regulates and promotes the operation of financing and leasing companies	SEC
Revised Intellectual Property Code RA 8293	Created the IPOPHL; provides laws on patents, trademarks, service marks and trade names, and copyright	DTI-IPOPHL
BSP Cir. 1108, s. 2021	Regulates the operations of virtual asset service providers (VASPs); amends BSP Cir. 944, s. 2017, which redefines virtual currency exchanges as VASPs and virtual currencies (VCs) as virtual assets (VAs); defines VASP as any entity that offers services or engages in activities that provide a facility for the transfer or exchange of VAs. Regulated activities now include exchanges between one or more forms of VAs, transfer of VAs, and safekeeping and/or administration of VAs or instruments enabling control over VAs. Prior to the amendment, VC exchange refers only to the conversion or exchange of fiat currency or other value into VC or the conversion or exchange of VC into fiat currency or other value; directly regulates cryptocurrencies/crypto assets	BSP
BSP Cir. 1033, s. 2019	Requires electronic money issuers to secure electronic payment and financial services licenses	BSP

Annex *(continued)*

Laws	Definition	Responsible Agencies
BSP Cir. 1105, s. 2020	Defines the guidelines for the establishment of digital banks; approves the inclusion of "digital banks" as a distinct classification of banks	BSP
SEC MC 14, s. 2019	Rules and regulations governing crowdfunding	SEC
IC Cir. Letter 2014-47	Guidelines on electronic commerce of insurance products	IC
IC Cir. Letter 2016-15	Amended Section 7.9 of IC Cir. Letter 2014-47 on variable life insurance products	IC
IC Cir. Letter 2016-60	Amended Section 7.10 of IC Cir. Letter 2014-47 on electronic mode of validating information and electronically or digitally capturing consent for the processing of an application	IC
IC Cir. Letter 2018-07	Amended Section 7.18 of IC Cir. Letter 2014-47 on the use of mobile application for distribution of insurance products	IC
IC Cir. Letter 2020-70	Recognizes digital payments as an integral part of insurance technology (insurtech); provides frameworks and encourages the adoption of insurance transactions	IC
IC Cir. Letter 2021-11	Provides guidelines on the adoption of a regulatory sandbox framework for financial technology (fintech) innovations for health maintenance organizations (HMOs) and preneed companies	IC
IC Cir. Letter 2020-73	Provide guidelines on the adoption of a regulatory sandbox framework for insurtech innovations	IC
IC Cir. Letter 2021-09	Provides guidelines on electronic commerce of preneed companies	IC
IC Cir. Letter 2021-10	Provides guidelines on electronic commerce of HMO products	IC
IC Cir. Letter 2021-11	Provides guidelines on the adoption of a regulatory sandbox framework for fintech innovations for HMOs and pre-need companies	IC

RA = Republic Act; Cir. = Circular; s. = series; BSP = *Bangko Sentral ng Pilipinas*; DTI = Department of Trade and Industry; DOST = Department of Science and Technology; DOF = Department of Finance; SEC = Securities and Exchange Commission; IC = Insurance Commission; DICT = Department of Information and Communications Technology; IPOPHL = Intellectual Property Office of the Philippines; NBI = National Bureau of Investigation; NIC = National Innovation Council; NPC = National Privacy Commission; NTC = National Telecommunications Commission; PNP = Philippine National Police; SBCorp = Small Business Corporation
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Financial technology (fintech) in the Philippines has gained more attention in recent years, especially during the onset of the COVID-19 pandemic when lockdowns were prevalent and cashless payments were encouraged. Thus, digital payments and engagements through various platforms have increased, resulting in more diversified financial products and services. Despite these developments, financial inclusion in the Philippines has lagged behind other Association of Southeast Asian Nations member-states. This paper analyzes the state of the fintech industry and investigates how the government can support the development of its ecosystem to ensure its contribution to the country's development goals. It concludes that the Philippines has a strong fintech industry, as indicated by a growing number of fintechs (particularly in payments, lending, and banking technology verticals) and increasing capitalization. Finally, for the fintech industry to support the country's financial inclusion goals, the availability of talent and credit for the sector must be improved.

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