OTORITAS
JASA
KEUANGAN

Supporting Financial Inclusion for MSMEs through FinTech

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ADB

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This publication contains data up to December 31, 2019, with the exception of a few highlights from 2020.

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LIST OF ABBREVIATIONS

ABBREVIATIONS

ADB .... Asian Development Bank
AGM .... Annual General Meeting
AFPI .... Indonesian FinTech Lenders Association / *Asosiasi Fintech Pendanaan Bersama* Indonesia
Aftech .... Indonesian FinTech Association / *Asosiasi Fintech Indonesia*
AML/CFT .... Anti-Money Laundering / Combating the Financing of Terrorism
APERD .... Mutual fund selling agent / *Agen Penjual Efek Reksa Dana*/APERD)
APERDI .... Indonesian Mutual Funds and Investors' Association / Asosiasi Pelaku Reksa Dana dan Investasi Indonesia
API .... Application Programming Interface
APIJI .... Indonesian Internet Service Providers Association / *Asosiasi Penyelenggara Jasa Internet Indonesia*
APJII .... Asosiasi Penyelenggara Jasa Internet Indonesia
APTS .... Indonesian Telecommunication Association / *Asosiasi Penyelenggara Telekomunikasi Seluruh Indonesia*l
Askrindo .... Asuransi Kredit Indonesia
ATMs .... Automated Teller Machines
AUTP .... Micro Insurance; Rice Farming Insurance / *Asuransi Usaha Tani Pagi*
AUTS .... Cattle Livestock Insurance / *Asuransi Usaha Ternak Sapi*
BAMPPI .... Indonesian Arbitration and Mediation Board for Underwriting Companies / *Badan Arbitrase dan Mediasi Perusahaan Penjaminan Indonesia*
Bank Jateng .... PT Bank Pembangunan Daerah Jawa Tengah
Bank Sumut .... PT Bank Pembangunan Daerah Sumatera Utara
Bank Varia .... PT BPR Varia Centralartha
BAPMI .... Indonesian Capital Market Arbitration Board / *Badan Arbitrase Pasar Modal Indonesia*
BBB .... British Business Bank
BCA .... Bank Central Asia
BCBS .... The Basel Committee on Banking Supervision
BCP .... Business continuity planning
BI .... Central Bank / *Bank Indonesia*
BJB .... Bank Jabar Banten

ABBREVIATIONS

BKD ....Village Credit Bank / *Badan Kredit Desa*
BKPD .... Village Production Work Bank / *Bank Karya Produksi Desa*
BKPM...............Coordinating Board of Investment/*Badan Koordinasi Penanaman Modal*
BMAI .... The Indonesian Insurance Mediation and Arbitration Board / *Badan Mediasi dan Arbitrase Asuransi Indonesia*
BMDP ....Indonesian Pension Fund Mediation Board / *Badan Mediasi Dana Pensiun*
BMPPVI ....Indonesian Finance, Mortgage, and Venture Capital Mediation Board / *Badan Mediasi Pembiayaan, Pegadaian dan Ventura Indonesia*
BNI..Bank Negara Indonesia
BPD ....Regional development banks / *Bank Pembangunan* Daerah
BPDs....Povincial government-owned development banks/*Bank Pembangunan Daerah*
BPR...Bank Perkreditan Rakyat
BPR ....Rural Bank / *Bank Perkreditan Rakyat*
BPRS.. Bank Perkreditan Rakyat Syariah
BPRS ....Sharia People's Financing Bank / *Bank Pembiayaan Rakyat Syariah*
BPR BBTM .... PT BPR Bekasi Binatanjung Makmur
BPR Kanti .... PT BPR Sukawati Pancakanti
BRI .... Bank Rakyat Indonesia
BSA ....Basic Saving Account
BTN ....Bank Tabungan Negara
BTPN... Bank Tabungan Pensiunan Nasional
BTS .... Base Transceiver Station
BWM .... Micro Waqf Bank / *Bank Waqf Mikro*
CA ....Certificate Authority
CCAF ....The Cambridge Centre for Alternative Finance
CDD .... Customer Due Diligence
CekPremi ....PT Pialang Asuransi Pialang Indotekno
CFMS...Core Micro Financing System
CGAP .... The Consultative Group to Assist the Poor
CKPN.. *Cadangan Kerugian Penurunan Nilai*
CSR.. Corporate social responsibility
CoC ....Code of Conduct

ABBREVIATIONS

DIRE .... Real Estate Investment Fund / *Dana Investasi Real Estate*
DPK .... Third-party funds / *Dana Pihak Ketiga*
DPR.. House of Representatives' / *Dewan Perwakilan Rakyat*
DRC ....Disaster Recovery Center
EDC .... electronic data capture
EIS .... Enterprise Investment Scheme
EU .... European Union
e-KTP............. Electronic Citizen Identification Card / *Kartu Tanda Penduduk Elektronik*
e-proxies .... electronic proxies
e-voting .... electronic voting
FCA ....Financial Conduct Authority
FinTech .... Financial Technology
FSB .... Financial Stability Board
FTSI ....Financial Sector Technology and Innovation
GDP .... Gross Domestic Product
GDPR...General Data Protection Regulation
G-20... Group of Twenty
Himbara .... Himpunan Bank-bank Milik Negara
Himbara .... State-Owned Lender Association / *Himpunan Bank* Negara
IDRC .... Internal Dispute Resolution Center
IKNB .... Non-Bank Financial Industry / *Industri Keuangan Non-Bank*
INFE .... Network on Financial Education
InsurTech .... Insurance Technology
IP .... Internet Protocol
IPO .... Initial Public offering
ILO .... The International Labor Organization
IT .... Information Technology
ITB .... Bandung Institute of Technology / *Institut Teknologi Bandung*
ITE .... Information Technology and Electronics
JARING .... Reach, Synergy, Guidelines / *Jangkau-Sinergi-Guideline*
KIK .... Small Investment Credit/*Kredit Investasi Kecil*
KMKP .... Permanent Working Capital Credit / *Kredit Modal Kerja Permanen*

ABBREVIATIONS

KPM .... Beneficiary Families / *Keluarga Penerima* Manfaat
KPMG .... Klynveld Peat Marwick Goerdeler
KSEI .... Indonesian Central Securities Depository / Kustodian Sentral Efek Indonesia
KTP .... ID card / *Kartu Tanda Penduduk*
KUR .... Micro Business Credit / *Kredit Usaha Rakyat*
KYC ....Know-Your-Customer
Laku Mikro .... Microfinance Services / *Layanan Keuangan Mikro*
Laku Pandai .... Branchless Banking / *Layanan Keuangan Tanpa Kantor*
Laku Pandai .... *Layanan Keuangan Tanpa Kantor dalam Rangka Keuangan Inklusif*
LAPS.. Alternative Dispute Settlement Institutions / *Lembaga Alternatif Penyelesaian Sengketa*
LAPSPI .... Indonesian Banking Alternative Dispute Resolution Institution / *Lembaga Alternatif Penyelesaian Sengketa Perbankan Indonesia*
LBH ....Legal Aid / *Lembaga Bantuan Hukum*
LDKP .... Village Fund and Credit Institution / *Lembaga Dana Kredit Pedesaan*
LKD..Digital Financial Services / *Layanan Keuangan Digital*
LPD .... Village Credit Institutions / *Lembaga Perkreditan Desa*
LPDB .... Revolving Fund Management Agency / *Lembaga Pengelola Dana Bergulir*
LPEM UI ....The Institute for Economic and Social Research / Lembaga Penyelidikan Ekonomi & Masyarakat UI
LPIP... Credit Information Management Institutions / *Lembaga Pengelola Informasi* Perkreditan
LPMUKP ....Institute for Capital Management of Marine and Fishery Enterprises / *Lembaga Pengelola Modal Usaha Kelautan dan Perikanan*
LTCM ....Long-term Capital Management
MAS .... Monetary Authority of Singapore
MDF .... Medium-density fireboards
Mekaar ....Fostering a Prosperous Family Economy / *Membina Ekonomi Keluarga Sejahtera*
MFIs ....Microfinance institutions
MIT .... Mitra Ibisnis Terapan
MSEs ....Micro and Small Enterprises

ABBREVIATIONS

MSMEs .... Micro, Small and Medium Enterprises
MTN .... Medium-Term Note
MoU .... Memorandum of Understanding
NASDAQ .... National Association of Securities Dealer Automated Quotation
NPF .... Non-Performing Financing
NPL .... Non-Performing Loan
NRF .... National Research Foundation
NTT .... Nusa Tenggara Timur
NYSE .... New York Stock Exchange
OCC .... Office of the Comptroller of the Currency
ODR .... Online Dispute Resolution Mechanism
OECD .... Organisation for Economic Co-operation and Development
OJK .... Indonesia Financial Services Authority / *Otoritas Jasa Keuangan*
OJK INFINITY .... OJK Innovation Centre for Digital Financial Technology
P2P lending .... Peer-to-peer lending
PBI .... BI Regulation / *Peraturan Bank* Indonesia
PBK .... Pefindo Biro Kredit
PDS .... Pawnshop Digital Services / *Pegadaian Digital* Services
Perum Jamkrindo .... Indonesian Credit Guarantee Company / *Perusahaan Umum Jaminan Kredit* Indonesia
PLB .... Bonded logistics center / *Pusat Logistik Berikat*
PNM .... PT Permodalan Nasional Madani (Persero)
POBC .... The People of Bank of China
Premiro .... PT Mitra Ibisnis Terapan
PSD2 .... Payment System Directive 2
PT .... Limited liability company / *Perseroan Terbatas*
RDPT .... Private equity mutual funds *Reksa Dana Penyertaan Terbatas*
Santara .... PT Santara Daya Inspiratama
SBN .... Government Bonds / *Surat Berharga Negara*
SEIS .... Seed Enterprise Investment Scheme
SID .... Single Investor Identification
SimPel/SimPel iB .... Student Savings / *Simpanan Pelajar iB*

ABBREVIATIONS

SiMuda ....Youth Saving / *Simpanan Mahasiswa dan Pemuda*
SLIK..........Financial Information Service System / *Sistem Layanan Informasi* Keuangan
SMEs ....Small and medium enterprises
SMS .... Short Message Service
SNLKI .... Indonesia's National Strategy on Financial Literacy / *Strategi Nasional Literasi Keuangan Indonesia*
SNKI ......National Strategy for Financial Inclusion / *Strategi Nasional Keuangan Inklusif*
SOP .... Standard Operating Procedure
SP .... Warning letter / *Surat Peringatan*
SPARC ....Strategic Planning and Action to Strengthen Climate Resilience of Rural Communities
SWIFT .... The Society for Worldwide Interbank Financial Telecommunication
TaniFund ....PT Tani Fund Madani
TKI .... Indonesian Migrant Workers / *Tenaga Kerja Indonesia*
TPAKD .... Regional Finance Access Acceleration Team / *Tim Percepatan Akses Keuangan Daerah*
UED-SP ....*Unit Ekonomi Desa Simpan Pinjam*
UGM .... Universitas Gajah Mada
UI ....University of Indonesia / *Universitas Indonesia*
ULaMM ....Micro Capital Services Unit / *Unit Layanan Modal Mikro*
UK ....United Kingdom
UKTI ....UK Trade & Investment
UN .... United Nations
UNDP .... United Nations Development Program
US .... United States
USSD .... Unstructured Supplementary Service Data
VaR .... Value at Risk
VC ....Venture Capital
Wowpremi ....PT Dritama Insurance broker
WWW ....World Wide Web
YLKI .... Consumer Aid Foundation / *Yayasan Lembaga Konsumen Indonesia*

Foreword

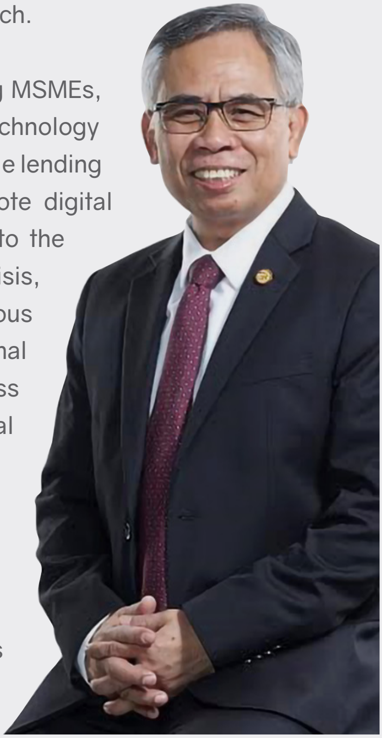
WIMBOH SANTOSO,
CHAIRMAN OF THE BOARD OF COMMISSIONERS,
OTORITAS JASA KEUANGAN

Financial Technology (FinTech) is the new DNA in financial services. Its rapid development shows that this industry brings a promising future for the financial services industry. FinTech revolution that was driven by FinTech start-ups is radically changing the landscape of financial services sector – with new innovative business models, products, and services. FinTech start-ups also alter the financial services ecosystem that was once almost exclusively dominated by banks and multi-finance companies. Consequently, this development will gradually transform consumer behavior in terms of conducting financial transactions such as saving, lending, payment and investing. These factors, combined with continuously increasing digital-savvy consumers, might likely shift the global financial landscape, including that of Indonesia.

It is encouraging to learn that FinTech has more to offer for emerging countries as it helps bring greater financial inclusion for the underserved population. For countries like Indonesia where financial inclusion has been a persistent challenge, FinTech can help address issues such as financing gaps and imbalanced inter-provincial financing activities. With its technological innovations, FinTech can become a solution for people that are not eligible for financing offered by traditional financial institutions.-

On another note, MSMEs are the engine of the economy that can endure in times of crisis. Given their central role in the Indonesian economy, MSMEs need to be further developed. FinTech can be a great tool for MSME development and empowerment due to its important role in providing innovative payments and financing for MSMEs. FinTech companies also complement micro-finance institutions in providing financing for micro businesses including women entrepreneurs with limited access to bank loans to help them sustain and expand their businesses.

Currently, countries around the world are struggling to address health, social and economic impact of the Covid-19 pandemic. The impact of social restrictions that limit physical interaction has weakened the global economy, put pressure on the real sector, and left many unemployed, including in Indonesia. However, at the same time, it has made us rely on technology and innovation both to survive and to accelerate the economic recovery process. This clearly presents a great opportunity for our digital financial services industry, including FinTech.



The current crisis has also forced businesses, including MSMEs, to rethink their ways of doing business. Innovation and technology offered by FinTech could ease this process, with its simple lending and payment process as well as features that promote digital transformation, Fintech could help businesses adapt to the new way of doing business. During this pandemic crisis, FinTech also contributes to effective distribution of various Government stimulus programs for MSMEs and informal sector. Fintech's role in increasing financial access and in assisting Government with distribution of social assistances could help the ultra-micro, MSMEs and informal sector weather the crisis and get back on their feet.

Equally important, the rapid development of FinTech triggers incumbent players in the financial services sector (i.e. banks and financing companies) to seize

Foreword

the opportunity by collaborating with Fintech start-ups one way or another. The collaboration is mutually beneficial as both FinTech and incumbent players could learn from each other's experiences on how to best serve consumer interests and could promote the acceleration of digital transformation as it prompts the incumbent players to transform their businesses into digital.

As the regulator of the financial services sector, OJK is committed to providing support and building a sound ecosystem for FinTech to gain a foothold in the Indonesian financial services sector. Through its regulation that promotes innovation and competition as well as reflects the balance between innovation and prudential aspects, OJK builds a path for FinTech to continue its responsible innovations in financial services. Additionally, OJK continuously enhances the role of the regulatory sandbox as the first layer of supervision. In line with 'light touch' and 'safe harbor' principles, OJK continuously nurtures the innovation by implementing principle-based regulations. This approach leads to an exponential growth of the industry.

We acknowledge that amidst the abundance of advantages brought by financial technology, several risks –such as privacy, cybersecurity, unfair competition and financial stability—may inhibit its development if not properly supervised and regulated. The major challenge for OJK will be to adopt regulations that could enable FinTech to proliferate on a larger scale without undermining risks that could arise in the future, and make consumer protection a priority in all our regulations and policies.

All in all, despite the challenges presented, OJK is optimistic that FinTech could be a great tool to increase financial inclusion in addition to providing financing for micro consumers – including the underserved, MSMEs, and women. OJK continues to supervise and regulate the FinTech industry and maintain consumer protection, while ensuring ample room for innovation and development. In order to achieve this successfully, OJK hopes for close collaboration with relevant agencies and institutions, such as Fintech associations and international institutions, including ADB, in nurturing FinTech to reach its maximum potential and strengthening its role in financial inclusion. At the end of the day, we hope to see FinTech in Indonesia strives to promote financial inclusion and contributes to the country's economic growth.

Lastly, let me express our most sincere gratitude to ADB for its benevolent support for this publication, which I hope will bring a valuable contribution to the financial services sector in Indonesia and beyond.

Wimboh Santoso, Ph.D
Chairman of The Board of Commissioners
Otoritas Jasa Keuangan

Foreword

BAMBANG SUSANTONO,
VICE-PRESIDENT FOR KNOWLEDGE MANAGEMENT
AND SUSTAINABLE DEVELOPMENT,
ASIAN DEVELOPMENT BANK

The UN's Sustainable Development Agenda aims to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. The COVID-19 pandemic has emphasized the importance of meeting the 17 Sustainable Development Goals (SDGs) to address key issues such as poverty, inequality, health and inclusive economic growth. Meeting these goals, especially SDG 1 (ending poverty), SDG 5 (gender equality), and SDG 10 (reducing inequality), will require citizens, especially the bottom 40% of income earners, to have access to finance.

ADB's corporate Strategy 2030 aims to end extreme poverty and build a prosperous, inclusive, resilient, and sustainable Asia and the Pacific. The first two operational priorities of ADB's strategy are to address remaining poverty and reduce inequality, as well as to accelerate gender equality. Financial sector development and financial inclusion are key to ADB's work. Access to finance, along with financial literacy, allows the poor to improve their livelihoods. In Indonesia, this has led to ADB's strong partnership with Otoritas Jasa Keuangan (OJK), or the Financial Services Authority. This alliance includes a policy dialogue on financial sector regulation and knowledge production.

OJK's Digital Finance Innovation Roadmap and Action Plan 2020–2024 seeks to leverage financial technology (fintech) to boost financial inclusion. The roadmap establishes policy priorities in fintech to support the government's financial inclusion strategies, including specific focus on women. Indonesia has seen significant progress in expanding financial inclusion. According to the Global Findex, the percentage of adults in the country with a bank account has leapt to 48.9% in 2017 from 19.6% in

2011. The Financial Inclusion Insights Survey, which was conducted by the Indonesian National Council for Financial Inclusion, shows a similar trend, with 56% of the country's adults holding an account in 2018. Still, a significant part of the adult population remains financially excluded. A key reason for this is poor access to banks and financial service providers. Indonesia's high mobile phone usage presents a clear opportunity for fintech to bring finance closer to the people. This was a key driver for the publication *Fintech: Supporting Financial Inclusion through MSME Finance*.

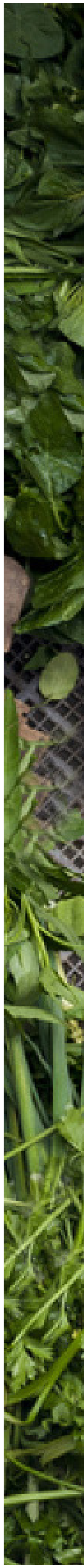
The publication examines financial inclusion and financing in general for small- and medium-sized enterprise financing in Indonesia. It also looks at fintech at the conceptual level, and how OJK balances innovation and consumer protection in its policies. The book which explores how fintech can bridge the financing gap in Indonesia to support businesses, including those owned by women, is an important contribution to the existing literature on financial inclusion. We believe the book will be useful and provide food for thought for policy makers, regulators in the Southeast Asia region, fintech companies, academia, businesses, and the public.

Bambang Susantono
Vice-President for Knowledge Management
and Sustainable Development
Asian Development Bank

FinTech: The New Player in Financial Services Industry

Financial technology (FinTech) is all around us. It fundamentally transforms our life in interacting with financial services, from saving, lending to investing. Digital innovation, in the form of FinTech, has changed and even replaced business models, rules of the game, and competition structures among financial industry players. The penetration of digital innovation has hit all the "conventional" financial industry in the world, including Indonesia.

The FinTech wave is present through startup companies. They use an online-based technology approach to offer financial services that are currently dominated by financial services institutions. FinTech business actors take advantage of the big data explosion of individuals and companies, the advancement of artificial intelligence, the power of computing, and Internet penetration throughout the world. Complementary growth among all technologies opens up opportunities for new applications that offer services such as financing, payment, asset management, insurance, and other financial sectors.



Chapter 1

In short, the digital era has 'disrupted' the financial industry–as well as other industries, such as transportation, media, and travel. FinTech companies can provide quick loans by trimming a number of processes that are common in conventional banking. No one ever imagined that companies not requiring face-to-face interviews when customers apply for a loan would have existed. They are applying a laxer 'know your customer' principles compared to common practices in the banking industry.

At present, the number of FinTech companies in Indonesia is proliferating. With more players, customers also have more diverse choices. As noted by Indonesia Financial Services Authority (*Otoritas Jasa Keuangan*/OJK), the number of registered peer-to-peer lending businesses as of December 2019 stands at 164 companies, consisting of 12 sharia-based FinTech startups and 132 conventional-based enterprises. In total, 13 out of 144 registered FinTech lending firms have successfully obtained license from OJK. Statistics estimated that the amount of money circulating in Indonesia generated from FinTech transactions was US$18,65 billion (using 2017 data). This value is predicted to reach US$ 37,15 billion by 2021.

In the end, the shift in business concepts is inevitable. The choices for players in the financial industry are either to undergo a digital transformation or to witness their business erode slowly. Digital transformation is not only useful for maintaining business, but also for boosting better competitiveness. Furthermore, digital transformation can also increase customer loyalty, improve market penetration, save operational costs, and accelerate business processes. Transformation can be done through collaboration with financial technology companies.

Significant developments in the financial technology industry are believed to have changed the landscape of the financial sector, both locally and globally. On a domestic level, in a country such as Indonesia, the emergence of FinTech—with all its innovations—is expected to accelerate financial inclusion, and reduce the number of people who have not been exposed to financial services, while also encourage economic growth. At the very least, financial technology startup companies are hoped to serve as intermediaries for larger and formal financial institutions.

Financial inclusion has long been a discussion and concern in this country. However, many problems related to further penetration continue to arise. Therefore, regulations for these new startups must not cause these institutions to shut down because they also encourage the inclusion in the financial sector. Its presence needs to be addressed proportionally, especially when it is related to consumer protection and risk mitigation in the financial industry.

Amidst the abundance of advantages posed by financial technology, several risks may inhibit its development. FinTech can boost efficiency in the financial sector, offering improved and better-targeted products and services. However, it also brings about a range of risks such as unhealthy competition, damaging customers' trust if a problem arises, and disrupts financial stability if it is unmonitored and unregulated.

The question now is how should the FinTech-based industry be regulated in order to continue to develop in its stage of growth without overlooking the present risks? This book describes the regulatory and policy frameworks, as well as current conditions and future challenges to respond to and adjust the impact of financial technology on the financial sector. In Indonesia, FinTech is believed to be a reliable agent for increasing financial inclusion. It is not surprising that regulations and policies are prioritized to achieve these goals, while not overlooking the importance of consumer protection. The role of OJK cannot be disassociated from attaining these targets.

This book attempts to portray the early development of financial technology in Indonesia while attempting to compare it with the presence of FinTech in other countries. From the comparison of practices in other countries, it is clear that FinTech in Indonesia is trying to reach markets that were not previously exploited by the formal financial industry. These efforts are in line with the objectives of the penetration of financial inclusion.

This book also focuses on discussing the impact of financial technology on microfinance. Microfinance is at the heart of the mandate of OJK to promote financial access to all levels of society, including the lower-income classes, and to improve their standard of living. A more specific portrait and evaluation of the microfinance industry will help regulators as well as the banking and non-banking industries prepare for further policy actions.

This book has nine chapters. The first one provides introduction and roadmap of subsequent chapters. The second chapter provides an overview of the conditions of financial inclusion in Indonesia. In addition to capturing the level of penetration of financial literacy and inclusion, the second chapter also discusses challenges and obstacles to financial inclusion in Indonesia. This chapter also describes OJK's role and its effort to increase financial inclusion through various schemes and strategies.

Chapter 3 describes the role of micro,

small and medium enterprise (MSME) financing in Indonesia. This chapter describes the current conditions of MSME financing in the banking sector, non-bank financial institutions, and capital market. The challenges and factors affecting the financing gap in Indonesia are also presented in this chapter.

Chapter 4 describes FinTech at the conceptual level. Its initial definition, developments of FinTech from time to time, types of services, as well as various business models of FinTech and how they generate income are presented in this chapter. This chapter also discusses the development of FinTech in other parts of the world. The primary focus is on the development of FinTech in the United States (US), Europe, and some countries in Asia. The main aspects are how those countries develop their FinTech ecosystem, the implementation of the regulatory sandbox, and the regulatory framework that are conducive for the growth of the FinTech industry.

Chapter 5 describes the development of financial technology in Indonesia. This chapter seeks to record specific FinTech models in Indonesia, in addition to discussing the types of financial technology present in the world and developing in Indonesia. FinTech's contributions to the capital market, banking, and non-bank financial industry are one of the core discussions in this chapter. Moreover, this chapter discusses the role and involvement of FinTech in many government programs in other institutions or ministries.

Chapter 6 examines FinTech's role in supporting MSME financing and financial inclusion. This chapter begins by discussing the opportunities for FinTech to increase MSMEs' access to funds and business sustainability. It describes the role of FinTech in supporting the provision of microcredit. The discussion includes some guarantee schemes to avoid default loans, review a range of services of micro insurance, and examine micro-investment, including those in the capital market sector. This chapter also discusses the benefit of a digital platform to provide a marketplace for MSMEs. The role of FinTech in empowering women, equipped with a feature depicting the benefits of FinTech for women micro-entrepreneurs in Indonesia, concludes this chapter.

Chapter 7 analyzes the challenges and opportunities of FinTech in Indonesia. This chapter describes challenges in ensuring consumer protection, managing cybersecurity risks, and maintaining business continuity of financial institutions. This chapter describes the potential synergy between FinTech and conventional financial service institutions, especially the collaboration between FinTech and the banking industry, non-bank financial industry, and microfinance institutions (MFIs). A number of concrete examples of cooperation between FinTech companies and commercial banks, including rural banks (*Bank Perkreditan Rakyat*/BPR) are presented in this chapter.

Chapter 8 reviews the role of OJK in the development of FinTech in Indonesia. This chapter fully demonstrates OJK's perspective on FinTech industry in Indonesia, starting from operations and supervision, regulation framework, crowdfunding, incubators, and regulatory sandboxes.

Lastly, Chapter 9 concludes this book and provides summary as well as expectation on how FinTech can further contribute to financial inclusion in Indonesia.

Financial Inclusion and Literacy in Indonesia

Many experts, scholars, and international agencies have sought to define financial inclusion. To date, no single definition of financial inclusion has yet been accepted without debate. However, there are similar indicators between those definitions which consist of access, availability, usage, and quality.

Financial inclusion is defined as a condition where all members of the society have access to quality formal financial services that are timely, smooth, and safe at affordable fees in accordance with the needs and abilities in order to improve public prosperity. (Presidential Regulation No. 82 of 2016 concerning National Strategy on Financial Inclusion).

The World Bank defines financial inclusion as a condition in which individuals and business entities have access to beneficial and affordable financial products and services that meet their needs.[1] The

1 Demirgüç-Kunt, *et al*., "The global findex database 2014: Measuring financial inclusion around the world," *Policy Research Working Paper 7255, Finance and Private Sector Development Team, Development Research Group, World Bank* (2015).

Chapter 2

scope of this definition consists of data on adults with a financial institution account which include respondents who reported to have an account at a bank or at another type of financial institution, such as a credit union, a microfinance institution (MFI), a cooperative or the post office (if applicable), or have a debit card in their own name.[2]

Asian Development Bank (ADB) attempts to define financial inclusion more succinctly. According to Yoshino & Morgan, financial inclusion is the availability of access for households and companies to affordable financial services.[3] Meanwhile, Atkinson & Messy interpret it as a process of promoting affordable, timely and adequate access to financial products and services, as well as expanding the use of financial services to all segments of society through innovative approaches, including by measuring the target society's level of financial awareness and education.[4] The Consultative Group to Assist the Poor (CGAP) offers their vision of financial inclusion as a world in which everyone can efficiently access and use the financial services they need to improve their lives.[5] However, this does not mean developing a separate financial market specifically for the poor. In addition, Sarma defines financial inclusion as a process that ensures the ease of access, availability, and usage of the formal financial system for all members of an economy.[6]

Of the six parties that attempt to define financial inclusion, Yoshino & Morgan notice that the World Bank focuses more on the actual consumption of financial services while others put more emphasis on society's ability to use the facilities.[7] The word "access" in the definitions offered by Yoshino & Morgan and Atkinson & Messy implies that it refers to access at affordable cost with accompanying protection. Consumer protection comprises the regulation of financial services firms, the existence of consumer protection laws, and institutions that protect consumers from unsuitable products, fraudulent practices, and aggressive collection practices often by rogue debt collectors. The definition by the CGAP, however, concerns the issue of "mainstreaming," which is the effort to

2 The category also includes data on adults with a mobile money account including respondents who reported to personally use surfaces included in the GSM Association's Mobile Money for the Unbanked (GSMA MMU).

3 Yoshino, Naouyuki & Morgan, and Peter, "Overview of financial inclusion, regulation, and education", *ADBI Working Paper Series 591, Asian Development Bank Institute, Tokyo* (2016).

4 Atkinson, A & Messy, and Flore-Anne, "Promoting financial inclusion through financial education: OECD/INFE evidence, policies, and practice," *OECD Working Papers on Finance, Insurance and Private Pensions 34, OECD Publishing* (2016).

5 Yoshino, Naouyuki & Morgan, and Peter, "Overview of financial inclusion, regulation, and education".

6 Sarma, M, "Index of financial inclusion," *ICIER Working Paper 215, Indian Council for Research on International Economic Relations, New Delhi* (2008).

7 Yoshino, Naouyuki & Morgan, and Peter, "Overview of financial inclusion, regulation, and education".

provide communities the access that has not been addressed by major financial institutions.

Problems arise when we attempt to define the "affordable costs" in accessing the financial services, especially for unbanked people who cannot afford regular financial products and services. The critical question is: To what extent must the Government subsidize or intervene services in the market? This perspective also highlights the need for adequate financial education. Without sufficient understanding, consumers will not be able to utilize the access to these financial services properly.

Ultimately, the concept of financial inclusion also implies the term 'financial exclusion' to label those who do not have an account in formal financial institutions. Financial exclusion is defined as a condition in which people cannot use financial services or products offered by formal financial institutions, including MFIs. Again, Yoshino and Morgan emphasize that it is essential to distinguish between those who do not want or need to use financial services and products and those who want to use them but cannot do so. Belief or religion is the main reason for the first, while the latter is due to insufficient funds, poor access, high costs, ignorance, lack of understanding and trust, or identity requirements.[8]

2.1 Background

The initiative to roll out the National Strategy for Financial Inclusion (*Strategi Nasional Keuangan Inklusif*/SNKI) for Indonesia had started since June 2012. The grand strategy is to promote financial inclusion to open up access to banking and other financial services for more people in Indonesia. It aims at driving economic growth, alleviating poverty, and reducing inequality among Indonesian society.

Under the supervision of the Coordinating Ministry for Economic Affairs, the initiative focuses on five pillars: financial education, property right, intermediation facilities and financial distribution channels, financial services on the Government sector, and consumer protection. It stands on three foundations namely conducive policies and regulations; supportive infrastructure and financial information technology; as well as effective organization and implementation mechanism.

The financial education focuses on increasing the level of knowledge among communities about formal financial institutions, financial products, and services, including the features, benefits, and risks. The purpose of financial education is to provide enough

8 Yoshino, Naouyuki & Morgan, and Peter, "Overview of financial inclusion, regulation, and education".

information for customers to choose products and financial services based on their needs. The program also prioritizes consumer protection as an essential part in providing financial products and services; and educates communities about real property rights, i.e. land certificate, that can be utilized as collateral to guarantee loans from financial institutions.

The targets of SNKI are communities with limited access to formal financial services. These include lowest-income society who accounted for 40 percent of the adult population, micro, small, and medium enterprises (MSMEs), people who live in remote areas, migrant workers, women, people with disabilities, students, college students, and youth.

The strategy incorporates with supportive policy and regulations, adequate infrastructure and financial information technology and effective implementation mechanism as crucial foundations to increase financial access. However, when the program rolled out, Indonesia's literacy and financial inclusion state was somewhat alarming.

A national survey conducted by OJK in 2013 reflected such situations. The study was intended to find out the level of literacy and inclusion in the financial services sector. The result showed that the public financial literacy index was 21,8 percent. This indicated that in every 100 residents, only about 22 people were categorized as "well literate."

The majority of Indonesians are suspected to have insufficient knowledge of various financial products and services offered by formal financial institutions. People are more interested in other investment offerings that can potentially cause them losses.[9]

The public's lack of knowledge of financial products and services affected the financial inclusion index, that is the level of interaction with financial products. The financial inclusion index in 2013 was 59,7 percent. It showed that the ratio of people utilizing financial products and services was still considered low. The percentage indicated that only half of the adult had an account in formal financial services, including banking, insurance, leasing/ finance company, capital market, and pension fund. It is worth to note that this figure was different from survey held by the World Bank that showed only adult Indonesian populations owning bank account.

The financial literacy and inclusion indices in 2013 were derived from a

9 OJK, "Strategi nasional literasi keuangan Indonesia (Revisit 2017)," https://www.ojk.go.id/id/berita-dan-kegiatan/publikasi/Documents/Pages/Strategi-Nasional-Literasi-Keuangan-Indonesia-(Revisit-2017)-/SNLKI%20(Revisit%202017)-new.pdf, viewed 4 April 2018.

national survey in 40 cities and districts, distributed among 20 provinces involving 8,000 respondents. The results of the study further served as guidelines for OJK and the financial services industry to improve the country's financial literacy and inclusion. Effort taken was to launch Indonesia's National Strategy on Financial Literacy (*Strategi Nasional Literasi Keuangan Indonesia*/SNLKI) on November 19, 2013. The national strategy comprises of three pillars; one of them is education and national campaign on financial literacy.

The 2013 survey's result also served as guidelines to choose the main priority of SNLKI programs, which would be implemented each year. For example, the survey became the basis to select targeted groups for the program. In 2014, the targets were housewives and MSMEs. To improve financial literacy and inclusion, OJK together with other financial services institutions conducted financial education programs in 2014 involving 24 cities in Indonesia. The participants consisted of 1,195 housewives, 1,146 MSMEs practitioners, 1,588 Indonesian migrant workers, and 4,577 general participants.

The implementation of the national campaign was closely linked with the role of the financial services industry, which was actively engaged in supporting the national campaign on financial literacy. Further, it was considered important for OJK to realize national campaign on financial literacy and utilization of financial products and services, particularly in the middle to low-income brackets.

Under the third pillar of SNLKI, which is the development of financial products and services; OJK stimulated the financial services sector to create affordable financial products and services for general society, such as Microfinance Services.

Microfinance Services is integrated services providing microfinance products and services for low-income society that are easily accessible, simple, fast, and affordable. The various microfinance services are, among others, savings with no administration cost, micro insurance with premium lower than Rp50,000, a micro mutual fund with an initial investment of Rp100,000, and financing for precious metal investment with low installment loan rates.

Those services are part of the efforts carried out to expand society`s access to formal financial services institutions, which is measured by society's familiarity with financial products and services. The launching of Microfinance Services in Karangsong village, for example, was expected to bring financial services system to low-income society, especially fishers and residents.
Has the National Strategy on Financial Literacy in Indonesian yielded results?

The answer lays in the outcome of the 2016 National Survey on Financial Literacy and Inclusion, which was similar to those of the 2013 survey. This 2016 survey involved 9,680 respondents in 34 provinces. Indonesia's financial literacy index rose 7,81 percent to 29,7 percent, while the financial inclusion index rose 8,10 percent to 67,8 percent within three years. The highest financial inclusion index was recorded in DKI Jakarta (78,2 percent); meanwhile, the lowest was Papua Barat (58,5 percent).

OJK acknowledges that the figures showed that the level of financial inclusion was still considered low. The level of inclusion has a strong correlation with the level of financial literacy.[10] The lower the society's understanding of financial services products, the lower their interest and access to financial services products; ones that are supposed to potentially improve people's welfare.

Enormous diversity may contribute to the low level of financial inclusion in Indonesia. With a population of over 260 million, encompassing 360 ethnic groups, speaking 719 languages, and living on 6,000 of 17,504 islands,[11] financial literacy interventions in Indonesia are a costly task. Translation of financial literacy materials into a large number of local languages, for example, can be enormously time and resource consuming.[12] Atkinson and Messy point out "such barriers can be exacerbated amongst those with low levels of education, including those with limited literacy or numeracy."[13]

The low level of financial inclusion is unfortunate when financial inclusion would otherwise have a positive effect on improving people's welfare.[14] Karlan and Zinman show that communities participating in financial systems tend to have better skills to start and grow their businesses. They also have a high chance of having better education, managing risks, and surviving in times of financial instability.[15]

The ability to access education and manage these risks is robust because they can obtain financial services products that offer both investment and financing services. Furthermore, the

10 OJK, Financial Literacy and Inclusion Department, Interview, March 2018.
11 KMPG, "New Indonesian 'Branchless Banking' and Microfinance Laws: A Catalyst for Microfinance Growth?" https://assets.kpmg.com/content/dam/kpmg/.../id-ksa-financial-inclusion-indonesia.pdf, viewed on 1 May 2018.
12 Yoshino, Naouyuki & Morgan, and Peter, "Overview of financial inclusion, regulation, and education".
13 Atkinson, A & Messy, and Flore-Anne, "Promoting financial inclusion through financial education: OECD/INFE evidence, policies, and practice".
14 OJK, Financial Literacy and Inclusion Department, Interview, March 2018.
15 Karlan, Dean & Zinman, and Jonathan "Expanding credit access: using randomized supply decisions to estimate the impacts," *The Review of Financial Studies, vol. 23, no. 1* (2010), pp. 433-464.

ability to access investment and financing products will have a significant impact on one's economic turnover. The ultimate goal is the improvement of people's welfare. With this strong cause-effect relationship, there is a strong relationship between financial inclusion and the well-being of society.[16]

Based on a Global Findex Survey in 2011, the World Bank shows that less than half of Indonesia's population did not have access to formal financial institution services. Three years after, the World Bank investigated the same case. The result was not significantly different where many Indonesian adults still did not have a bank account. Of the two billion adults in the world who did not have a bank account, Indonesia accounted for 6 percent. Combined with the People's Republic of China [17]and India, Indonesia accounted for 38 percent of the world's adult population who were yet to have bank accounts.[18]

Based on the 2014 survey, 36,1 percent of Indonesian adults had bank accounts. This figure is equivalent to 90 million adults out of a total of 252,2 million Indonesian people in 2014. Three years after, Global Findex Survey shows that 48,9 percent of population in Indonesia were financially inclusive. Nevertheless, the number of savings accounts in banks far exceeded the number of adults who had accounts. This situation could occur because one adult had the potential to have more than one account. In 2017, for example, the number of Indonesian adults was only 191,5 million out of a total of 261,9 million. However, the number of third-party fund accounts in banks was 299,84 million accounts.[19]

The percentage of the adult population who already have bank accounts reflects the indicator of the low financial inclusion in Indonesia. This percentage is the most frequently used indicator to measure the level of a country's financial inclusion.[20] Adults who fall into this category, in this case, are those aged over 15 years.

2.2 Development

As a state institution that oversees all financial service providers, OJK has initiated various programs to expand the public's access to financial products and

16 Karlan, Dean & Zinman, and Jonathan "Expanding credit access: using randomized supply decisions to estimate the impacts".
17 ADB recognizes 'China' as 'the People's Republic of China'
18 Demirgüç-Kunt, *et al*., "The global findex database 2014: Measuring financial inclusion around the world".
19 Departemen Statistik, Bank Indonesia, "Statistik sistem keuangan Indonesia bulan Maret 2018" https://www.bi.go.id/id/statistik/sski/Pages/SSKI_Maret_2018.aspx, viewed 5 April 2018.
20 Tambunan, T 2015, 'Financial inclusion, financial education, and financial regulation: a story from Indonesia', ADBI Working Paper Series 535, Asian Development Bank Institute, Tokyo.

services. These programs include Student Savings (*Simpanan Pelajar iB*/SimPel iB); Youth Saving (*Simpanan Mahasiswa dan Pemuda*/SiMuda); Microfinance Services (*Layanan Keuangan Mikro*/Laku Mikro); Branchless Banking (*Layanan Keuangan Tanpa Kantor*/Laku Pandai); Reach, Synergy, Guidelines (*Jangkau-Sinergi-Guideline*/JARING); Micro Insurance; Rice Farming Insurance (AUTP); Cattle Livestock Insurance (*Asuransi Usaha Ternak Sapi* /AUTS); Micro Waqf Bank (*Bank Waqf Mikro*/BWM); and Regional Finance Access Acceleration Team (*Tim Percepatan Akses Keuangan Daerah*/TPAKD).

SimPel/SimPel iB is a saving account for students, issued nationally by banks in Indonesia with easy and simple requirements as well as attractive features. This is an educational program for students to encourage a saving culture early on. The second program is JARING, which is OJK's short-term initiative with the Ministry of Maritime Affairs and Fisheries to accelerate growth in the maritime and fisheries sector through issuance of guidelines for the financial services sector from upstream to downstream. The third is the Laku Pandai program, an acronym of *Layanan Keuangan Tanpa Kantor dalam Rangka Keuangan Inklusif*.

Of the three programs initiated by OJK, the most likely to act as a promoter of financial inclusion penetration is Laku Pandai, a program promoting branchless banking launched in March 2015. Laku Pandai offers solution to an existing gap in society, particularly people who live in remote areas or outermost regions. People who live in these areas have been experiencing difficulty in accessing financial services due to limited or lack of financial services. Laku Pandai provides basic financial products, which are savings with the characteristics of a Basic Saving Account (BSA); credit or financing to micro customers, micro insurance; and other financial products such as server-based electronic money. The BSA has several characteristics, such as free administration fees, no minimum balance and cash deposits as well as limited number of cash withdrawals.

The spearheads of this Laku Pandai program are those called 'agents'. These agents are the extension of banks. Agents have a dual role: as bank partners and as financial inclusion agents that educate the public about the benefits of financial products and services.

Until the third quarter of 2019, there are 1,146,131 Laku Pandai agents spread across 511 cities and towns across provinces in Indonesia. These agents successfully acquired 25,777,824 new customers [21] that generate new savings in

21 Department of Research and Banking Regulatory OJK, 2019.

an amount of Rp 2,21 trillion.

As of September 2019, there are 27 conventional commercial banks and 4 sharia banks managing Laku Pandai initiated by OJK. Such programs will continue to be encouraged by OJK so that more Indonesian adults are exposed to financial services, especially in areas where infrastructure remains limited.

The success of Laku Pandai through the BSA program is similar to the adoption of African countries' experience of using the same formula. When the World Bank released its report in 2014, the growth of BSA accounts in the Sub-Saharan Africa region, known as mobile money in Africa and the world, helped to expand and increase public access to financial services rapidly.

In 2014, Sub-Saharan Africa was the only region where on average more than 10 percent of the population had mobile money accounts. In fact, in 13 areas, the use of mobile money exceeded 10 percent. Even residents in Ivory Coast, Somalia, Tanzania, Uganda, and Zimbabwe were increasingly using mobile money accounts than accounts in financial institutions.[22]

The mobile money refers to money transaction within the telecommunication operator system. In short, the cellular phone credit balance also functions as a savings balance. Mobile phone owners can make transactions and can even withdraw credit or balances sent from other mobile phone owners. The fee for each sale is 30 cents. In Africa, mobile money is not managed by banks, but by mobile operators.

In Indonesia, many banks have started offering financial services using multiple devices, including mobile device. Among them are Bank Tabungan Pensiunan Nasional (BTPN). In cooperation with Telkomsel operators, BTPN offers BTPN WOW!. BRI launches BRILink, BNI has Agen46, and BCA offers LAKU BCA.

One year after Laku Pandai was launched, President Joko Widodo signed Presidential Regulation No. 82 of 2016 concerning SNKI. The regulation highlights that financial inclusion must meet several principles, namely the diversity of financial providers and services, technology innovation, empowerment, and consumer protection. There was a target set in which at least 75 percent of the Indonesia population should have access to formal financial services by 2019. It means that the grand strategy needed additional 54,388,751 new customers to achieve its target. The

22 Asli Demirgüç-Kunt, *et al*, 'The Global Findex Database 2014: Measuring Financial Inclusion Around the World', *Policy Research Working Paper 7255, Finance and Private Sector Development Team, Development Research Group, World Bank* (2015).

success of SNKI will help the channel the Government's non-cash social assistance programs to the public more effectively, OJK realizes that enhancing financial inclusion in Indonesia can only be achieved by synergizing with other ministries or institutions, and other stakeholders or related parties. This calls for close cooperation with those parties, as well as with international organizations. Part of these cooperative efforts is collaboration with the United Nations Development Programme (UNDP) Indonesia. The signing of a memorandum of understanding (MoU) in August 2016 marked this cooperation. Through this MoU, OJK and UNDP are both committed to promoting financial literacy and inclusion that support the Sustainable Development Goals, especially in alleviating poverty and improving inclusive growth.

In cooperation with the UNDP, OJK employs innovative ways, including the use of digital and technology-based financial services, encourage and work with provincial government-owned development banks (*Bank Pembangunan Daerah*/BPDs) by providing tailored financial services in the most deprived areas and promoting financial literacy trainings. The two parties will also collaborate to encourage regional and local financial institutions to further contribute to sustainable development in local communities regarding environmental, economic and social aspects.

The cooperation reinforces the previous UNDP initiative started in 2014, in which it partnered with BPD Nusa Tenggara Timur (NTT) through a development project called UNDP SPARC (Strategic Planning and Action to Strengthen Climate Resilience of Rural Communities). Through the partnership, the UNDP provided financial literacy and business development trainings that resulted in the inclusion of NTT residents in the formal banking system. As of August 2016, a total of 1,300 micro and small enterprises in NTT had credits amounting to US$5 million. The UNDP extended SPARC project after BPD NTT provided some assistance through the Social Responsibility program. The extension aimed at providing access to electricity and clean water for poor communities in NTT that are vulnerable to climate change. The success of the UNDP SPARC program is what the UNDP and OJK intend to replicate in many BPDs throughout Indonesia.[23]

23 United Nations Development Program Indonesia, "UNDP And OJK Collaborate to Push Financial Services for Poorest Communities" http://www.id.undp.org/content/indonesia/en/home/presscenter/pressreleases/2016/08/30/undp-and-ojk-collaborate-to-push-financial-services-for-poorest-communities.html, viewed 3 April 2018.

Further, OJK signed an MoU with another specialized United Nations (UN) agency, namely the International Labour Organization (ILO), in July 2017. The MoU sets out the conditions and framework for cooperation to support inclusive economic growth and employment through financial inclusion by helping financial institutions deliver financial services to micro and small enterprises (MSEs) in Indonesia. Additionally, OJK and ILO agree to enhance cooperation in capacity building and in strengthening financial institutions to be more effective in delivering services to the needs of clients.

The cooperation includes joint research on inclusive finance to gather evidence and inputs for policy analysis and development of products, and organize events to disseminate knowledge on inclusive finance for micro and small enterprises. On the ground, ILO will provide technical assistance to OJK to further improve the policy environment for MSEs' access to finance.

In the same year, OJK launched the revised SNLKI in December. The new strategy is a guideline for regulators and stakeholders to accelerate efforts on financial literacy and inclusion in the financial services. The reason behind this revision stemmed from the outcome of the 2013 and 2016 surveys. Moreover, it was found that the public needs adequate financial education because financial products and services have become sophisticated. [24]

The authority emphasizes six initiative pillars to meet the 2019 target. It comprises financial education, public financing facilities, financial information mapping, supportive regulations, distributive networks, and intermediation facilities and consumer protection. Those pillars aim to support three strategic programs, namely financial competence, financial wise behavior and attitude, and financial access.

The revised SNLKI is also expected to improve financial literacy so the society can take advantage of affordable products and services to achieve sustainable economic well-being. Therefore, the revised strategy covers several topics which were not present in the previous version, such as information related to Sharia financial literacy and inclusion, digital financial services, and financial management. [25]

The target segments of financial literacy and inclusion are broader; among others are the disabled, disadvantaged, isolated

24 OJK, "The Revised National Strategy for Indonesian Financial Literacy" https://www.ojk.go.id/en/berita-dan-kegiatan/siaran-pers/Pages/Press-Release-SNLKI-Revised-to-Achieve-Target-Financial-Literacy-and-Inclusion-Indices-Faster.aspx, viewed on 27 April 2017.

25 OJK, "The Revised National Strategy" viewed on 27 April 2017.

regions, Indonesian Migrant Workers (Tenaga Kerja Indonesia/TKI) and TKI candidates, farmers and fishermen, and lastly, the term 'housewives' was expanded to women. The revised strategy differs from the previous version, which targeted housewives, MSMEs, students, college students, youth, employees, professionals, and retirees.

Moreover, the revised strategy needs to focus on TKI as they undeniably play a significant role in Indonesia's economy. In 2012, Indonesia received US$7,2 billion in remittances from 6,5 million migrant workers.[26] The amount put Indonesia as the third largest remittance recipient in the Asia and Pacific region, with 80 percent of migrant workers are women. However, the remittance through unofficial channels such as cash was not taken into account in that amount. By combining cash channel and official remittance, Indonesia was predicted to receive US$12,36 billion.[27] Therefore, there is a need for Indonesia to provide secure and efficient remittance at low cost for migrant workers, who generally come from low-income families in rural areas with limited access to formal financial services. This measure, in turn, could also improve Indonesia's financial inclusion.

Beyond the primary programs of financial inclusion and some collaboration with international agencies, a remarkable phenomenon has emerged in the last few years, which is the development of information technology and the increasing penetration of information technology in Indonesia. Recognizing this trend, OJK has developed a strategy to increase the level of literacy and financial inclusion of the community by utilizing the Internet network.[28] This model is known as "digital financial services."

The group of countries with the largest economies in the world (Group of Twenty/G-20) and advanced nations, that is the Organisation for Economic Co-operation and Development (OECD), through the International Network on Financial Education (INFE) program defines Digital Financial Services (Layanan Keuangan Digital/LKD) as a financial activity that utilizes digital technology. The platform includes electronic money, mobile financial services, online financial services, e-teller, and bank offices, both through banking and non-bank institutions. The facilities include various transactions such as deposits, savings withdrawals, and sending and receiving funds; as well as other products such as payments, credits, savings, pensions, and insurances. The

26 Khan Kikkawa & Yuqing Xing, "Financial Inclusion in Indonesia: A Poverty Alleviation Strategy", *Financial Inclusion in Asia: Country Surveys, Asian Development Bank Institute* (2014), pp. 45-61.

27 *Ibid*., pp. 45-61.

28 OJK, "Strategi Nasional Literasi", viewed on 4 April 2018.

services also include non-transactional types via digital devices. OJK is intensively pursuing this new strategy, by employing several ways, ranging from branchless banking to peer-to-peer (P2P) lending.

2.3 Challenges

The efforts to expand financial services to the unbanked population are bearing fruits as more and more residents now have access to banking services. However, the challenges still arise when the financial inclusion initiatives try to reach remote areas and distant islands. In the case of Laku Pandai, the Institute for Economic and Social Research (*Lembaga Penyelidikan Ekonomi & Masyarakat UI*/ LPEM UI) preliminary study points out that almost 90 percent of the users in two districts in West Nusa Tenggara and two districts in Aceh already have bank accounts, and they are actively using financial services provided by banks.[29] Most of them are not categorized as poor people. It indicates that branchless banking agents have limited inclusion function and only deliver complimentary service for those who already have bank accounts. This is because *Laku Pandai* program heavily relies on the availability of communication services, which still lack in many areas in Indonesia.

To enhance financial inclusion, the recruited agents should provide financial services to people who live in remote areas, which are not yet reached by banks. The study also reveals that most of *Laku Pandai* agents are located near the bank offices and Automated Teller Machines (ATMs). Half of them are even located less than 1 kilometer from the nearest bank. It indicates that the bank fails to hire agents who live nearby the remote areas or far away from bank's location. As a result, the role of agents would not be maximized and in turn, could restrain penetration rate.

This situation can be explained by the fact that remote areas usually do not have adequate infrastructures. Therefore, banks tend to recruit agents in urban areas where financial access is not a problem. In dealing with such situation, Laku Pandai program needs government support, especially in supporting the availability of infrastructure and technology in remote areas.
The latest survey by LPEM UI shows that the inclusion rate of Laku Pandai has reached 43 percent.[30] Due to cheaper

29 Chaikal Nuryakin, *et al*, "Financial Inclusion Through Digital Financial Services and Branchless Banking: Inclusiveness, Challenges and Opportunities", *LPEM-FEBUI Working Paper 008, Institute for Economic and Social Research* (2017).
30 Chaikal Nuryakin, *et al*, "Toward Higher Financial Inclusion Rate: Service Quality, Costs of Access, and Awareness", *LPEM-FEBUI Working Paper 021, Institute for Economic and Social Research*, (2018).

cost than bank and non-bank financial services, Laku Pandai seems more reliable in improving services access for the poor and people in remote areas. Moreover, Laku Pandai provides better service quality than other formal and non-formal financial services. However, the inclusion rate dropped to 25 percent when the study defined the inclusion based on account ownership. The field survey was done from October 2017 until January 2018 in 10 provinces and 22 districts. It reveals that lack of awareness remains the primary barrier to broaden the access of Laku Pandai through agents. Additionally, overcharging in service fees might reduce the rate of opening or registering an account on Laku Pandai program.

Regarding fees on Laku Pandai program, regulation (POJK 19/POJK.03/2014) stated that BSA customers are exempt from monthly administration fees and transaction related to BSA account. As for cost of other transactions –such as cash withdrawals, outgoing transfers, and payments—it must be lower than similar cost for regular accounts. Banks have responsibility to ensure that fees charged by agent to customers do not exceed fees specified by the banks.

According to MicroSave's research, lack of awareness about Laku Pandai providers and transaction charges also make customers susceptible to risk. This ignorance enables agents to rampantly overcharge fee of customers' transactions.[31] As the primary sources of information for transaction charges to customers, agents could easily misuse and exploit the information.

The MicroSave's study also demonstrates that urban users are more accessible to sign up for a new account than rural users. However, time for activation is much longer for Laku Pandai, at 1,25 days, compared to LKD at 0,7 day. Poor experience from network connectivity and activation time are the main reasons for customers' account to be inactive.

There are several options to address such situations. First, a bank must be able to establish agent networks down to the district level and set a higher standard of training, supervision, and monitoring.

Second, the involvement of business entities –for example, telecommunication companies, retailers and state-owned companies—as agents should be considered as an option.[32] The

31 Mohammad GA, and Pelupessy AG, "Emerging Risks and Customer Protection in Digital Financial Services in Indonesia", http://www.microsave.net/files/pdf/Emerging_Risks_and_Customer_Protection_in_Digital_Financial_Services_in_Indonesia_2017.pdf, viewed on 6 November 2018.

32 Tamma Febrian, "Need Boost in Economic Growth? Get More People to Own A Bank Account", http://www.thejakartapost.com/academia/2017/07/13/need-a-boost-in-economic-growth-get-more-people-to-own-a-bank-account.html, viewed 27 September 2018.

engagement between banks and other business entities could be more useful to reduce the concentration of individual agents who live nearby the bank branches. Business entities in the form of legal entities can become Laku Pandai agents as long as they meet the requirements.

Third, they could together establish training centers for agents to get more appropriate training. This initiative enables regulators to ensure standardization and consistency of quality across training programmes, including to test or evaluate the training methods regularly.[33]

Fourth, providers should maximize marketing collaterals to spread awareness and reduce the dependence of agents for the dissemination of information about a product. Moreover, providers also must send regular notifications during service disruptions and change of charges.

Fifth, banks could build partnerships with FinTech companies that offer innovative banking payment solutions. Collaboration between banks and FinTech can generate more service options that suit the needs of the customers.

The regulation regarding Laku Pandai has actually stipulated those suggestions. Banks are obliged to carry out education and literacy to the communities. Material education includes the benefits, risks, and costs of the product. Banks must provide transparency of information to customers, including transaction costs at agents, in the form of posters, leaflets, or brochures. Moreover, banks can use other media, such as Short Message Service (SMS) and websites. They have to provide training center and monitoring system for agent activities, both periodically and incidentally.

The distribution of non-cash social assistance to beneficiary families (*Keluarga Penerima* Manfaat/KPM) spread across various regions, including in remote areas, has utilized the Laku Pandai program at Himbara (Himpunan Bank-bank Milik Negara). In the distribution of social assistance, there is one e-warong agent in 1 village and one e-warong agent serves 250 KPMs. To meet the e-warong agent ratio for social assistance distribution, banks recruit agents in villages. As of March 2019, there were 108,741 Laku Pandai agents who became e-warong agents.

Moreover, banks have the opportunities to cooperate with the FinTech companies related to information technology and system development. By doing this, Laku Pandai services could be more efficient, cheaper, and faster. However, banks must ensure that the primary system

33 Mohammad GA, “Emerging Risks and Customer” viewed on 6 November 2018

remains in the bank, and customer data and information are under bank's control.

To reach the unbanked population in remote areas, banks use premium SMS / Unstructured Supplementary Service Data (USSD) technology to run the Laku Pandai program. One consideration is because they live in locations with low telecommunications signal coverage or no Internet data signal (GPRS / 3G / LTE). Communities in those areas still use non-smartphones.

However, banks often complain that premium SMS/USSD fee for each transaction or bank service inquiry is too expensive. The cost that telecommunications companies charge to customers can have an impact on the growth of the Laku Pandai program. To overcome this challenge, the government should provide incentives for telecommunications companies to reduce SMS costs for Laku Pandai programs.

The uneven spread of infrastructure facilities throughout the regions also restricts the public's access to the offered financial services products.[34] In the case of Laku Pandai, for example, a preliminary study by the LPEM UI points out that telecommunication signal is the biggest problem for the majority of agents, followed by funding and technical capability.[35] The survey from MicroSave shows a similar result. Poor infrastructure in rural areas is the leading cause for rural users to take more time to activate their accounts.

It seems that telecommunication network development has not entirely obtained maximum coverage. Several banks acknowledge signal blind spots frequently occur in remote areas, and it hampers their business. Blind spot refers to areas where a signal cannot be reached, too weak to be considered as a significant signal, or even no signal found, which decelerates the overall performance of communication system.

Due to poor signal quality, the distribution of Laku Pandai agents is uneven. The number of La ku Pandai agents in the eastern part of Indonesia is much smaller compared to the number of agents in the western part. This may affect the acceleration of Laku Pandai program in peripheral and remote regions.

Limitation of telecommunication network also affects the distribution of Internet users in Indonesia. Figure 2.1 shows that Internet users in 2016 were concentrated in western Indonesia, especially Java. Meanwhile, the numbers of users and access rate in the eastern part were still

34 OJK, Financial Literacy and Inclusion Department, Interview, March 2018.
35 Chaikal Nuryakin "Financial Inclusion Through Digital".

The Distribution of Indonesia's Internet Users
(132 million active users) *

Figure 2.1

* Asosiasi Penyelenggara Jasa Internet Indonesia 2016 "Penetrasi Dan Perilaku Pengguna Internet di Indonesia" https://apjii.or.id/down-file/file/surveipenetrasiinternet2016.pdf, viewed 2 July 2018.

limited. This condition causes financial services providers, especially that focus on online services, have not been able to do much in areas with limited access and minimal Internet users.

Two years later, Asosiasi Penyelenggara Jasa Internet Indonesia (APJII) Survey shows that the majority of Internet users were still concentrated in western Indonesia.[36] Nevertheless, the number of Internet users in Bali and NTT jumped to 8,90 million. Meanwhile, Internet users in Maluku and Papua increased to 4,79 million.

The Indonesian Government has set a target of each regency to have Internet access by 2019 and remote areas by 2021. Ideally, all capitals of districts and regencies across Indonesia should have fiber optic backbone network by 2019. The Government also plans to build a satellite network to connect remote islands across Indonesia.

Under the Palapa Ring project, the fiber-

36 *Ibid.*, viewed on 2 July 2018

optic cables will span 12,148 kilometers from the west, the central and east section of Indonesia. It aims to expand domestic broadband service, especially in the frontier, outside and remote areas. The cost of the project is Rp21,63 trillion. President Joko Widodo officially launched the Palapa Ring project in October 2019. The Government expects to complete the construction of a broadband network in the eastern part of the Palapa Ring project by the end of 2018. The government will build an additional 4,000 base transceiver station (BTS) towers by the end of 2020 to bring greater Internet coverage to the remote areas. The presence of the system is expected to narrow the digital gap among remote areas and major cities, especially between the eastern and western part of Indonesia.

In addition to the unequal distribution of the Internet, OJK is also aware of the imbalance of funding availability between Java and other islands. According to OJK, 60 percent of financial institutions' funds are concentrated in Java.[37] Such situation makes financial inclusion rate outside Java become quite low, although the financial literacy increases. In other words, high financial literacy will not enhance financial inclusion if funds are not available. Access also constrains out of Java and non-urban populations. Most financial institutions' funds are in located in city centers, while Indonesians' home locations are spread in many areas, some families even live in the mountains.

Funds are concentrated in Java because the distribution of bank offices is closely related to the level of economic activities of an area. The dominance of economic activities in Java is a determining factor for banks to expand their office networks in rural areas. Meanwhile, most provinces outside Java are categorized as underbanked.

OJK hopes that the emergence of FinTech, can answer some of these problems, mainly to boost financial inclusion through payment and financing services.[38] OJK hopes FinTech would be able to reach unbankable population. As regulator, OJK realizes to enable FinTech to serve as an agent of financial inclusion, it requires technological literacy. However, this technology literacy is not an absolute must if a mentoring and empowerment process is available.

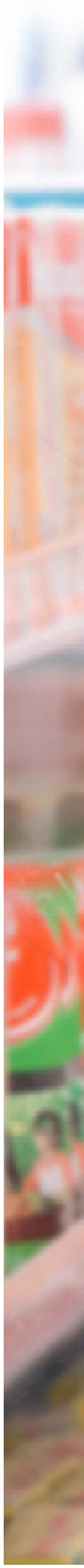
37 OJK, Non-Bank Financial Industry Supervision Department, Interview, April 2018.
38 *Ibid.*, on 13 April 2018.

MSME Financing in Indonesia

MSMEs are one of the backbones of the Indonesian economy. When the monetary crisis hit the Asian region in 1998 and the global financial crisis occurred in 2008, these business entities were able to withstand the damage of the Indonesian economy and avoid falling into a deeper chasm. In addition, they hold a crucial position in the Indonesian economy because they absorb a high proportion of the workforce. In 2017, MSMEs employed 116,7 million workers, meaning that 97,2 percent of the workforce were working in MSMEs.[1]

The high proportion of workforce absorbed by MSMEs is directly related to the number of micro, small and medium business entities spread across the archipelago. In 2017, the number of MSMEs reached 62,922,671 million units. This figure was equal to 99,9 percent of the

1 Organisation for Economic Co-operation and Development, *OECD Scoreboard on Financing SMEs and Entrepreneurs 2019*, (OECD Publishing, 2019).



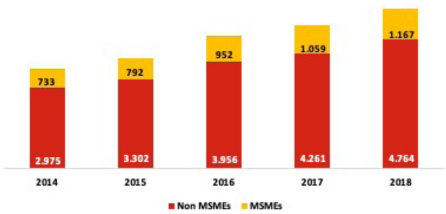
Chapter 3

total business units located in Indonesia, of which it reached 62,928,077 million units.[2] Micro, medium and small businesses contributed 60 percent of the gross domestic product in 2017.[3] points out that not only do MSMEs absorb a high proportion of the workforce, but they also accommodate the poorest and dominate the economic structure. That is why MSMEs play a role in creating supply and demand that are the primary drivers of economic growth.

Despite dominating the economic structure, the level of microfinancing for MSMEs is low. Loans disbursed to MSMEs from banking and non-banking sector (export import finance institution and others) in December 2018 amounted to Rp1,167 trillion or 19,7 percent of total

MSMEs Outstanding Credit 2014-2018 (Rp trillion)*

Figure 3.1



* Organisation for Economic Co-operation and Development (OECD), 2020.

outstanding loans in that year. Meanwhile, large business entities of only 5,550 units received financing of Rp4,764 trillion or 80,3 percent of the total loans that reached Rp5,931 trillion.[4] The reason for the low level of credits disbursement to MSMEs is because the majority of the businesses in this sector do not have access to financing from banks, capital markets, or non-bank financial institutions. The MSME sector is a very potential market for the financial services industry, especially for banks and non-bank financial institutions, to provide financing.

The Indonesian Government has made various efforts to boost credits provided for MSMEs. From 1960 to 1990s, Bank Indonesia initiated the effort using its budgets, in programs such as Small Investment (Credit *Kredit Investasi Kecil*/KIK), and Permanent Working Capital Credit (*Kredit Modal Kerja Permanen*/KMKP). Since the 2000s, the central bank has encouraged credit increase to MSMEs without using their budget. In 2007, the program was named the Micro Business Credit (*Kredit Usaha Rakyat*/KUR). The funds of this program have since been sourced from banks and are no longer sourced from the central bank. Since OJK was established, the development

2 *Ibid.*
3 Mulya E. Siregar, "Microfinance Policy and Regulation in The Banking Sector: Bringing Indonesia's Microfinance and Financial Inclusion To The World" https://www.ojk.go.id/id/berita-dan-kegiatan/publikasi/Documents/Pages/Materi-OJK-PROKSI-2016/4.%20Microfinance%2011032016%20-%20Bp.%20Mulya%20E.%20Siregar.pdf, viewed 28 May 2018.
4 Ministry of Cooperatives and SMEs, cited in OECD 2020.

and distribution of KUR have been under OJK's supervision.

In addition to banks, non-bank financial institutions also provide loans for MSMEs. These non-bank operators include leasing institutions, cooperatives, and pawnshops. However, these non-bank financial institutions have not been adequately capitalized on to improve the welfare of the poor or low-income society, most of whom are small and micro-entrepreneurs.[5]

3.1 MSME Financing in the Banking Sector

The development of MSMEs in Indonesia is closely linked to the support from the banking sector in providing loans. Every year, the amount of credits disbursed to MSMEs grows. It increased 30,6 percent in December 2018 compared to the amount in December 2015 (yoy), with the level of Non-Performing Loans (NPL) under 5 percent throughout 2014-2015. Wholesale and retail trade, processing industry, and agriculture are the three main sectors of MSMEs that dominate credit disbursement.[6]

The support from the banking sector is provided to meet the demand of MSMEs in most of the microfinance market at the district level to sub-districts. Microfinancing offered by banking institutions has spanned more than 100 years. The first round was in 1895 when the forerunner of Bank Rakyat Indonesia (BRI) was established.[7] The bank was named *De Poerwokertosche Hulp en Spaarbank der Inlandsche Hooofden* and changed into BRI after the independence of Indonesia. This institution continued to expand its operations to reach farmers in rural areas.

The dominance of BRI in financing for MSMEs is evident from the number of loans they disburse. In 2019, out of Rp5,346 trillion in total banking loans, 20,46 percent was disbursed to the MSME sector and BRI controlled 37,5 percent of MSMEs banking loans.[8] BRI became the only major commercial bank which majority of the loan portfolio was disbursed for MSMEs.

Commercial banks are not the only institution providing financing for MSMEs. Rural Banks (*Bank Perkreditan Rakyat/*

5 Academic Paper of Law draft Number 1 the Year 2013 Concerning Microfinance Institutions (Republic of Indonesia).
6 OJK, "OJK Dukung Pengembangan Sektor Kelautan dan Perikanan Melalui LKM Nelayan", https://www.ojk.go.id/id/berita-dan-kegiatan/siaran-pers/Documents/Pages/Siaran-Pers-OJK-Dukung-Pengembangan-Sektor-Kelautan-dan-Perikanan-melalui-LKM-Nelayan/SP%2039.pdf, viewed on 8 June 2018.
7 KMPG, "New Indonesian 'Branchless Banking" viewed on 1 May 2018.
8 CFS 2019.

BPR) have emerged to help farmers, employees, and laborers in breaking away from loan sharks who provide high-interest loans. The embryo of this bank can be traced far back. BPR embryos began with the existence of Market Bank (*Bank Pasar*), and Village Production Work Bank (*Bank Karya Produksi Desa*/BKPD), in the early days of the independence of the republic of Indonesia. In 1988, the momentum of establishing a financial institution came that was later known as BPR through the October 1988 Policy Package.[9] Pakto 88 also gave the opportunity for BPR to be owned by private or individuals with minimum paid in capital of Rp50 million.

PAKTO 1988 provides clarity on the existence and business activities of BPR. The issuance of Law No. 7/1992 concerning Banking formalized the presence of BPR as one type of bank besides commercial banks. Many small financial institutions such as *Bank Desa*, *Lumbung Desa*, *Bank Pasar*, *Bank Pegawai*, and BKPD obtain status as BPR after they fulfill some requirements.[10]

Lumbung Desa and *Bank Desa* are embryos of Village Credit Bank (*Badan Kredit Desa*/BKD). Established in 1897, both have had a long history since the Dutch colonial era. As of October 2002, there were 4,518 Village Credit Banks spread across villages in Java-Madura, serving approximately 700,000 people. Customers of BKD were individuals residing in the respective villages. The average customer loan did not exceed Rp700,000 per person, with installments paid weekly.[11] *Lumbung Desa* and *Bank Desa* still operate in Java and Madura after obtaining BPR license.

Until the end of 2013, BRI Unit Desa remained functioning as a companion or guide and supervisor of BKD. The tasks were to assess prospective borrowers, the type of loan installment suitable for potential members, the amount of loan for members, to administer savings and loans, conduct cash management, provide working capital assistance, manage the salary of the administrators and Commission of BKD, educate the administrators and the Commission of BKD.[12]

The Government has long made efforts to intervene in the banking's financing penetration for MSMEs. During the 1960-

9 (PAKTO 1988).

10 Bank Indonesia, "Sejarah singkat Bank Perkreditan Rakyat" https://www.bi.go.id/id/perbankan/edukasi/Documents/49e380bcf1 ab44ada45739094095ba23 PerkembanganSejarahBPR.pdf, viewed on 1 June 2018.

11 Academic Paper of Law draft Number 1 the Year 2013 Concerning Microfinance Institutions (Republic of Indonesia).

12 *Ibid*.

1990s era, for example, Bank Indonesia attempted to intervene through KIK and KMKP. Since 2007, the Government has been increasing financing for MSMEs through the KUR program. Once the authority of the finance industry was handed over to OJK, it is this agency that is now responsible for supervising the KUR program.

The KUR financing model keeps changing. The first phase of KUR took place during

Table 3.1.

Evolution of KUR (2007-2018)*

2007-2014	Scheme	Collateral Service Return 3.25%
	Executor	33 banks and 4 guarantors
	Credit Disbursed	Rp178 trillion
	Number of Transactions	12.4 million
	NPL	3.3%
2015	Scheme	Interest Subsidy 12%
	Executor	7 banks and 2 guarantor institutions
	Credit Disbursed	Rp22.75 trillion
	Number of Transactions	1 million
	NPL	-
2016	Scheme	Interest Subsidy 9%
	Executor	26 banks; 2 financing companies; 10 guarantors
	Credit Disbursed	Rp94.4 trillion
	Number of Transactions	4.3 million
	NPL	0.37 percent
2017	Scheme	Interest Subsidy 9%
	Executor	34 banks; 4 financing institutions; 2 saving and loan cooperatives; 10 guarantors
	Credit Disbursed	Rp96.7 trillion
	Number of Transactions	4 million
	NPL	0.3 percent
2018	Scheme	Interest Subsidy 7 %
	Executor	35 banks; 4 financing companies; 2 saving and loan cooperatives; 11 guarantors; local governments of 14 regions
	Disbursement Target	Rp120 trillion

* *Ibid.*

2007-2014. Table 3.1 shows, in this phase, the distribution of KUR was under guarantee scheme. The financing scheme then changed and since 2015, it has been using interest subsidy. Under this scheme, the Government subsidizes the interest difference that the debtor must pay to the bank.[13]

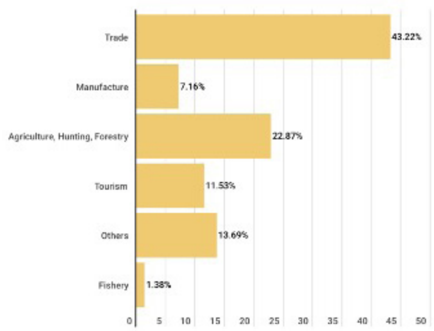
Besides commercial banks, OJK has selected a number of regional development banks (*Bank Pembangunan* Daerah/BPD) as an executor of KUR disbursement. This is in line with OJK's effort to increase the role of BPDs in disbursing productive credits, especially in development projects and MSMEs sector. As the actor to manage local finance and one of the sources of regional income, BPD has a strategic role in accelerating economic growth and regional development. To achieve that goal, OJK encourages BPDs to set up a collaboration with village-owned enterprises to expand its outreach, including enlarging the scope of agents' services on Laku Pandai program.

The Government's penetration through the KUR program provided funding with low interest for MSMEs. The amount of financing from year to year continued to increase. However, the figure for disbursement and quality of micro business credit had not reached the desired level. Then, OJK and the Government under the coordination of the Coordinating Ministry for Economic Affairs designed some new formulas to improve absorption and quality of KUR. The formulas are outlined in the Coordinating Minister for Economic Affairs Regulation No. 11 of 2017 on Guidelines for Implementation of KUR.

Through that regulation, since 2018, OJK and the Government have been trying to increase KUR in the production sectors, including agriculture, fishery, processing industry, construction, and production services. The Financing Policy Committee for MSMEs targeted KUR for the production sector to reach

Realization of KUR by sector
(October 2019)

Figure 3.2



* Coordinating Ministry for Economic Affairs, "Data Realisasi KUR s.d 31 Oktober 2019" http://kur.ekon.go.id/realisasi_kur/2019/10.

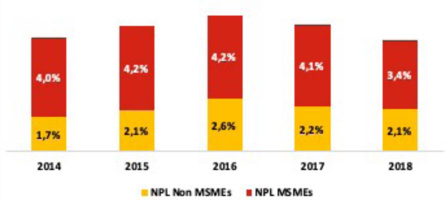
13 Coordinating Ministry for Economic Affairs, 'Evolusi Kebijakan KUR', http://kur.ekon.go.id/evolusi-kebijakan-kur, viewed on 20 May 2018.

Rp87 trillion of the total target of KUR of Rp140 trillion in 2019. The percentages of realization of KUR by sector are shown in Figures 3.2. It shows that trade still dominates the KUR realization, followed by agriculture, hunting, forestry, tourism, others, manufacture, and fishery.

The Government is aware that KUR alone will not be able to accelerate the increase in financing for MSMEs. Since 2012, Bank Indonesia has been encouraging the banking industry to lend more to MSMEs. This effort is reflected in Bank Indonesia Regulation No.14/22/PBI/2012 concerning Credit or Financing by Commercial Banks and Technical Assistance to Develop MSMEs. The regulation was revised in 2015 to strengthen credit disbursement to MSMEs. Bank Indonesia Regulation No.17/12/PBI/2015 governs banks to meet the minimum ratio of MSME loans to the total loan they disburse. By 2015, the proportion of MSME credit financing

NPL Banking of MSME Credit Ratio (%)

Figure 3.3



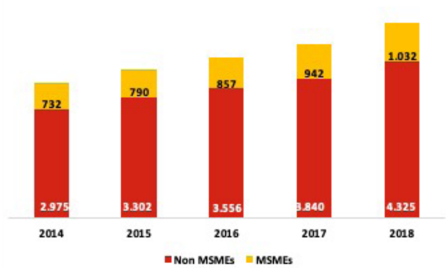
* OJK 2019

to total loans was at least 5 percent. The ratio should increase every year to reach 20 percent by 2018.

OJK also encouraged banks to increase MSMEs loans and to maintain NPLs of MSMEs loans under 5 percent. As a result, NPLs of MSMEs banks in 2018 decreased 0,7 percent to 3,4 percent from 4,1 percent in 2017, as shown in Figure 3.3.

Banking Outstanding Credit 2014-2018 (Rp trillion)*

Figure 3.4



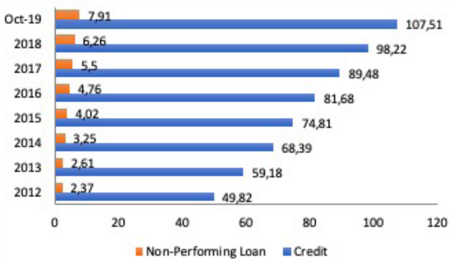
* *Ibid*

Figure 3.4 depicts the growth of credit for MSMEs compared to total credit disbursed in the banking industry between 2014 and 2018. It also shows that loan for MSMEs increased gradually. A minimum mandatory credit ratio for MSMEs has had a positive impact on the development of MSMEs credit.

In addition to KUR and the minimum requirement of credit ratio of MSMEs for banks, the Government and OJK encourage BPRs throughout Indonesia to reach micro-consumers. Unfortunately, BPRs have not been able to reach MSMEs that are located in remote areas, although the loan value has grown from year to year. Despite the more significant number of BPR units than commercial banks, the amount of loan BPRs disburse is far less than that of commercial banks, although this is dependent on the size of the BPRs' capital.

Growth of Credit and BPRs' NPL (Rp trillion)

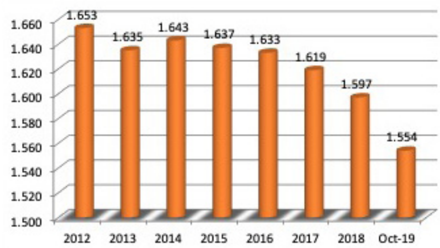
Figure 3.6



* Indonesia Banking Statistic 2019.

BPR Units*

Figure 3.5



* *Ibid*

Performance of BPR Loans

Figure 3.7

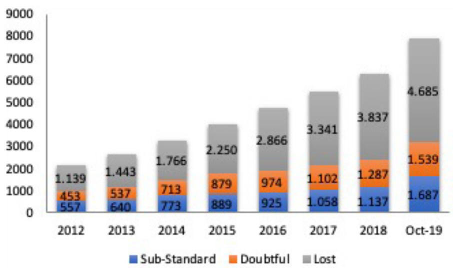


Figure 3.5 shows that the number of BPRs is declining. In 2012, number of BPR units reached 1,653. Seven years later, on October 2019, the number declines to 1,554. During the same time, the BPRs' NPL rate goes up year by year as depicted in Figure 3.6. The ratio of NPL also rose along with credit growth. In 2018, total Non-Performing Loans accounted for Rp 6,26 trillion. In October 2019, total NPL amount for Rp 7,91 trillion. At that time, the BPRs' NPL ratio is above 7 percent, and Rp4,68 trillion of the total NPL are in lost status (Figure 3.7).

On the sharia front, the performance of non-performing financing (NPF) of Sharia People's Financing Bank (BPRS/*Bank Pembiayaan Rakyat Syariah*), was higher than conventional BPRs. Based on OJK's Sharia Banking Statistics as of July 2018, the BPRS' NPF reached 9,30 percent. These Sharia-based microfinancing institutions emerged after the Asian financial crisis during 1997-1998.[14]

3.2 MSME Financing in the Non-Bank Financial Institutions Sector

Furthermore, non-bank microfinance institutions, established by either the Government or society, are also aware of MSMEs needs of financing. They exist to fill the gap and provide services to those who cannot access financing from banks. These institutions are known as microfinance institutions (MFIs). They have been providing financial services even long before the MFI regulation was issued in 2013.

In the 1980s, for example, the Government established an MFI called Village Fund and Credit Institution (LDKP/*Lembaga Dana Kredit Pedesaan*). The institution aims to consolidate all non-bank MFIs that operate in Indonesia, especially in Java. These MFIs have been growing significantly in number in rural areas since the 1970s.[15] There are Sub-district Credit Agencies (*Badan Kredit Kecamatan)* in Central Java and South Kalimantan, Sub-district Credit Agencies in West Java, *Lumbung Pitih Nagari* in Sumatera, Village Credit Institutions (*Lembaga Perkreditan Desa*/LPD) in Bali, Market Banks (*Bank Pasar*), and Savings and Loan Cooperatives.

There are also those originating from the Government programs, such as the *Unit Ekonomi Desa Simpan Pinjam* (UED-SP) (the Ministry of Home Affairs program), *Lembaga Keuangan Mikro Agrobisnis* (the Ministry of Agriculture program), and *Perusahaan Daerah Perkreditan Kecamatan* (the district/sub district government program).

As of 2011, there were 188,181 MFIs in the form of cooperatives.[16] Some cooperatives mostly provide credit for consumption, not for business.

Before the MFI Law was issued, the MFIs practically had not obtained permits. With no license and legal entity, there was no regulator that oversaw them.[17] Although not yet licensed, they had disbursed financing and raised public funds. These MFIs serve customers who have not been exposed to banking services.

Although different from one another, all MFIs play the same role, which is to raise literacy and increase financial inclusion. Many challenges, however, restrict the

14 T Tambunan, "Financial Inclusion, Financial Education, and Financial Regulation: A Story from Indonesia", *ADBI Working Paper Series 535, Asian Development Bank Institute*, (2015).
15 *Ibid*.
16 KMPG, "New Indonesian 'Branchless Banking', viewed on 1 May 2018.
17 OJK, Microfinance Institution Department, Interview, January 2018.

MFI business. One is that no clear rules governed MFIs in the past. Regulations on MFIs only emerged after Law No. 1/2013 on MFIs was issued. This law serves as the foundation for OJK to regulate the viability of MFIs' business processes in Indonesia. After the regulation was imposed, all MFIs must obtain a permit from OJK, except those who have received legal entity status and obtained business license from other authority, such as cooperatives that already have a license from the Ministry of Cooperatives and Small Medium Enterprises.[18]

One of the other essential institutions in the non-bank financial industry is pawnshop. According to PT Pegadaian's annual report 2018, there are 4,221 pawnshop outlets (including head office, branches, areas office, and regional office). Unfortunately, besides PT Pegadaian (Persero), only a few pawnshops are officially registered at OJK. In September 2019, there are 89 private pawnshops in process to get OJK license, and 25 others have obtained business licenses.

Due to the addition of private pawnshops, financing and loans disbursed by the pawnshop industry grows 18,7 percent (year on year) as of September 2019. The nominal of loans disbursed reaches Rp47,06 trillion. In the same period of the previous year, the credit was Rp40,13 trillion. Referring to the May 2019 figure, PT Pegadaian still dominates the disbursement value of the financing with Rp46,76 trillion. The amount of loans disbursed by private pawnshops is Rp304 billion.

In June 2018, OJK and the Ministry of Marine Affairs and Fisheries synergized to encourage the establishment of MFIs in the fisheries sector. The potential of microfinance in this sector is enormous, especially given the spread of fishermen in areas that are sometimes difficult to reach banks.[19]

In mid-June 2018, the synergy resulted in the establishment of an MFI that was launched in Karangsong Village, Indramayu District, and West Java. This village is one of the fishery centers in West Java. The MFI receives financing from the Institute for Capital Management of Marine and Fishery Enterprises (*Lembaga Pengelola Modal Usaha Kelautan dan Perikanan* /LPMUKP), a public service agency under the Ministry of Marine Affairs and Fisheries.

According to the Ministry of Marine Affairs and Fisheries' records, capital assistance from LPMUKP is very important, considering 85 percent of

18 *Ibid*
19 OJK, Non-Bank Financial Industry Supervision Department, Interview, April 2018.

marine and fishery businesses are micro-scale businesses. The need for MFIs among fishers is increasingly urgent because the financial literacy of new coastal communities has only reached 25-32 percent. LPMUKP is beginning to gain funding from its Rp500 billion state budget of revenue and expenditure. In 2018, LPMPUKP obtained an additional Rp850 billion, so in 2018, their managed fund reached Rp1,35 trillion. Until May 30, 2018, LPMUKP disbursed Rp132,5 billion credit to 6,625 marine and fishery businesses.[20]

LPMUKP offers a convenient scheme with 3 percent per annum loan interest rate for MFIs for fishers and 7 percent per annum for individual businesses. Not only that this agency provides capital to fishermen, it also deploys personnel to assist the creditors. By 2018, the locations of LPMUKP assistance services had spread across 239 cities and districts throughout Indonesia.

OJK and the insurance industry have also been providing affordable microinsurance products, which are easily accessible to the public since 2014.[21] One standard for micro insurance product is home insurance, which costs only Rp50,000 for one year coverage. If there is property damage to the house, beneficiaries will receive insurance benefit of Rp5 million.

Since then, the following have emerged: fishermen microinsurance, rice farm microinsurance, and maize farm insurance. Together with the Ministry of Agriculture and Jasindo, OJK launched a rice farm insurance business in October 2015. The Ministry of Agriculture subsidizes about 80 percent of the insurance premium value, amounting to Rp144,000 out of Rp180,000 per hectare. As a result, farmers only pay the remaining 20 percent of the insurance premium value, which amounts to Rp36,000. As of July 2017, the participation rate for rice farm insurance reached 427,475 hectares. In 2016, the land area claimed was 10,977 hectares with a value of Rp 55 billion.

OJK and the Ministry of Marine Affairs and Fisheries collaborated to launch Shrimp Aquaculture Business Insurance (*Asuransi Usaha Budidaya Udang*) in December 2017. All insurance premiums come from the state budget. In an event of harvest failure, the shrimp farmers can claim a maximum three times a year. To prevent the insurance from going bankrupt and to prevent moral hazard, there is a certification center that investigates the cause of crop failure. So far, the insurance program has protected 3,300 hectares of shrimp ponds dispersed across 14 provinces.

20 Ministry of Marine Affairs and Fisheries 2018.
21 OJK, Non-Bank Financial Industry Supervision Department, Interview, April 2018.

Table 3.2.

Growth of MFIs*

*entity	Apr 2018	Aug 2018	Dec 2018	Apr 2019	Aug 2019
Conventional-based Cooperative	133	125	104	93	97
Conventional-based Limited Company	22	22	23	24	26
Sharia-based Cooperative	38	46	59	64	70
Sharia-based Limited Company	1	1	1	1	1
Total	**194**	**194**	**187**	**182**	194

* OJK Quarterly Report 2019.

Based on OJK's records, there are 194 MFIs across Indonesia as of the third quarter of 2019 which have obtained operating permits, either full clearance or conditional. Of the 194 registered MFIs, 167 are in the form of cooperatives, and the remaining are limited companies. According to Academic Paper of Law Number 1 the Year 2013, there were more than 600 thousand MFIs in Indonesia. Those thousand numbers of MFIs may still exist, though they have not applied for a license from OJK yet.

The number of conventional and Sharia-based MFIs, whether in the form of cooperatives or limited companies, is shown in Table 3.2 below:

With the high number of cooperatives in Indonesia, the value of cooperative loans, both with permits and without permits, is estimated at more than Rp5 trillion. However, the data on lending that can be accounted for is far below that figure. OJK is only able to access data on MFIs that have obtained permits, including MFIs in the form of cooperatives and limited companies, both conventional and Sharia-based. Table 3.3 and Table 3.4 show the MFIs' financial performance and the growth of loans over the same period.

The advantage of MFIs compared to banks is they can easily access potential borrowers. Prospective debtors are local residents, such as members of farmer groups or members of cooperatives. The limited operating area of MFIs also makes it easy for them to deal with debtors. The area of operation is divided into three, namely the village, sub-district, and district. If the operational coverage of an MFI exceeds the district, the institutions must transform into a BPR.

During the process of recording MFIs, OJK identified the main problems of MFIs. One of them concerns human resources. OJK often finds that MFIs are inadequately managed. Many of the MFIs have difficulties in bookkeeping while

Table 3.3.

The growth of the Number of MFIs (quarter to quarter)*

*in Billion Rupiah	Apr 2018	Aug 2018	Dec 2018	Apr 2019	Aug 2019
Asset	496.66	649.83	748.34	827.28	919.75
Liability	252.84	277.15	306.98	328.09	369.90
Equity	183.11	261.51	325.04	384.35	429.04
Sharia Temporary Funds	60.70	111.16	116.32	114.84	120.81
Loans Disbursed *gross	359.38	442.46	457.82	514.87	556.02
Loans Received	23.16	29.19	28.81	30.88	37.46
Savings	220.49	228.88	251.03	265.97	300.28

* OJK Quarterly Report 2019.

Table 3.4.

MFIs' Credit Growth*

*in Billion Rupiah	Apr 2018	Aug 2018	Dec 2018	Apr 2019	Aug 2019
Conventional-based Cooperative (KK)	58.97	57.57	60.30	56.70	64.51
Sharia-based Cooperative (KS)	71.16	105.98	110.92	138.20	151.87
Conventional-based Limited Company (PK)	229.25	277.74	284.69	315.96	332.91
Sharia-based Limited Company (PS)	-	1.18	1.92	4.01	6.73
All Gross	359.38	442.46	457.82	514.87	556.02

* *Ibid.*

doing their business.

3.3 MSME Financing in the Capital Market Sector

The capital market is a venue that provides many opportunities to find financing. Based on OJK's records, there were hundreds of thousands of investors registered in the capital market per 2018. The funding from the capital market is very potential. However, that does not mean MSMEs can easily access financing from the capital market. A more complicated process with a diverse number of investors makes access to funding from the capital market be not as simple as accessing funding from banks.

The potential to access financing increases year by year as the number of investors in the capital market rises. In 2016, the number of capital market investors increased 106 percent, from 434,107 investors in 2015 to 894,116. This is the highest increase since the single investor identification (SID) was made effective in 2012.[22] In June 2018, the number of investors in the capital market reached 1,325,273. The increase in the number of investors is also linked to the massive campaign run by the Government and regulators to encourage people to invest in the capital market.

Given the growing number of investors from year to year, the capital market has great potential to realize inclusion from investment to finance. This situation is indeed an excellent opportunity for MSMEs to obtain alternative financing outside banks and non-bank MFIs. Moreover, 100 securities institutions act as mediators for investors who want to provide the funding for MSMEs.[23]

The problem is MSMEs often have difficulty accessing funds in the capital market. In the capital nomenclature of their businesses, small-scale MSMEs do not recognize shares, and hence they find it difficult to offer their shares to the public (Initial Public Offering/IPO). If there is little opportunity for IPO, then the remaining option is to issue bonds.[24]

Indonesia seeks to encourage plans to create capital markets for MSMEs. In 2017, OJK issued Regulation No.53/POJK.04/2017 on Registration Statements for Public Offering and Capital Addition by Granting Pre-emptive Rights by Issuers with Small Scale Assets or Issuers with Medium Scale Assets. This regulation provides some flexibility for MSMEs that intend to obtain financing from the capital market.

The regulation applies to small businesses with a maximum asset of Rp50 billion and medium scale businesses with a minimum asset of Rp50 billion and no more than Rp250 billion. This regulation has enabled them to freely offer their shares to the public or offer the effect in the form of debt. The regulation paves the way for small and medium enterprises to take part in the capital market because previously, only companies with the assets of at least Rp5 billion could be listed on the Indonesia Stock Exchange.

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22 Kustodian Sentral Efek Indonesia "Beyond Innovation, An Annual Report" http://www.ksei.co.id/files/uploads/annual_reports/report_file/id-id/14_laporan_tahunan_2016_20170825141555.pdf, viewed on 1 June 2018.

23 M Pakpahan 2017, "Potensi FinTech Untuk Perluas Penetrasi Pasar Modal" https://ekonomi.kompas.com/read/2017/01/03/130000326/potensi.FinTech.untuk.perluas.penetrasi.pasar.modal.bagian.1, viewed on 2 June 2018

24 Suwandi, "Akses Koperasi dan UMKM di Pasar Modal" http://repository.bakrie.ac.id/509/1/20151204-Suwandi-Akses%20Koperasi%20dan%20UKM%20di%20Pasar%20Modal-makalah%20Litbangkop%20-rev04%20%281%29%20%282%29.pdf, viewed 2 on June 2018.

Table 3.5.

ULaMM and Mekaar of PT PNM (Persero)

Description	ULaMM	Mekaar
Cap	Maximum Rp 1 billion	Maximum Rp2 million (1st cycle)
Asset Collateral	Yes	No
Recipient of Loan	Individual	Group
Criteria for Financing	Feasible Business	Maximum income Rp800,000/month
Tenor	Maximum 5 years	Maximum 50 weeks
Instalment	Monthly	Weekly
Credit Agreement	Notarized > Rp50 million	Unnotarized
Number of Customers	72,567	5,344,333
Credit Disbursed	Rp61 trillion	Rp9,24 trillion

OJK also encourages the Indonesia Stock Exchange to develop an incubator program that can facilitate startup companies to become part of the capital market industry. Referring to data from the Indonesia Stock Exchange, the number of MSMEs that have joined the incubator program is 120. This figure far exceeds the target of 65 companies. During this program, the startup companies will receive training, mentoring, and access to funding.

Aside from IPO and bond schemes, MSMEs can also take advantage of financing companies that specifically seek funds in the capital market and disburse credit for MSMEs. One of the companies using this model is PT Permodalan Nasional Madani (Persero) (PNM). This state-owned enterprise that specifically plays a role in financing MSMEs, recorded an outstanding loan of Rp5,75 trillion from the capital market until March 2019. Fifty-five percent of PNM funding is sourced from the capital market. Funds from the capital market are then disbursed to MSMEs as credit.

Since 2012, PNM has successfully obtained Rp7,5 trillion in bonds. Bonds from the capital market were issued gradually until April 2018. These funds from the capital market are now one of the most important PNM fundings in financing MSMEs. In this business, PNM serves as a mediator between MSMEs and investors in the capital market. PNM has two lines of business to finance MSMEs, which investments are mostly from the capital market. These business lines are the Micro Capital Services Unit (*Unit Layanan Modal Mikro*/ULaMM) or and Fostering a Prosperous Family Economy (*Membina*

Ekonomi Keluarga Sejahtera/Mekaar). ULaMM targets individual customers or corporations having matured businesses, while Mekaar targets women who need funding for starting entrepreneurship.[25] The differences between the two are shown in Table 3.5.

MSMEs can also obtain financing through private equity mutual funds (*Reksa Dana Penyertaan Terbatas*/RDPT).[26] RDPT is a collective investment scheme that can be invested directly in the real sector. As of September 2019, there are eight RDPTs with the total assets of Rp2.31 trillion. All RDPTs are invested in Medium-Term Note (MTN) issued by PNM. This state-owned company then finances MSMEs directly through all their business units spread across Indonesia.

3.4 Challenges in MSMEs' Access to Finance

In July 2016, most of BPRs and BPRS had their core capital below Rp6 billion.[27] OJK encourages inter-BPR consolidation to make their capital structure stronger. The mergers are believed to be able to hoist the minimum amount of capital of BPRs, which is Rp6 billion.

The uneven quality of BPRs' management also creates challenges on the management governance, with potential fraud risk. This is one of the challenges if BPRs are to be encouraged as the driver of financing for MSMEs.

In order to mitigate risk of fraud, OJK enforces BPRs to meet minimum standards of Management and Good Corporate Governance stipulated in OJK Regulation number 4/POJK.03/2015. Moreover, BPRs also have to implement Risk Management as regulated in OJK regulation number 13/POJK.03/2015.

In addition, KUR implementation is not without its challenges. The most significant challenge is that KUR loans are still concentrated in the trade sector, reaching more than 50 percent. KUR financing was also centered in Java areas, especially Central Java, with a proportion of 17,74 percent per year in 2017.

Further, the challenge of MSMEs financing for banks also comes from the bank itself. Although Bank Indonesia required banks to meet their credit ratios for MSMEs, not all banks are able to comply with this regulation. Until the end of 2017, only 72 banks met the credit ratio of MSMEs,

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25 Permodalan Nasional Madani, "PNM Hadir Sejahterakan UMK Indonesia" http://pnm.co.id/upload/laporan/file/5.pdf, viewed 5 June 2018.
26 OJK, Capital Market Supervision Department, Interview, February 2018.
27 OJK, "Permasalahan dan Tantangan BPR/BPRS", http://www.perbarindo.or.id/wp-content/uploads/2016/11/2-Materi-OJK.pdf, viewed on 1 June 2018.

which is 15 percent of their total loan portfolio. Meanwhile, the remaining 47 banks had not reached that figure.[28]

In other words, there are still banks that have not prioritized MSMEs for their provision of loans. One of the reasons is that every bank has different business models and target market. That is why a bank which portfolio is in property and corporate loans is likely to be overwhelmed when forced to meet certain ratios for MSME credit. This challenge must be resolved as soon as possible.

Similar to BPR and Sharia BPR, human resource capacity is an obstacle for non-bank MFIs .[29] It is not surprising that many MFIs, especially those in remote areas, have not been able to write up their financial statements. Many of this MFI personnel work voluntarily. The limited quality of human resources affects the MFIs' corporate governance. Consequently, the protection of consumer goods that serve as collateral becomes the primary concern of OJK, especially in private pawnshops that have not been registered. OJK is currently trying to identify every private pawnshop spread across Indonesia. However, the limited number of OJK personnels who record private pawnshops is also a constraint.

OJK hopes that besides functioning as a financing institution, MFIs could become an agency that also empowers, while assisting the community.[30] In line with this, particularly on the sharia MFIs, OJK established some Sharia-based MFIs called Micro Waqf Bank (*Bank Waqf Mikro*/BWM). This waqf-based financing involves *pesantren* or Islamic boarding schools. Their targets are the poor living near the *pesantren* who are eager and willing to work. Financing funds for these BWM come from donations distributed to amil zakat institutions and Shariah-based MFIs. These waqf institutions will educate and guide customers through regular meetings held every week at the *pesantren*. During this educational process, the *pesantren* plays an important role. OJK expects this program will be able to achieve the ideal model of MFIs, namely financing center at the village level that also mobilizes community empowerment.

Additionally, OJK issued a regulation that allows MSMEs to be listed in the stock exchange. However, the real challenge lies in the ability of the MSMEs to access funding from the capital market,

28 G. Yudistira, 'Bank Belum Penuhi Rasio Kredit UMKM' https://keuangan.kontan.co.id/news/bank-belum-penuhi-rasio-kredit-umkm, viewed on 1 June 2018
29 OJK, Microfinance Institutions Departmet, Interview, January 2018.
30 OJK, Non-Bank Financial Industry Supervision, Interview, April 2018.

either through initial public offering or bond issuance.[31] Some MSMEs are not fundamentally ready to enter the capital market. The absence of standard reference for MSMEs intending to enter the capital market is also a problem, especially concerning the costs involved in seeking funding from the capital

31 Suwandi, "Akses Koperasi dan UMKM", viewed 2 on June 2018.

BOX 3.1

The Impact of Covid-19 Pandemic on MSMEs in Indonesia

The Central Bureau of Statistics survey in July 2020 on the impact of Covid-19 on business owners revealed that there was a decline in the total sales revenue of SMEs as well as corporations.1 Around 84% of SMEs, which accounted for 80% of the total of 34,559 respondents, experienced a decrease in total sales revenue. The survey also indicated 58.9% of businesses were still operating, 24% reduced their production capacity, 8.76% stopped their operational activities, and 5.4% of them required some employees to work from home. Meanwhile,

1 BPS-Indonesia Statistics. 2020. *Analysis on Covid-19 Impact on Business Owners*. https://covid-19.bps.go.id/

market that must be borne by MSMEs. For example, management fees from an IPO must be paid in advance. Funds from the capital market must first pass through the intermediary of the financing company. This is a fundamental challenge and the reason why many MSMEs, especially those of small and micro scales, are averse to capital markets.

0.5% of businesses that produced jamu (Indonesian traditional medicine), face masks, bicycles, as well as internet providers were even exceeding their production capacity.

In this time of crisis, information technology utilization has become a key to MSMEs survival as the Large-scale Social Restrictions policy has severely impacted and limited face-to-face interactions, including marketing and sales activities of MSMEs. Meanwhile, based on data from the Ministry of Communication and Informatics, out of 64.2 million MSME business actors, only 17.1% are selling online, while the rest still rely on offline services for buying and selling activities. In this regard, MSMEs could make good use of FinTech to expand their product market, gain easier access to financial services products (e.g. credits, financing, payments), and reduce operational costs, including lease, utilities, and bookkeeping.

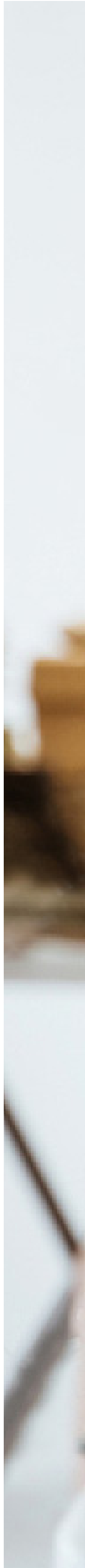
The utilization of technology also contributes to the economic recovery process. Information technology has been gaining importance from changes in how businesses operate and people's expectations on the speed of financial services during the pandemic. In this regard, FinTech plays an essential role as it serves people who are in need of financing, and caters to the newly emerged marketing and consumption pattern in the new normal era. The role is further strengthened as FinTech is also capable to assist in the distribution of aid in cash transfers or other types of social assistances from the government.

FinTech Concepts

The term FinTech has become popular over the recent years. The number of times the term FinTech appears on Google has even increased significantly, by more than 30 times in the last six years.[1] On average, FinTech appears 201,000 times on Google every month.[2]

Although it has been applied in various business contexts, the term FinTech is often used inconsistently and ambiguously. The term has been used differently to describe multiple innovations that are developing rapidly. That is why a definition of FinTech must be agreed upon to establish a solid foundation for scientific research purposes. It will also make it easier for practitioners and policymakers to understand the FinTech industry.

Semantic analysis by Schueffel shows that FinTech can refer to a sector or industry, a technology and also an action in the services or business contexts. This result was obtained after Schueffel collected more than 200 scholarly articles that referred to the term over the last 40 years.



1 Wilkins, Carolyn 2016, "*FinTech And the Financial Ecosystem: Evolution or Revolution?*" https://www.bankofcanada.ca/wp-content/uploads/2016/06/remarks-170616.pdf, viewed on 1 May 2018.

2 P. Schueffel, "Taming the Beast: A Scientific Definition of FinTech", *Journal of Innovation Management, Vol. 4, No. 4* (2016), p. 32-54.

Chapter 4

Schueffel eventually concluded that FinTech is a new financial industry that utilizes technology to improve activities in the financial sector.[3]

However, the definition also has its limits. The meaning of FinTech, for example, cannot explain the various interpretations that emerge when it faces a different situation. The reason is that FinTech depends primarily on the condition it faces. That is why the definition of FinTech changes from time to time. In the past, FinTech only referred to the computer technology that supports office work in financial institutions such as banks or trading firms. At present, the term FinTech includes all technological innovations in the financial sector, including technological innovations in education and financial literacy, retail banking, to crypto-currencies such as bitcoin.

4.1 Definition of FinTech

FinTech is a term combining the words financial and technology. The use of this term was initially limited to supporting software for financial institutions, such as banks, insurance companies, and investment products.[4] As the shortened form of financial technology, FinTech is a service that is owned by many companies, or several representative companies, which combines financial services with innovation and modern technology.[5]

The term FinTech develops because this service provides various innovations within the financial industry. In her study, Zavolokina et al. found that some companies initially used the technology merely to generate profits through the provision of financial services for their customers.[6] However, in its development, FinTech service provides some new opportunities for society. Among others are transparency, lower costs, and the removal of intermediary in transaction. Another advantage of FinTech is that it has made information more accessible to customers. In other words, this service provides customers with more power to control the transaction.

FinTech is not something new. The history of the term can be traced back to the early 1990s.[7] At the time, Citigroup held a project titled "Financial Services Technology Consortium" as an effort to facilitate cooperation in technology. Even though it has existed for a long time

3 *Ibid.*
4 L. Zavolokina, M. Dolata, and G. Schwabe, 'FinTech: What's in a Name?' (presented to the Thirty-Seventh International Conference on Information Systems, Dublin, 2016).
5 Gregor Dorfleitner, *et al.*, *FinTech in Germany*, (Springer International Publishing, 2017).
6 L. Zavolokina, "FinTech: What's In".
7 D. Arner, J. Barberis, and R. Buckley, "The Evolution Of FinTech: A New Post-Crisis Paradigm?', *Research Papers, no. 2016-62, University of New South Wales Law Research Series* (2016).

in the financial services industry, only in 2014 did it attract the attention of many parties, from investors, consumers, and policymakers, especially after FinTech companies started offering financial services for millions of customers, in the form of transfer services, money exchange, and providing loans of billions of dollars.[8]

At present, FinTech is often seen as an integration of financial services and information technology. However, Arner et al. point out that finance and technology have a long history and have evolved over three periods of time.[9] Box 4.1 shows the evolution of FinTech.

Although the relationship between finance and technology has existed for a long time, Zavolokina et al. emphasize that it is impossible to define the terminology of FinTech solely based on the use of such services under rules or legal documents.[10] FinTech companies have different business models. They offer products and services which are different from one another. Further, many different commitments and regulations bind FinTech companies.

Differences in business models form the basis for the Basel Committee on Banking Supervision, citing the Financial Stability Board (FSB), to define FinTech as 'technologically enabled financial innovation that could result in new business models, applications, processes, or products with an associated material effect on financial markets and institutions and the provision of financial services'.[11] Hussain defines the financial innovation as the act of creating and popularizing instruments that are in harmony with FinTech, institutions, and markets. Financial instruments are the product and process of innovation.[12]

That is why Varga, in his publication, describes FinTech as a challenge in the financial sector to provide quick, comfortable, and human-focused services in distributing financial services. Varga also collected some FinTech definitions and summed up FinTech as a combination of technology and the financial sector to make the service system more efficient.[13]

These more efficient services and products are also the focus of Kim et al.'s research,

8 D. Varga, "FinTech, the New Era of Financial Services", *Budapest Management Review Vol. 48, No. 11* (2017), pp. 22-32.
9 D. Arner, "The Evolution of FinTech".
10 L. Zavolokina, "FinTech: What's In".
11 Basel Committee on Banking Supervision, "Sound Practices: Implications of FinTech Developments for Banks and Bank Supervisors" https://www.bis.org/bcbs/publ/d431.pdf, viewed on 3 May 2018.
12 Hussain (2015) cited in D. Varga, "FinTech, the New Era of Financial Services", *Budapest Management Review Vol. 48, No. 11* (2017), pp. 22-32.
13 D. Varga, "FinTech, the New Era", pp. 22-32.

BOX 4.1

Evolution of FinTech

FinTech 1.0 1866-1967

The presence of FinTech was not initially an integrated development for the financial services industry. Originating from the Atlantic Telegraph Company that officiated the trans-Atlantic cable network in 1866, the network provided the basic infrastructure for the first period of the financial globalization at the end of the 19th century. Even though it was already connected with technology, the financial services industry in this period still used the analog technology. During this period, various technologies such as the telegraph, railroads, canals, and the steamboat marked the financial interconnection that transcends national boundaries.[1] Those technologies helped the transmission of financial information, transactional, and payment throughout the world.

Information technology and communications developed during both World War I and II. In the IT sector, for example, IBM commercially developed some devices for decoding purposes. This technology then became the embryo of early generation computers. The post-war period also gave birth to the credit-card innovation (Dinner's Club) in the 1950s. The Interbank Card Association, now called MasterCard, was established in 1966. In the same year, the global Telex network connected the whole world. Telex provided vital communication for the development of FinTech in the following period. The Xerox Corporation introduced the fax machine two years earlier. Texas Instruments produced calculators in 1967.

1 *Ibid*

FinTech 2.0 (1967-2008)

During this period, traditional financial institutions began to shift from using analog to digital technology.[2] The presence of this digital technology was beneficial for processing transactions. One company that made use of this opportunity was Barclays Bank in London, England, which introduced the automated teller machine (ATM) in 1967. Inevitably, the ATM presence marked the modern evolution of FinTech's presence today.

Many crucial moments occurred during this period. Fedwire, discovered in 1918, shifted from using telegraphic to an electronic system in the early 1970s. In 1973, the Society for Worldwide Interbank Financial Telecommunication (SWIFT) was established to enable transnational financial institutions to transmit secure transactions. Two years earlier, National Association of Securities Dealers Automated Quotation (NASDAQ) shifted from physical stock trading to full electronic trade. Online banking appeared in America in 1980 and the United Kingdom (UK) in 1983. In short, financial services institutions have maximized the use of Information Technology (IT) and computerized systems for internal operating needs, including for managing internal risks.

After two decades since Barclays introduced ATMs, financial services in developed countries were not only connected but also turned into a digital industry. In 1995, Wells Fargo used the World Wide Web (WWW) to provide online accounts. Electronic transactions were made between financial institutions and customers in financial markets around the world. The financial services industry allocated much spending on IT. As a result, at the beginning of the 21st century, the entire bank's internal processes, interactions with external parties, including increased cooperation with retail customers have gone digital.

Even so, the digital industry still has its limitations. The collapse of the Long-term Capital Management (LTCM) during the Asian financial crisis in 1997-1998 shows that computer-based risk management systems, such as Value at Risk (VaR), have its limitations. One year later, dot.com bubbles became prevalent.

2 *Ibid*

BOX 4.1

FinTech 3.0 and FinTech 3.5 (2008-now)

The global financial crisis of 2008 was the turning point for the growth of FinTech 3.0, with the case of subprime mortgages in the United States (US) triggered the global financial crisis in 2008. Post-2008 market conditions drove the emergence of innovative new players in the financial services industry. These new companies apply technology to support their business services. The use of technology to support financial services in this era increases sharply in line with the growing use of smartphones.

During this period, existing technology companies and startup companies offer financial services and products directly to business entities and the broader community. This phenomenon is different from that in the previous period, with traditional financial services industry dominated the provision of FinTech until 2008. They used technology to provide services and financial products to the broader community.

The third evolution has two stages. The first era began when many new FinTech players, such as startup companies, began to flourish. They developed with big companies, such as banks, which had previously wrestled with FinTech. Their emergence was a reaction to the financial crisis in the West. While in Asia and Africa, the variety of FinTech development has recently been driven by efforts to boost economic growth. In his study, Arner et al. describe the development of FinTech in the two continents as the era of FinTech 3.5. One of the most successful FinTech stories in Africa is M-Pesa, Safaricom's mobile money, which was launched by Vodafone in 2007.[3] Over the course of five years, the total payout through the platform surpassed the 43 percent figure of Kenya's gross domestic product.[4] Meanwhile, in Asia, Alibaba has generated 2.87 million employment opportunities, both directly and indirectly, and provides loans between US$3,000-5,000 to over 400,000 small and medium companies in the People's Republic of China.[5]

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3 *Ibid*

4 D. Runde, "M-Pesa and The Rise of The Global Mobile Money Market" https://www.forbes.com/sites/danielrunde/2015/08/12/m-pesa-and-the-rise-of-the-global-mobile-money-market/#59fd5d485aec, viewed on 2 May 2018.

5 L. Shrader, and E. Duflos, "China: A New Paradigm in Branchless Banking?', https://www.cgap.org/sites/default/files/Working-Paper-China-A-New-Paradigm-in-Branchless-Banking-March-2014_0.pdf, viewed 4 May 2018.

which observes FinTech as a service using information technology to improve the efficiency of the financial services.[14] The results of this research concur with McAuley's that defines FinTech as 'an economic industry consisting of various companies that use technology to make the financial system more efficient'.[15] Nevertheless, Hussain, Kim et al., and McAuley point out that the FinTech service does not only refer to companies that use IT as the only differentiator. In practice, they also enter the traditional non-banking market and attempt to provide more efficient services by simplifying the business processes.[16]All organizations, not just startup companies but also traditional banks or telecommunications companies, can be part of the FinTech as long as they create business models that are innovative and associated with supporting technologies.[17]

Based on the general definitions of FinTech, all of them concur on one thing in common, that is there is no consensus on the boundaries and definitions of FinTech. The term has attracted much attention and prompted public debate in the business, finance and innovation sectors. However, the meaning of FinTech remains ambiguous for most people.[18]

On one hand, FinTech is a financial service that receives intervention from technological innovation to satisfy customers' future demands, such as high efficiency, lower prices, improved business processes, speed, flexibility and innovation.[19]

On the other hand, the term FinTech is also used to refer to companies, even more general, to startup companies. That is why Baur et al. describe FinTech as a new sensation that brings technology into the financial industry.[20] The enthusiasm brings innovation, monetary revolution, and banking to a higher level. This definition is in line with Frame and White's perspective which gives a broad overview of how financial innovation has transformed into three categories: new products and services, new production

14 Y. Kim, *et al* "The Adoption of Mobile Payment Services for FinTech", *International Journal of Applied Engineering Research, Vol. 11, No. 2* (2016), pp. 1058-1061.
15 D. McAuley, "What is FinTech?" https://medium.com/wharton-FinTech/what-is-FinTech-77d3d5a3e67, 22 October, viewed on 2 May.
16 D. Varga, "FinTech, the New Era", pp. 22-32. Y. Kim "The Adoption of Mobile Payment ", pp. 1058-1061
17 Ernst & Young (2016) cited in D. Varga, "FinTech, the New Era of Financial Services", *Budapest Management Review Vol. 48, No. 11* (2017), pp. 22-32.
18 P. Schueffel, "Taming the Beast: A Scientific", p. 32-54.
19 TF Dapp, "FinTech, the Digital (R)Evolution in the Financial Sector", https://www.deutschebank.nl/nl/docs/FinTech-The_digital_revolution_in_the_financial_sector.pdf, viewed on 5 May 2018.
20 AW Baur, et al, 'Cryptocurrencies as a disruption? Empirical findings on user adoption and future potential of bitcoin and co', *Open and Big Data Management and Innovation* (2015), pp. 63-80.

processes, and new organizational forms.[21]

Based on those definitions, Zavolokina et al. collected 38 definitions of FinTech from 29 sources.[22] All of them concluded that FinTech has three dimensions, namely input (a combination of technology, organization, and cash flow), mechanism, and output that acts as a transformation engine. The machine uses technology as input combined with the growth of the organization and investment flow. The transformation involves all activities, such as activities that create change or improvements that are applied to information technology to finance loans, or even disrupt and create competition. The output of the transformation includes new services, products and businesses model.

How about FinTech in Indonesia? OJK acknowledges that the use of information technology in the field of financial services in the past decade has snowballed, and Indonesia is no exception to this.[23] However, FinTech in Indonesia is different compared to other countries because it has unique market characteristics.[24] By using technological innovation, FinTech can reach customers who do not have a bank account. Hence, it is one of the advantages of FinTech in Indonesia, as it can reach wider areas and unbanked people, or customers who are otherwise will not be exposed to banking services.

With its ability to reach areas that cannot be served by formal financial institutions, FinTech is expected to increase financial inclusion in Indonesia. That is why from the outset, OJK considers FinTech as a tool, instrument, and platform to accelerate efforts to enhance financial inclusion in Indonesia. In addition, it is almost impossible to achieve the Government's target on increasing financial inclusion and meet the enormous financial services need of all segments of Indonesian population using only conventional services available.

As FinTech in Indonesia can be used as a means to increase financial inclusion,[25] it is hoped to serve the low-income society. The rapid growth of FinTech in Indonesia is contributed by the high level of mobile phone usage and a large group of middle-class income. As well, the Government is also responsive toward the entry of FinTech to Indonesia. Some agencies are

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21 WS Frame, and LJ White, "Technological Change, Financial Innovation, and Diffusion in Banking", *NYU Working Paper No. 2451/33549, Leonard N. Stern School of Business, Department of Economics, New York University*, (2014).
22 L. Zavolokina, "FinTech: What's In.
23 OJK, Banking Supervision Department, Interview, February 2018.
24 OJK, Digital Financial Innovation Group, Interview, January 2018.
25 *Ibid*

looking for ways to facilitate FinTech, not to ban it.

4.2 FinTech Services

In recent years, FinTech services have developed significantly. However, this type of FinTech service varies in different countries. Despite the difference, this industry is divided broadly into four segments. Dorfleitner et al. explain that this service can be differentiated based on FinTech's involvement in the financing, asset management, payment, and flexibility of various companies that offer other functions beyond those services.[26]

In essence, a number of these FinTech offer services intersect with existing banking industry and financial services. That is why customers of banking and financial services have begun to switch to FinTech. In Asia, banking and financial services customers are starting to take advantage of FinTech services for payment or remittances, loans, personal wealth management, and insurance.[27]
One country that is actively adopting FinTech services is the People's Republic of China. The proportion of banking customers in the People's Republic of China who have switched to using payment services through FinTech has reached 40 percent. To be more specific, insurance accounted for 35 percent, loans 14 percent, and personal wealth management 5 percent. Activity in FinTech services in the People's Republic of China has spread into seven major markets, namely payments and e-wallets; supply chain and consumer finance; peer-to-peer (P2P) lending platforms; online funds; online insurance; personal finance management; and online brokerage (DBS & EY 2016).[28]

Based on the definition of FinTech determined by the FSB, the Basel Committee on Banking Supervision (BCBS) then categorize FinTech services based on innovations offered. Table 4.1 describes BCBS three categories of FinTech products based on three sectors, namely credit, deposit, and capital-raising services; payments, clearing and settlement services; and investment management services.[29]

All three sectors are backed by market support services, which reflect the technology's ability to promote innovative products. These three sectors deal directly with the primary services of banking. Market support services, as described

26 Gregor, *FinTech in Germany*.
27 Development Bank of Singapore, and Ernst & Young 2016, "The Rise of FinTech in China: Redefining Financial Services" http://www.ey.com/Publication/vwLUAssets/ey-the-rise-of-FinTech-in-china/$FILE/ey-the-rise-of-FinTech-in-china.pdf, viewed on 27 April 2018.
28 *Ibid*
29 Basel Committee, "Sound Practices: Implications of FinTech", viewed on 3 May 2018.

Table 4.1.

Innovations in FinTech Services *

Sectoral Innovations			
Credit, deposit, and capital raising services	Payments, clearing, and settlement services		Investment and management services
Crowdfunding	Retail	Wholesale	High-frequency trading
Lending marketplaces	Mobile wallets	Value transfer networks	Copy-trading
Mobile banks	P2P transfers	Fx wholesale	E-trading
Credit Scoring	Digital currencies	Digital exchange	Robo-advice

* *Ibid.*

Market Support Services* Figure 4.1

* *Ibid.*

in Figure 4.1, related to innovations and new technologies that are not specific to the financial sector. These include cloud computing, machine learning, data applications, big data analysis, portal and data aggregator, Internet of things, and predictive modeling. However, they play an essential role in FinTech development in the future.

To date, FinTech services are becoming increasingly diverse. In its report, CB Insights categorizes at least ten FinTech services that will be the trends throughout 2018. The ten services are:[30]

1. Lending (P2P lending and alternative underwriting platform)
2. Blockchain/Crypto (Companies leveraging blockchain technologies for financial services)
3. Regtech (Audit, risk, and regulatory compliance software)
4. Personal Finance (Tools to manage bills and track personal and/or credit accounts)
5. Payments/Billing (Payment processing, card developers, and subscription billing software tools)
6. Insurance (Alternative underwriting, claims, distribution, and/or brokerage platform)
7. Capital Markets (Sales and trading, analysis and infrastructure tools for

30 CB Insights, "FinTech Trends to Watch in 2018" https://www.cbinsights.com/research/report/FinTech-trends-2018/, viewed on 28 April 2018.

financial institutions)

8. Wealth Management (Investment and wealth management platform and analytics tools)
9. Money transfer/remittance (International money transfer and tracking software)
10. Mortgage/Real estate (Mortgage lending, digitization, and financing platform)

In Indonesia, some FinTech companies offer a variety of services. There are services related to payments, loans, capital markets, insurance, and banking.[31] There are also FinTech business companies that provide aggregator services, such as Cermati and CekAja. These companies compare financial products –such as loans, insurance, vehicle loans, credit cards, and unsecured loans—that suit the needs of potential customers. Meanwhile, Bareksa offers online mutual fund products. In this regard, OJK will also encourage insurance technologies (insurtechs), which act as an aggregator in market intermediary of insurance products, to apply for insurance broking license or working with insurance brokers who have obtained business license from OJK. Currently, there are insurance broker companies which run as insurtech brokers, such as PT Pialang Asuransi Indotekno (CekPremi), PT Mitra Ibisnis Terapan (Premiro), PT Futuready Insurance Broker and PT Dritama Brokerindo (Wowpremi).

4.3 Business Models

The presence of FinTech is considered as an innovation that can disrupt and destabilize traditional financial markets. However, FinTech provides a unique service, primarily because it shapes the financial industry with lower costs and better quality financial services, and creates a more diverse and stable economic landscape than traditional financial services.[32]

In his study, Lee emphasizes that technological developments in infrastructure, big data, data analytics, and mobile devices enable FinTech startup businesses to offer unique, specialized, and personalized services to customers.[33] These services distinguish it from existing financial companies. The various types of services have a significant impact and can gradually erode the role of traditional finance companies. That is why every financial company needs to build the capability to utilize or invest in FinTech services to remain competitive.

31 OJK, Non-bank Financial Industry Supervision Department, Interview, April 2018.
32 I. Lee, "FinTech: Ecosystem and Business Models", *Advanced Science and Technology Letters*, Vol. 142 (2016), pp. 57-62.
33 *Ibid.*, pp. 57-62.

What distinguishes FinTech business model from traditional financial services? The answer is FinTech startup companies offer more personalized services, data-driven solutions, innovative culture, and a fast-thinking and moving organization.[34] FinTech innovation combines e-finance, internet technology, many social networking services, social media, artificial intelligence, and big data analysis. The development of more advanced mobile and e-finance technologies for financial companies drove the growth of FinTech following the global financial crisis in 2008.

FinTech service providers utilize big data analytics to provide, for example, more unique and personalized services to each customer. Many trading strategy algorithms can be used as a basis for robo-advisor wealth management services at a lower cost than traditional financial asset management services. Social media drives the growth of some communities in providing crowdfunding and P2P lending services. The FinTech industry earns revenue from digital platforms that technology developers offer.

FinTech business companies have driven a new phenomenon by offering specific financial services or products in the form of separate or unbundling financial services.[35] Their ability to separate some services that are usually bundled in one package is one of the main factors in the growth of FinTech. This fragmented financial service model has threatened and harmed traditional financial institutions, such as banking.[36]

On one hand, some traditional financial institutions have a competitive advantage, especially regarding economies of scale and financial resources, compared to FinTech startup companies. However, conventional financial firms only focus on providing bundled financial services. They tend to offer comprehensive services and financial products in a single package rather than providing more specialized and separately packaged services and products.[37]

The revenue sources of the FinTech startup companies also differ from those of traditional financial institutions. Revenue from conventional financial institutions is sourced mainly from large organizations or corporations. Conversely, the primary source of income for FinTech companies comes from individual customers and MSMEs.

34 Lee, and YS Shin, "FinTech: Ecosystem, Business Models, Investment Decisions, and Challenges", *Business Horizons*, *vol. 61* (2018), pp. 35-46.
35 *Ibid.*, pp. 35-46
36 Walchek (2015) cited Lee, and YS Shin, "FinTech: Ecosystem, Business Models, Investment Decisions, and Challenges", *Business Horizons*, *vol. 61* (2018), pp. 35-46.
37 Lee, "FinTech: Ecosystem, Business Models", pp. 35-46.

Further, FinTech tends to target younger customers. A survey by Goldman Sach suggests that FinTech's consumers are individuals with higher incomes, tend to be tech-savvy, younger, and are settled in urban areas.[38] Not surprisingly, the millennial generation, aged between 18 and 34, recorded a significant percentage of FinTech customers in many countries.[39] The demographic structure in the next few decades also benefits the FinTech companies. These tech-savvy millennials will be the most substantial part of the planet's population. They will drive the growth of FinTech services.

In contrast to traditional financial services, the FinTech business model tends to serve a consumer segment that has a range of risk appetites, from low to high.[40] In P2P lending services, for example, FinTech companies provide opportunities for funders with little to high-risk appetites. It is these funders who will decide whether to fund borrowers with high-risk profiles or not. Typically, funders with a high-risk appetite do not mind providing financing for borrowers with high-risk profiles, even if the loan has a potential default in the future. Traditional financial services, such as banks, are unlikely to take such risk. The banking industry caters to many consumer segments with low-risk appetite, for example, through fixed deposit accounts. Borrowers of banks have a low-risk appetite because all loans need guarantees.

FinTech business models are mainly derivatives of many services that FinTech has to offer. Lee and Shin identified six FinTech business models, namely payment, wealth management, crowdfunding, lending, capital market, and insurance services.[41]

4.3.1. Payment Business Model

By using mobile devices, payment services are now increasingly popular among consumers. This payment business model consists of two markets:[42] first, retail and consumer payments; and second, corporate and wholesale payments. Retail and consumer payments include mobile wallets, P2P mobile payments, foreign exchange and remittances, real-time payments, and digital currency solutions. Corporate and wholesale payments include Value transfer networks, Foreign exchange wholesale, and Digital exchange.[43]

38 Goldman Sach, "The Future of Finance Part 3, The Socialization of Finance", http://docplayer.net/6624556-The-future-of-finance.html, viewed on 10 May 2018.
39 Lee, "FinTech: Ecosystem, Business Models", pp. 35-46.
40 Amartha (PT Amartha Mikro Fintek), Founder & CEO, Interview, March 2018.
41 Lee, "FinTech: Ecosystem, Business Models", pp. 35-46.
42 *Ibid*, pp. 35-46.
43 BNY Mellon, "Innovation in Payment: The Future is FinTech" https://www.bnymellon.com/_global-assets/pdf/our-thinking/innovation-in-payments-the-future-is-FinTech.pdf, viewed on 15 May 2015.

FinTech innovations provide payment services form the market structure; from digital payment systems to electronic currencies, from how customers receive and use financial services, to how companies access and distribute money. Merely relying on Internet speed, the payment system can take only a fraction of a second, and all transactions can be accessed from anywhere.

4.3.2. P2P Lending Business Model

Many FinTech providers in Indonesia offer P2P Lending. This service reaches individuals who are entirely not exposed to banks or are living in remote areas. They connect individual customers, as well as small businesses, with funders.
With an efficient structure, the P2P lending FinTech service offers a fast process for lenders and borrowers. Contrary to banks, FinTech companies are technically not directly involved in providing loans. They 'match up' the lender and the borrower, and then charge the users for the service. That is why FinTech P2P lending companies in some countries do not have to meet the minimum capital that can affect the total loan, as what applies in the banking industry.[44] Innovation in P2P lending allows FinTech companies to use alternative credit models, online data sources, data analytics to assess risks, faster lending processes, and lower operating costs. However, one of the success (or failure) factors of the P2P business-lending model is highly dependent on how much interest rate is offered.

4.3.3. Crowdfunding Business Model

The crowdfunding business model involves three parties, they are employers or project proponents requiring funding, contributors who may be interested in supporting projects, and organizations that facilitate engagement between contributors and initiators.[45] The presence of the facilitator allows contributors to access information on various initiatives and financing opportunities for product or service development. Through crowdfunding, FinTech companies invite and empower the network of a group of people to engage in fundraising for venture capital (VC). The FinTech companies also include them in crafting ideas and creating new products.

The popular crowdfunding business models are reward-based crowdfunding, donation-based crowdfunding, and equity-based crowdfunding. For reward-based crowdfunding, the borrowers set

44 Lee, "FinTech: Ecosystem, Business Models", pp. 35-46.
45 *Ibid*, pp. 35-46.

an available, comfortable rate of interest for them, guaranteeing a refund within the prescribed term.[46] The next contributor or funder will receive a sum of money from the funds raised for the project or business they support. Donation-based crowdfunding is a way to find funding sources for charity projects by asking donors to provide funds. The funders do not gain any return. They only receive recognition, but not in the monetary form. Equity-based crowdfunding allows entrepreneurs to reach out to many investors who are interested in acquiring equities at their startup or other small private companies. Small and medium enterprises use this service frequently as they have been having difficulty obtaining loans from traditional banks because of the requirement to increase the ratio of the minimum capital. In equity-based crowdfunding, small and medium entrepreneurs in need of financing release some of their shares in return for funding.

4.3.4. Wealth Management Business Model

One business model for wealth management is the automated wealth managers or robo-advisors. This business model provides financial advice akin to dealing with a real financial advisor. These robo-advisors use algorithms that suggest some assets to be invested based on the customers' characteristics or preferences. This business model benefits from demographic and consumer behavioral changes that support automated and passive investment strategies, simple and transparent cost structures, and attractive products that allow low investment or no minimum investment limit.[47]

The wealth management business in the Asia Pacific region is growing significantly.[48] The analysis predicts that the wealth management market in the Asia Pacific will rise by an average of 11,8 percent per year from 2020 to 2025. The growth rate of the wealth management business in the Asia Pacific region is higher than the global growth rate of 5,5 percent in the same period. Research by PricewaterhouseCoopers (PwC) predicts that the wealth management market in the Asian region has the potential to grow by more than double than it is now by 2025.

4.3.5. Capital Market Business Model

The FinTech business model in the capital market sector has a broad

46 E. Mollick, 'The Dynamics of Crowdfunding: An Exploratory Study', *Journal of Business Venturing*, *Vol. 29, No. 1* (2014), pp. 1-16.
47 Goldman, "The Future of Finance" viewed on 10 May 2018.
48 PricewaterhouseCoopers, "Asset and Wealth Management Revolution: Embracing Exponential Change" https://www.pwc.com/gx/en/asset-management/asset-management-insights/assets/awm-revolution-full-report-final.pdf, viewed on 20 May 2018.

spectrum, ranging from investment, risk management, trade, currency exchange, to research.[49] One promising business model is trading. This model allows investors and traders to connect and discuss and share experiences. The business model in the capital market sector also provides a place for investors to buy and sell stocks and commodities, and monitor some risks in real time.

Another capital market-based FinTech business model is foreign exchange transactions. At a lower cost, FinTech allows individual investors and small and medium-sized companies to engage in foreign exchange transactions. Capital market FinTech users can see real-time price movements, then receive or transfer funds in foreign currency securely. All of those activities can be done using mobile devices.

4.3.6. Insurance Business Model

The business model in the insurance sector allows the insurer to have a closer relationship with the consumer or prospective insured. Insurance FinTech uses data analytics to calculate and match risks. Based on these data, the FinTech company in the insurance sector offers products that suit the needs of consumers, such as health, car, or life insurance. As a result, these insurance FinTech companies have the potential to expand their reach of the market.

Traditional insurance companies have also begun to adopt the FinTech insurance business model. The development of technology allows insurance providers to develop data collection from non-traditional sources to improve risk analyses. Furthermore, the FinTech insurance business model also renders the process of health insurance billing more efficient.

4.4 FinTech Development in Other Countries

United States (US)

US is one of notable examples of FinTech-friendly country. The country's environment, especially for establishment and investment, helps FinTech companies to expand their services in the financial industry. Deloitte Center for Financial Services points out that multiple factors contribute to the development of FinTech ecosystem in the US. One of them is educated and entrepreneurial workforce, which boosts the country at the front of the FinTech revolution.[50]

49 Lee, "FinTech: Ecosystem, Business Models", pp. 35-46.

50 Deloitte Center for Financial Services, "FinTech by the Numbers", https://www2.deloitte.com/content/dam/Deloitte/us/Documents/financial-services/us-dcfs-FinTech-by-the-numbers-web.pdf, viewed on 19 March 2018.

The initiative to seek entrepreneurial talents can be seen in New York FinTech Innovation Lab. Launched in New York City by The Partnership Fund for New York and Accenture, the 12-week mentoring program helps early-to growth-stage FinTech companies to shape their innovation of the products and business models.[51] The mentoring consists of product feedback, including a series of workshops on bank regulations and industry trends discussion. The program is designed to support the FinTech ecosystem, such as engaging directly with the world's leading financial service firms and getting insights from VC. At the same time, FinTech companies have opportunities to access banking, capital market, and insurance leaders who could become potential clients and investors. They have opportunities to establish a partnership with financial institutions such as Goldman Sachs or Barclays.

The impact is promising. Since the establishment of New York FinTech Innovation Lab in 2010, it has built a bridge for 47 technology companies with exceptional access to more than 43 world's largest financial institutions such as JP Morgan Chase, Wells Fargo, Credit Suisse, and Bank of America. After participating in the program, FinTech companies have risen US$667 million venture financing and created 505 jobs.[52] Moreover, four participants from the New York FinTech Innovation Lab have been acquired with substantial valuations. In other words, FinTech Innovation Lab has emerged as a financial industry's plan to boost entrepreneurs and accelerate the growth of tech entrepreneurs as it offers advanced solutions that meet customer needs in the banking and financial services industry.

New York is 'one of the fastest growing FinTech clusters regarding startups, capital, talent, educational resources, and FinTech accelerators'.[53] In 2015, the market size of FinTech in New York accounted for US$7.7 billion.[54] This region is the second largest pool of FinTech workers in the country, behind California, with the total number of workforce of 57,000. However, the size of

51 Partnership Fund for New York City, "Accenture, Partnership Fund for New York City and Leading Banks Call for Applications for New York FinTech Innovation Lab 2017", http://pfnyc.org/news_press/accenture-partnership-fund-for-new-york-city-and-leading-banks-call-for-applicants-for-new-york-FinTech-innovation-lab-2017/#more-6625, viewed on 1 April 2018.

52 FinTech Innovation Lab 2017, 'Partnering FinTech companies with leading financial institutions', *FinTech Innovation Lab New York*, Partnership Fund for New York City & Accenture, viewed 3 May 2018, http://www.FinTechinnovationlab.com/new-york/.

53 Strategy&, "Developing a FinTech Ecosystem in the GCC", https://www.strategyand.pwc.com/media/file/Developing-a-FinTech-ecosystem-in-the-GCC.pdf, viewed on 20 March 2018.

54 Ernst & Young, "UK FinTech on the Cutting Edge", Ernst & Young, http://www.ey.com/Publication/vwLUAssets/EY-UK-FinTech-On-the-cutting-edge/%24FILE/EY-UK-FinTech-On-the-cutting-edge.pdf, viewed on 24 March 2018.

the labor force is not the only crucial factor to leverage FinTech ecosystem. The presence of skill sets such as technical and entrepreneurial talent is more at play in New York, compares to other states in the US. The ability to build and implement FinTech solutions, including identifying customer's needs and creating a vibrant community within the FinTech ecosystem. Supported by financial service expertise and VC funds, the development of FinTech ecosystem in New York, as a global commercial hub, is comparatively more advanced than other regions in European countries.

New York FinTech Innovation Lab is not the only initiative in the region. There are similar accelerator programmes to improve skill sets of this vibrant entrepreneurial community, namely Citi Plug and Play, Barclays TechStars, and Startupbootcamp.[55] These events include an equity investment and mentoring programme. The Lab and other accelerators "have helped tech start-ups understand the consumer issues of foremost concern to large financial institutions, thus turning their innovations into the products and services that participating banks need the most."[56] By joining the Lab, the sales cycle of FinTech companies reduces from 18 months to 12 weeks. Conversely, the Lab has supported financial services firms by cutting the time to develop and launch new digital products that would be beneficial for their customers. It is not surprising if banks in the US, such as Citigroup, Goldman Sachs, JP Morgan, and Morgan Stanley, actively invest in FinTech.

The growing presence of incubator programmes also helps the improvement of FinTech ecosystem. While an accelerator provides an intensive short-term programme, an incubator helps FinTech startup with 'long-term office space, basic infrastructure, and networking opportunities'.[57] The illustrative example of the incubator can be seen in Wells Fargo Innovation Hub. During six months of coaching and collaboration, this initiative enables FinTech companies to research, create, and bring their digital payment products more quickly to the market. Other notable incubators are MasterCard NYC Technology Hub and ValueStream Lab which connect FinTech firms with potential investors. The emergence of incubators, alongside with accelerators, play a significant role in improving FinTech ecosystem, especially in early-stage development for accessing seed capital. Both incubators and accelerators jointly form a FinTech hub that is essential to find direct funding and access to networking.

55 *Ibid.*, viewed on 24 March 2018.
56 Strategy&, "Developing a FinTech", viewed on 20 March 2018.
57 Ernst & Young, "UK FinTech", viewed on 24 March 2018.

Characteristic of FinTech ecosystem in California is almost the same. The numbers of accelerators and incubators are growing across the region. One accelerator, which shapes the FinTech ecosystem in California, is Y-Combinator. Started in 2005, Y-Combinator is the one of the first accelerators in the world, which provides three-month programme, including mentoring and demo days, to investors.[58]

California is also home to numerous technology companies. The presence of global tech giants creates a native culture of educated and entrepreneurial talents to have substantial knowledge. The total number of FinTech workers in California is approximately 74,000, higher than FinTech workers in New York.[59] As the largest pool of talent, California is renown as a market leader in FinTech industry due to an interconnection between FinTech and existing financial institutions, significant VC, academia, and technology companies. Entrepreneurial attitudes – such as the ability to identify new ideas, build businesses from scratch, and deliver it to market—put the US the highest on global entrepreneurship index, with California as the most robust state.

The availability of capital is another critical factor to support FinTech start-ups grow. Without substantial capital, start-up activities may not attract further investment. The cycle of investment in the FinTech sector is seen in the US. Regarding capital, US is the most leading country in the world, with California and New York ranked at the first and second respectively. While the first has generated investment in the FinTech sector around US$5 billion, the latter has successfully raised financing of US$4,2 billion.[60] FinTech funding in US dominates 80 percent of global investment in this sector.[61]

The existence of VC and the strength of the listed companies in California and New York are the primary drivers to support early-stage investment. VC is seen as angel investors who have decades of experiences in financing emerging businesses. In this sense, the dynamic of investors with high-risk appetite provides benefits to the markets. As a result, the accessibility of seed capital is most reliable in those regions. Thus, start-up companies located in that area would be able to access necessary infrastructure and recruit potential talents. These benefits, in turn, may reinforce the FinTech ecosystem in New York and California.

Concerning growth capital, US outrival other nations. Due to re-investment

58 *Ibid*.
59 *Ibid*.
60 *Ibid*.
61 Strategy&, "Developing a FinTech", viewed on 20 March 2018.

behavior, the availability of funding from early-stage development into the growth phase, for example, is six times higher than the United Kingdong (UK).[62] Again, the primary source of capital derives from VC, and the presence of them is essential to scaling up start-up companies.

FinTech companies can access capital from Initial Public Offering (IPO) as New York Stock Exchange (NYSE) and NASDAQ dominate the global IPO market. By obtaining listed capital, they may secure long-term and cost-effective funding. An analysis from EY shows that NYSE and NASDAQ have raised US$418,28 billion from 1,594 IPOs in the last ten years, and 20 percent of total proceeds, including the number of IPOs, went to technology companies.[63] The scale of the stock exchange has a significant correlation with the unicorn, a company which has a value higher than US$1 billion. At present, US is home for 14 of the 31 global FinTech unicorns and eight of them are based in California.[64]

Another instrumental aspect of fostering innovation and supporting FinTech ecosystem is innovation on government policy. The initiatives include regulatory framework, the Government programmes to increase competition and cybersecurity, and taxation policy. However, compared to the UK, the role of US government to support FinTech industry is limited and to some extent, still conservative. In other words, the involvement of government in policy setting and regulation is limited. This situation can be explained by the fact that the FinTech ecosystem in the US is relatively mature and private sector dominates the landscape of services. In contrast, the involvement of the Government will be different if the FinTech environment is less mature.

The Office of the Comptroller of the Currency (OCC) is the first regulator at the federal level which proposes a FinTech charter. Started in March 2016, OCC issued a White Paper which focused on the Office's perspective on 'responsible innovation and the development of a framework for evaluating and understanding innovative products and services offered by OCC regulated banks'.[65]

There are at least two main reasons for OCC to launch a proposed charter.[66] First, the charter aims to set up a guideline for FinTech companies to conduct business throughout the country. Second, FinTech firms would reach people who are

62 Ernst & Young, "UK FinTech", viewed on 24 March 2018.
63 *Ibid*.
64 *Ibid*.
65 Jeffrey Alberts, and Ingrid He, "OCC vs. New York DFS: Battle for the Future of FinTech', https://www.bna.com/occ-vs-new-n73014461841/, viewed on 14 April 2018.
66 *Ibid*.

underserved by traditional banking and at the same time help maintain consumer protection. By receiving a charter, FinTech companies would be subjected to regular scrutiny faced by other banks. These rules are to ensure they are meeting the standards of the OCC. However, the charter had been on hold due to legal challenges from state regulators who directly license FinTech firms.

In spite of limited regulatory initiatives to engage with FinTech, some programmes have been launched, especially to access core infrastructure in government data. In New York, for example, Federal Government departments and agencies generate a portal providing unprecedented access to data with topics ranging from health to geospatial to solar photovoltaic projects.[67] Concerning payment infrastructure, the Federal Reserve has launched a strategy to improve the US Payment System in 2015. By collaborating with payment firms, card networks, and financial institutions, the program aims to augment "the speed, safety, and efficiency of the US payment system".[68]

To ensure safe operation of FinTech business, US undertakes technical measures to improve cybersecurity. This consists of emergency response and education for stakeholders in financial services. A notable initiative is California Cybersecurity Taskforce. The bureau, which was established in 2013, aims to reduce risk exposure in cyberspace by embracing industry, academia, legal representatives, and government bodies. At the federal level, US International Strategy for Cyberspace was launched in 2011 to promote secure communication within digital infrastructures. Likewise, New York Cybersecurity Examination Process was introduced in 2015 to prevent and detect the cyberattack on banks.

Another government programme is to impose tax incentives. Although the initiatives are still behind the UK's, the limited tax schemes attract the attention of start-up companies. The businesses that want to come to, or grow in, California, for example, receive an income tax credit through California Competes Tax Credit. They are selected based on the importance and economic development scale. Through START-UP NY programme, FinTech start-up which wants to relocate to, or expand in, New York City or near university campuses also receives broad tax exclusion for ten years.

The development of FinTech ecosystem continues to other states. The total investment for FinTech startups in

67 State of New York, https://data.ny.gov.
68 Ernst & Young, "UK FinTech", viewed on 24 March 2018.

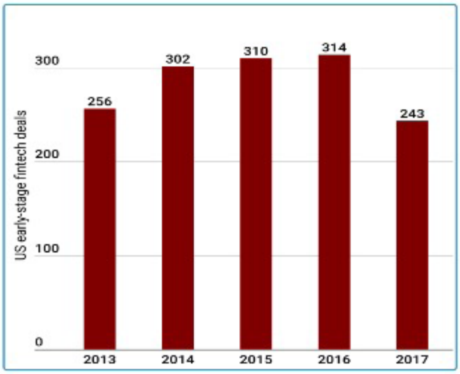
Massachusetts, for example, has been over US$600 million since 2010.[69] In Georgia, Georgia Institute of Technology offers a FinTech Program at the university. The primary objective of the program is to collaborate startups, corporations, and investors to stimulate innovation in the FinTech industry. New FinTech clusters also emerge across the country, such as in New Jersey, Texas, North Carolina, and Florida.

In 2018, FinTech transaction value in the US is projected to reach US$1,265,788 million.[70] The amount is expected to have an annual growth rate of 13,9 percent, with the total amount of US$2,131,986 million in 2022. Digital payment still dominates the market with transaction value US$927,070 million in 2018.

From 2013 to 2018, 18 FinTech startups have been acquired by the top 50 US banks. Six of the acquisition have taken place since September 2017. Citi, Goldman Sachs, J.P. Morgan, and Morgan Stanley are notable examples of most active banks investing in FinTech startups. However, CB Insights shows that annual seed and series A deals with early-stage FinTech companies in the US hit a 5-year low record. Figure 4.2 depicts that in 2013, the number of deals reached 256. It hit a peak in 2016 with 314 deals but declined to 243 contracts in 2017.[71]

USA Annual Seed and Series A deals with VC-backed FinTech startups*

Figure 4.2



* CB Insights, "FinTech trends", viewed on 28 April 2018.

European Countries

The development of FinTech ecosystem in the United Kingdom (UK) has attracted attention of many actors in the financial sector. Especially after the Chancellor of the Exchequer, George Osborne announced UK Government's ambition to make UK a global capital of FinTech.[72] To achieve its goal, the UK Government has enforced a supportive regulation regime, diverse programme and effective tax incentives to support FinTech industry,

69 Austrade 2015, "Financial Technology (FinTech): the United States/Canada Clusters", https://www.austrade.gov.au/ArticleDocuments/5085/US-FinTech-Clusters.pdf.aspx, viewed on 20 April 2018.

70 Stastista, "Fintech data United States", https://www.statista.com/outlook/295/109/FinTech/united-states#, viewed 2018.

71 *Ibid.*, viewed on 28 April 2018.

72 Ernst & Young, "UK FinTech", viewed on 24 March 2018.

especially in the scope of competition and innovation.

One notable initiative is Project Innovate, which was launched in 2014. This programme assists FinTech companies to navigate the regulatory authorization process for innovative business.[73] This approach was designed to simplify the complexities of regulations. It is in line with the goal of the UK Government to make the regulatory regime more transparent and straightforward for the FinTech industry. A Regulatory Sandbox was also proposed to be included in the programme. The sandbox is the place to enable FinTech startups to test out new products and services in the financial sector.

Cybersecurity plays a vital role to ensure adequate support for the safe operation of FinTech business. In this regard, the UK Government has invested US$2,66 billion by 2020 to establish a National Cyber Security Programme and Centre. Another initiative is the Cyber Security Innovation Vouchers Scheme. Launched in 2015, the UK Government offers an incentive for small-medium enterprise at US$7,000 to improve their security. As guidelines and objectives to strengthen cyber defense, the UK Government introduced the UK Cyber Security Strategy in 2011.

The UK government also launched several programmes to support local FinTech ecosystems. The necessary acts aim to remove barriers to competition, especially for new entrants to open up the sector. The examples of these initiatives are the British Business Bank (BBB) and BBB Investments and SME Mandatory Referrals. While the first focuses on providing access for financing for small-medium enterprise (SME), including FinTech firms on SME lending, the latter emphasizes on “requiring banks to refer SMEs that are rejected from bank credit to alternative finance platforms”.[74] Another important initiative is Start-up Loans which provides loans, advice and mentoring to potential or young start-ups.

These policy initiatives are not limited to London. FinTech ecosystems in other regions such as Edinburgh, Leeds, and Manchester are developing in prominence. Edinburgh, for example, is a home for CodeBase, the most massive technology incubator in the UK. Manchester is the second largest business cluster in Europe which focuses on creative and digital industries. With the investment value around US$4,9 billion, Manchester is committed to supporting digital and technology infrastructure. Leeds launched “Dotforge”, a pre-seed technological accelerator which

73 *Ibid*
74 *Ibid*

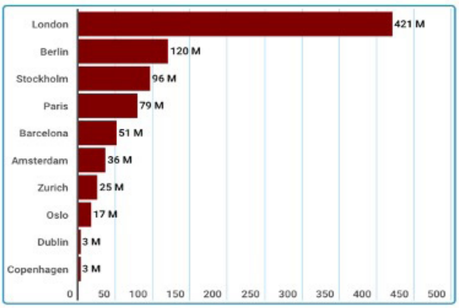
offers collaboration opportunities for entrepreneurs and investor. The total number of people employed in the digital economy in Leads reached 45,000 people or fifth highest across the UK.

The UK also actively invites foreign FinTechs to the local market. Since 2014, the UK Government has gone to Singapore; Hong Kong, China[75]; and Australia. Through UK Trade & Investment (UKTI) and Global Entrepreneur programmes, the roadshows aim to provide an assistant for entrepreneurs and early-stage FinTechs that want to expand their business to the UK. Another plan, called HQ, focuses on attracting foreign digital companies to set up headquarters in the UK.

To develop FinTech ecosystems, UK has prepared some tax initiatives, primarily to promote seed and growth funding. Through Enterprise Investment Scheme (EIS), for instance, investors receive tax relief to buy shares in smaller high-risk trading companies. Another initiative is the Seed Enterprise Investment Scheme (SEIS) which focuses on offering tax relief for individuals or investors who purchase shares in high-risk start-up projects. The UK Government recently proposed P2P bad debt relief. This initiative aims to offset losses on bad P2P loans against total taxable income from P2P lending.

Robust FinTech policy environment leads to a significant result. Revenue from the FinTech sector in 2015 accounted for US$9,2 billion.[76] The market has attracted investment of around US$733,8 million in the same period. Almost 90 percent of this investment went to banking and payments and credit and lending. In 2017, the amount has been pumped to British FinTech more than US$1,1 billion.[77] The total number of FinTech workers in the UK is approximately more than 61,000.

FinTech Investments in Major European Cities Q1 2017 (US$)* Figure 4.3



* FinTech Global 2017.

Germany stands out at the second place

75 ADB recognizes 'Hong Kong' as 'Hong Kong, China'
76 *Ibid*., viewed on 24 March 2018.
77 P. Ivanova, and J. Kelly, 'UK FinTech Investment Set for a Record-breaking Year in 2017', https://uk.reuters.com/article/us-britain-FinTech-investment/uk-FinTech-investment-set-for-record-breaking-year-in-2017-idUKKBN1CO026, viewed on 20 April 2018.

in Europe after the UK. According to FinTech Global, approximately 12 percent of the aggregate of US$1,164 million of FinTech investment in the first quarter of 2017 went to companies based in Berlin as illustrated in figure 4.3. The development of the FinTech industry in Germany has seen phenomenal growth. Compared to the previous three years, Berlin doubles its share from 6 percent to 12 percent. However, the percentage lags behind from London-based FinTech companies. FinTech funding in Berlin was only one-third of the investment raised by their competitors in London.[78]

To date, alternative payment providers accounted for 27 percent of FinTech start-ups market in Germany.[79] Direct lending stands nearby 25 percent, and another 17 percent comes from crowdfunding platforms. The rest offer insurance, ID verification, and online shopping. More than 50 percent of German banks collaborate with FinTech firms for their digital strategy. However, the role of government to engage and support FinTech, especially to impose regulatory and tax initiatives, is limited.[80]

FinTech Global's research also reveals that 70 percent of the total capital raised by European FinTech firms in the first quarter 2017 went to London, Berlin, Stockholm, Paris, Barcelona, and Amsterdam (figure 4.3). It seems that cities around Europe compete to become the region's most active FinTech hub. A vibrant FinTech ecosystem contributes to economic development. Hence, the rivalry to attract capital and talent workers is intense. Together with Norway, Finland, Iceland, Sweden, and Denmark, for instance, the Nordic region has become the second largest FinTech community in Europe after the UK. Klynveld Peat Marwick Goerdeler (KPMG) and CB Insights estimate that investment in FinTech firms in the region rose by 106 percent to US$13,8 billion in 2015. Moreover, 32 out of 51 deals went to Swedish FinTech startups.[81]

A recent report by CB Insights shows that total VC-backed FinTech funding in European continent has seen significant progress. Figure 4.4 shows that it reached US$1,210 million in 2016 and then increased to US$2,676 million in 2017. It demonstrates that European FinTech funding grew over 120 percent.[82] At the same time, annual seed and series A deals for early-stage FinTech in Europe rose

78 FinTech Global 2017 cited in Praseeda Nair, "Top European FinTech Firms of 2017 Revealed", http://www.growthbusiness.co.uk/top-european-FinTech-firms-2017-revealed-2551170/, viewed 20 April 2018.
79 Praseeda, "Top European FinTech", viewed 20 April 2018.
80 Ernst & Young, "UK FinTech", viewed on 24 March 2018.
81 KPMG and CB Insights, "The Pulse of FinTech, 2015 in Review", https://www.cbinsights.com/research-pulse-of-FinTech-2015, viewed on 22 April 2018.
82 CB Insights, "FinTech trends", viewed on 28 April 2018.

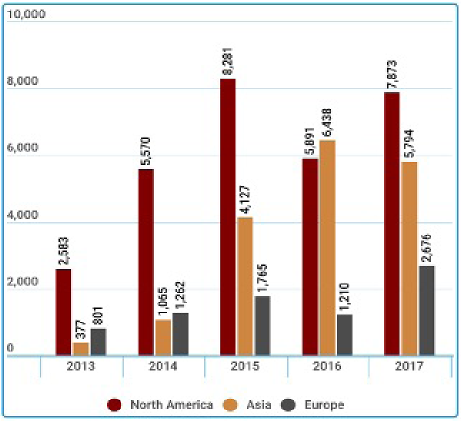
from 137 in 2016 to 190 contracts in 2017. The big four of FinTech firms in Europe with a market valuation over US$1 billion are TransferWise (the UK), Funding Circle (the UK), Klarna (Sweden), and Adyen (the Netherlands).

However, the funding lags behind compared to the size of the FinTech market in the US. Therefore, the European Banking Authority attempted to map the FinTech industry and its regulation in European Union (EU) countries.[83] The result shows that the number of FinTech firms reaches more than 1,500 companies. At least one-third of them are not subject to any EU or national regulation.[84] Most of them provide payment services, credit or deposits, and investment management.

Due to the lack of regulations, the European Banking Authority (EBA) proposed some actions in six priorities. This regulatory approach comprises authorization and sandbox regimes; prudential and operational risks for credit, electronic money, and payment institutions; and the impact on business models.[85] The priorities include consumer protection; the impact of the resolution of financial firms; and FinTech performance in the fight against money laundering and financing of terrorism.

Annual financing to VC-backed FinTech firms (US$ million)*

Figure 4.4



* CB Insights, "FinTech trends", viewed on 28 April 2018.

To meet those priorities, the European Commission is developing and introducing two regulations.[86] The first is a Payment System Directive 2 (PSD2) directive to regulate payment sector. The second regulation is the General Data Protection Regulation (GDPR), which focuses on consumer data protection. The European Commission emphasizes that these regulations aim to improve the competitiveness of FinTech sector, mainly to fill the gap with global competitors

83 European Banking Authority, "Discussion Paper on the EBA's Approach to Financial Technology (FinTech)" http://www.eba.europa.eu/documents/10180/1919160/EBA+Discussion+Paper+on+FinTech+%28EBA-DP-2017-02%29.pdf, viewed on 20 April 2018.
84 Carmen Alvares, "FinTech Map of Europe: 31% of the Companies, Unregulated", https://www.bbva.com/en/FinTech-map-europe-31-companies-unregulated/, viewed on 20 April 2018.
85 European Banking, "Discussion Paper on the EBA's Approach", viewed on 20 April 2018.
86 Carmen, "FinTech Map of Europe", viewed on 20 April 2018.

BOX 4.2

Regulatory Sandbox in the UK

Since June 2016, regulatory sandbox has taken effect in the UK's financial industry. The initiative aims to "test innovative products, services and business models in a live market environment while ensuring that appropriate safeguards are in place".[1] The primary objectives of the sandbox are to allow the Financial Conduct Authority (FCA) to collaborate closely with innovators to ensure that consumer protection safeguards are built into new products and services. This program is part of a broader initiative called Project Innovate.

On the ground, the sandbox operates on a cohort basis with two six-month test periods per year. This first cohort accepted 24 applicants, and one-third of them were from giant financial institutions such as banks. The FCA received 146 applications across the first two cohorts, and of these firms, 50 were accepted, and the total number who were tested were 41. To date, the FCA has conducted the fourth cohort.

1 Financial Conduct Authority, "Regulatory Sandbox Lessons Learned Report, Financial Conduct Authority" https://www.fca.org.uk/publication/.../regulatory-sandbox-lessons-learned-report.pdf, viewed on 20 April 2018.

BOX 4.2

The FCA point outs that the first year of Sandbox's operation successfully meets its objective. A number of the indicators of success can be seen as follows:

- 75 percent of firms of the first cohort have completed testing.
- Approximately 90 percent of the firms which completed testing continue to broader market launch.
- 40 percent of companies completed a test in the first cohort received funding during or following the test.
- The majority of firms have gone onto secure a full authorization following completion of the test.

The overall impact on the market is too early to draw a robust conclusion. However, the FCA describes that the testing has significant progress in promoting competition and financial growth in the market. It reflects on the usage of innovation applied by applicants. Investment in the next generation of technologies could lead the firms to stimulate the effectiveness of markets. The improvement of competition, in turn, would offer better value for consumers and other financial services users.

As a following step, the FCA is looking to expand regulatory sandbox overseas. The increasing demand from the firms which want to operate globally is the main reason for this initiative. The primary benefit is that it could bring reduction cost and complexity for the companies to accelerate expansion into their jurisdictions. Therefore, the firms want the FCA to be able to work with other regulators across the globe and conduct the test at the same time.

Establishment of this sandbox would allow firms to run tests from various geographies simultaneously. At least, 11 companies have asked the FCA to test in other countries. The FCA, alongside with other regulators across Europe, Asia, and the US, are still discussing a blueprint to create "the largest-scale, complex regulatory sandboxes in the world." They try to create a collaboration and joint effort among international regulators.

and counterweight the potential loss of FinTech market in Europe after Britain set to quit the bloc in 2019.[87] In other words, EU regulators need to expand the FinTech industry after Brexit. In 2015, total market size of FinTech across EU was worth around US$6 billion. Britain still dominates the EU FinTech market as more than 80 percent of EU FinTech firms are based in the UK.[88]

Some scholars estimate that the regulatory changes across EU will increase the total investment of the FinTech sector in the upcoming years. These changes include the introduction of regulatory sandboxes in several countries. The regulatory changes, however, need to be more adaptive to support and facilitate the development of FinTech ecosystem.

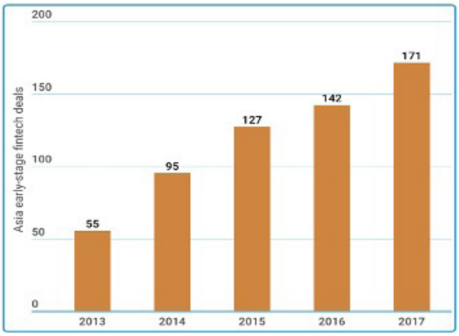
One of the challenges is to create a market more attractive for FinTech firms, especially to enlarge their market through cross-border expansion as most of them still focus on national markets or domestic customers. In such situations, proportional and flexible regulations are the best way to support startups companies in the FinTech sector. The development of a well-functioning single market also requires convergence in regulation and supervision across EU. This approach is to prevent "regulatory and supervisory arbitrage" in the FinTech sector once FinTech companies expand across national borders.[89]

Asian Countries

Figure 4.4 depicts that annual finance to VC-backed FinTech companies in 2017 dropped for the first time in the Asia continent. The decline was the shockable record after it had substantial progress in the last four years. CB Insights describes

Annual Seed and Series A deals with VC-backed FinTech startups in Asia*

Figure 4.5



* *Ibid.*

87 Francesco Guarascio, 'EU Weighs Strategy to Compete in FinTech With Global Rivals" https://www.reuters.com/article/us-eu-ecofin-FinTech/eu-weighs-strategy-to-compete-in-FinTech-with-global-rivals-idUSKCN1BM1XL, viewed on 21 April 2018.

88 Bruegel (2017), cited in Francesco Guarascio, 'EU Weighs Strategy to Compete in FinTech With Global Rivals" https://www.reuters.com/article/us-eu-ecofin-FinTech/eu-weighs-strategy-to-compete-in-FinTech-with-global-rivals-idUSKCN1BM1XL, viewed on 21 April 2018.

89 Francesco, "EU Weighs", viewed on 21 April 2018.

that the funding to VC-backed FinTech sector decline from US$6,438 million in 2016 to US$5,794 million in 2017. However, Asia early-stage FinTech deals steadily increase. Figure 4.5 shows that annual seed and series A deals for early-stage FinTechs in Asia increased from 55 in 2013 to 171 contracts in 2017.[90] It reflects that FinTech activities across Asia remain strong.

Regarding market size, the People's Republic of China's FinTech companies are undoubtedly the leader in the Asia continent. The number speaks for itself, with a FinTech market valuation worth of US$102 billion.[91] The total FinTech investment in the People's Republic of China from July 2015 to June 2016 jumped to US$8., billion. This led to a 252 percent expansion since 2010.[92] Four firms in the People's Republic of China are recorded as FinTech unicorns and one of them, LU.com which is previously known as Lufax, has a value US$18.5 billion.[93] The CB Insights' report also shows that five FinTech companies drove FinTech IPOs in 2017 with total funding US$2,4 billion. It predicts that wealth management would be the hottest FinTech sector in the People's Republic of China.

A collaborative report by DBS and EY highlights that at least two factors influence the People's Republic of China's FinTech revolution. First, unmet financial needs as one of five adult populations in the People's Republic of China remain unbanked. The SMEs, which contribute to 50 percent of fiscal and tax revenue in the People's Republic of China, only receive 20-25 percent of the bank-disbursed loans. Such imbalances drive underserved consumers and SMEs to turn to seek alternative solutions for payment, credit, investment, or insurance. Other drivers are regulatory setting and easy access to capital.[94]

The People's Republic of China's Government started to supervise the industry after several fraud incidents emerged in 2015, such as Ezubao's Ponzi scheme which attracted RMB50 billion from 900,000 investors.[95] To oversee P2P lending and payment, the People's Bank of China (POBC) finalized a number of rules and regulations in August 2016. The regulatory framework imposes license requirement, credit limit, interest rate cap, client disclosure, and prohibited pooling and lending of funds by P2P players. Regulations on payment consist of segregation of client money into

90 CB Insights, "FinTech trends", viewed on 28 April 2018.
91 Bruegel, cited in Francesco, "EU Weighs", viewed on 21 April 2018.
92 Development Bank "The Rise of FinTech" viewed on 27 April 2018.
93 CB Insights, "FinTech trends", viewed on 28 April 2018.
94 Development Bank "The Rise of FinTech" viewed on 27 April 2018.
95 Ernst & Young, "UK FinTech", viewed on 24 March 2018.

custodian account and central settlement system. According to DBS and EY, these rules required "a principal guaranteed by the platforms and debt securitization to mitigate lenders' credit risks."[96] Moreover, the central bank and 400 member traditional financial and internet finance firms established The National Internet Finance Association. This governmental body aims to regulate and control the risks of the FinTech sector.

However, stricter regulations and under-reported bad debt could imply to declining Chinese FinTech stock prices performance. In November 2017, this phenomenon occurred as FinTech stock prices languished into double-digit decrease.[97] Lending companies' valuations have suffered since then. In other words, the new regulations on P2P lending could wipe out thousands of underperforming companies. However, some argue that the progressiveness of rules will support the markets' long-term development.

To manage FinTech development, regulators in the People's Republic of China have investigated the potential of a regulatory sandbox approach at provincial and central levels. Local government in Ganzhou, the National Internet Emergency Center and Xinhua Net, for example, established the first regulatory sandbox in the People's Republic of China.[98] Announced in July 2017, this FinTech regulatory sandbox was located in Jiangxi Province. The sandbox focuses on exploring and developing regtech in the People's Republic of China and compiling regulatory guidance as a foundation to solve financial risk in multiple markets.

One month after this, Ganzhou Government, through National Committee of Experts on the Internet Financial Security Technology, also published Guideline on Blockchain Compliance. This guidebook was prepared as a response to blockchain development and its applications in the financial sector. Previously, Ganzhou bank has launched the first blockchain-based billing system in May 2017. The system has helped small, and micro-enterprises that have financial problems.

The number of the People's Republic of China's consumers to adopt FinTech services is striking. EY FinTech Adoption Index describes that the People's Republic of China has the highest level of FinTech adoption rate, with 69 percent respondents actively using FinTech

96 Development Bank "The Rise of FinTech" viewed on 27 April 2018.
97 Joshua Bateman, "China FinTech Groups Ride Boom to List in the US" https://www.ft.com/content/d2410642-3728-11e8-8b98-2f31af407cc8l, viewed on 27 April 2018.
98 Leilei Wang, "Will Ganzhou's New Regulatory Sandbox Dictate the Future of FinTech in China', https://www.kapronasia.com/china-banking-research-category/item/884-will-regulatory-sandboxes-dictate-the-future-of-FinTech-in-china.html, viewed on 30 April 2018.

solutions.[99] This number is more than twice of the global average adoption rate. In a similar vein, a report by DBS and EY reveals that 40 percent of the People's Republic of China's consumers had used new payment solutions (compared to 4 percent in Singapore), 35 percent of them have used FinTech to buy insurance (compared to 1-2 percent in many Southeast Asian markets). Wealth management and lending also show a significant result. At present, 300-400 million Chinese need these financial services.[100] J.P. Morgan predicts that the People's Republic of China's FinTech market could grow 44 percent annually, with total revenue reaching US$72,6 billion in 2020.[101]

Similar to the People's Republic of China, regulators in Singapore have actively put some measures to adopt FinTech development. The Monetary Authority of Singapore (MAS), for example, has set up the Financial Sector Technology and Innovation (FTSI) in 2015. The programme aims to facilitate proofs-of-concept of FinTech applications for the industry. It was followed by a Smart Financial Centre initiative in 2016 to promote the use of technology and innovation in the financial sector.

To promote Singapore as a FinTech hub and to serve as a one-stop service for all FinTech matters, the MAS and the National Research Foundation (NRF) set up FinTech Office in May 2016. FinTech Office has some roles such as to "review, align and enhance FinTech-related funding schemes across government agencies". Other roles are to "identify gaps and propose strategies, policies, and schemes in industry infrastructure, talent development and manpower requirements, and business competitiveness" (MAS 2016a).[102] Events and initiatives are imposed to manage the branding and marketing of Singapore as a FinTech hub. In other words, the FinTech Office is placing where FinTech companies seek to advise to set up business in Singapore, including finding information about technology-related government grants and schemes.

In the same year, the MAS launched FinTech innovation Lab and FinTech

99 Ernst & Young, "As FinTech Evolves, Can Financial Services Innovation Be Compliant? The Emergence and Impact of Regulatory Sandboxes in the UK And Across the Asia Pacific" http://www.ey.com/Publication/vwLUAssets/ey-the-emergence-and-impact-of-regulatory-sandboxes-in-uk-and-across-apac/$FILE/ey-the-emergence-and-impact-of-regulatory-sandboxes-in-uk-and-across-apac.pdf, viewed 27 April 2018.

100 Development Bank "The Rise of FinTech" viewed on 27 April 2018.

101 Joshua, "China FinTech Groups ", viewed on 27 April 2018.

102 Monetary Authority of Singapore, "New FinTech Office: A One-Stop Platform to Promote Singapore As a FinTech Hub', http://www.mas.gov.sg/news-and-publications/media-releases/2016/New-FinTech-Office.aspx, viewed on 30 April 2018.

Table 4.2.

Development of Regulatory Sandbox in Asian Countries*

Country	Development	Progress
Hong Kong, China	Established Financial Supervisory Sandbox (FSS) in September 2016.	As of April 2017, six banks have tested over 15 projects in the sandbox, and nine projects have completed.
the Republic of Korea**	Developed Robo Advisor Test Bed Center to test robo-advisor algorithms and platforms in September 2016.	The first cohort (September 2016 to April 2017) examined 35 algorithms. Another 22 algorithms are tested in the second cohort.
Thailand	Published the regulatory whitepaper and finalized the framework in late 2016.	Launched Investment Advisor/Private Fund sandbox and Clearing and Settlement sandbox.
Malaysia	Established FinTech Regulatory Sandbox Framework in October 2016.	Bank Negara Malaysia announced admission of four FinTech companies, which provide financial comparison (GoBear), insurance aggregation (GetCover), money changing service (MoneyMatch), and remittance providers (WorldRemit).

* Ernst & Young, "As FinTech Evolves", viewed on 27 April 2018.
** ADB recognizes 'South Korea' as 'the Republic of Korea'

Regulatory Sandbox. While the first focuses on facilitating consultations on legal or regulations for FinTech communities and providing a venue for training and networking activities, the latter emphasizes on allowing FinTech players to test "new products, services, business models and delivery mechanisms under a controlled environment agreed between the participant and the regulator".[103] An insurance distribution platform, for example, participated in the sandbox from March until 31 August 2017. The purpose of the experiment is to test promising innovations to have a chance for broader adoption in the financial sector. To this end, MAS provided necessary regulatory support by relaxing specific legal and regulatory requirements, which the sandbox entity will be subject to, for the duration of the sandbox. Through FinTech Regulatory Sandbox Guidelines, MAS emphasizes that FinTech firms must comply with relevant legal and regulatory requirements upon successful experimentation and on existing the sandbox.[104]

The global trend of developing regulatory sandbox spreads to other

103 Ernst & Young, "As FinTech Evolves", viewed on 27 April 2018.
104 Monetary Authority of Singapore, "FinTech Regulatory Sandbox Guidelines", http://www.mas.gov.sg/~/media/Smart%20Financial%20Centre/Sandbox/FinTech%20Regulatory%20Sandbox%20Guidelines.pdf, viewed on 30 April 2018.

Table 4.3.

Structure of Regulatory Sandbox in Asian Countries*

Country	Participants	Duration	Focus
Hong Kong, China	Traditional financial institutions.	Less than one year.	FinTech solutions (biometrics, authentication, securities trading services, API (Application Program Interfaces) services, the blockchain, Chabot, and soft tokens).
the Republic of Korea	B2B FinTech, B2C FinTech, traditional financial institutions.	7 months.	Robo-advisor.
Thailand	B2B FinTech, B2C FinTech, traditional financial institutions.	Less than one year.	Investment advisory, private fund management, derivatives agency, derivatives dealing, derivatives advisory, and derivatives fund management.
Malaysia	B2B FinTech, B2C FinTech, traditional financial institutions.	12 months, allow to an extension.	Financial comparison, insurance aggregation, money changing service, and remittance provision.

* *Ibid*
* B2B serves solutions directly to consumers such as lending and wealth advisory, while B2C provides software and solutions to financial institutions, for example, robo-advisor engine and payment technology.

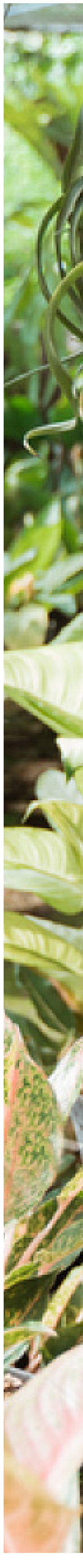
Asia countries. Table 4.2 above shows that many regulators in Asia have started to implement the sandbox since 2016. However, Table 4.3 highlights that each regulator has a different approach to new technology and type of companies permitted to use the facility. The sandbox development in Asia differs from the FCA's regulatory sandbox that allows both incumbents and startups to test a wide range of technology, including bitcoin. Due to the fast-growing wealth management industry, the regulatory sandbox in the Republic of Korea, for example, only focuses on the design and monitoring of robo-advisors.[105] Moreover, the implementation of regulatory sandbox differs from country to country due to the different maturity of individual financial systems, regulatory frameworks and risk tolerance.[106]

105 Yonhap, "Regulator Set to Launch Robo-advisor Test Bed", http://english.yonhapnews.co.kr/business/2016/08/26/0504000000AEN20160826005200320.html, viewed 20 April 2018.
106 Ernst & Young, "As FinTech Evolves", viewed on 27 April 2018.

FinTech Development in Indonesia

Over the last two to three years, Indonesia has seen a sprawling number of technology-based financial startups, also known as FinTech. According to FinTech Regulation, Licensing, and Supervision Directorate of OJK, as of April 2018, there were 127 FinTech companies in Indonesia, comprising of 43 registered peer-to-peer (P2P) lending companies and one registered sharia-based FinTech. 55 more companies were in the process of registration while 31 were planning to register their business. The number continues to increase, and as of October 2019, OJK noted that there are 144 registered P2P lending companies in the market; 12 of them are sharia-based FinTech P2P lending companies and the rest are conventional-based enterprises.

However, FinTech is not merely about P2P lending. There are also other new types of FinTech models emerging in Indonesia. OJK's Digital Financial Innovation Group noted that as of October 2019, there are 61 Digital financial innovators, a term used to call new FinTech types, recorded at OJK. Of all the 61-recorded Digital financial innovators, 11



Chapter 5

are sharia-based while the other 50 are conventional-based. Also, per December 2019, as many as 40 more companies are in the process of recording their business models at OJK.

Despite flourishing in 2015 and 2016, FinTech penetration in the financial services industry began many years earlier. A survey by McKinsey & Company shows that the adoption of digital-banking services has increased rapidly in Southeast Asia since 2011.[1] Since then, customers have begun to switch to computers and tablets to interact with banks. The transition caused a significant decline in the number of branch offices visits as well as phone banking services.

In developing Asian countries, including Indonesia, the use of traditional channels such as automated teller machines (ATMs) still dominates. However, the same survey mentioned that the number of customers using the Internet and smartphone banking surged nearly five times between 2011 and 2015. In Indonesia, the survey taken in 2011 showed that out of the 1,103 respondents, only five percent used Internet banking, either through mobile phones or computers. However in 2015, with the same number of respondents, the percentage jumped to 36 percent.

Budi Raharjo, an Information Technology (IT) security expert from the Bandung Institute of Technology (Institut Teknologi Bandung/ITB) and member of the Indonesian FinTech Association (*Asosiasi FinTech Indonesia*/Aftech)'s advisory board, points out that customers' increasing dependence on technology is a key factor in the rapid development of FinTech in Indonesia. Budi's argument is in line with data from OJK and Aftech.[2] Since Internet banking penetration started growing in 2011, FinTech companies have begun to emerge. From 2011 to 2012, the number of FinTech companies increased from 16 to 25. In the fourth quarter of 2014, the number jumped to 40. From 2015 to today, the number of startups engaged in FinTech services skyrocketed.

More than half of FinTech companies, about 51,4 percent of them, were established between 2015 and 2017.[3] Until December 2017, there were 235 FinTech businesses. This number exceeded the number of companies identified by OJK

1 S. Barquin, H. Yip & Vinayak HV, "Digital Banking in ASEAN: Increasing Consumer Sophistication and Openness" https://www.mckinsey.com/~/media/mckinsey/business%20functions/mckinsey%20digital/pdf/digital%20banking%20in%20asean%20(4).ashx, viewed on 6 August 2018.

2 Budi Raharjo, "FinTech: Layanan Baru, Ancaman Baru?', https://FinTech.id/Idea%20PDF/FinTech%20Talk%20-%20Opini%20Editorial%209%20-%20FinTech-%20Layanan%20Baru-%20Ancaman%20Baru%20-%20Budi%20Rahardjo.pdf, viewed on 7 August 2018.

3 M. Siregar, 'FinTech dan Inovasi dalam Mendukung Inklusi Keuangan', presented on OJK FinTech Day, Medan, 22 March 2018.

because the types of services are diverse—not only dominated by peer to peer lending services and payments. FinTech business types expanded to equity capital raising, investment management, insurance, market provision, and many more. This is why the companies are also called digital financial innovators as mentioned before.

Gradually, the emergence of various FinTechs begins to change the face of the national financial industry. This change is inevitable since FinTechs have successfully transformed an existing system or market by introducing practicality, ease of access, convenience, and lower costs. At this point, FinTechs consider markets that are not touched by the conventional financial services industry as their market targets. Old-time players in the financial sectors have now begun to adjust to their systems to FinTech in development, to avoid suffering the same fate as Kodak and Nokia.

5.1 FinTech 2.0 Models

FinTech 2.0 can be defined as financial services offered by licensed financial institutions that apply innovation of digital technology to reach more customers and penetrate their market further. The usage of credit card, ATM and digital banking are part of FinTech 2.0 development.

The frenzied growth of FinTech 2.0 in Indonesia is undoubtedly inseparable from global technological advancement. This expansion started with the banking and other financial sectors' decisions to embrace technology to facilitate transactions. Two decades after Barclays first introduced the ATM in the late 1960s, financial services in developed countries were not only connected, but they had also turned into a digital industry. This era was known as the golden age of FinTech 2.0.

Digital financial services seek to embrace more customers. They offer easier transaction processes as Internet penetration goes more in-depth than before. This phenomenon can be seen in Indonesia since a number of banks have provided online banking, insurance industry provided e-insurance, and PT Pegadaian (persero), a state-owned pawnshop company, also launched its digital platform in 2018.

5.1.1 Capital Market

A series of global economic crises that happened in Indonesia, one of which began with the collapse of capital market, is a memory that is fresh in people's minds. As a result, most people assume that capital market investments have a high level of uncertainty and risks, as well as requiring large funds. This notion has hampered the growth of Indonesia's capital market industry.

The low public participation is evident from the Indonesian capital market literacy index which is in the range of 5-6 percent—behind banking (21,8 percent), insurance (17,1 percent), pawnshops (14,9 percent) and consumer financing (9,8 percent). The capital market inclusion index is smaller than the capital market's literacy rate, which is 1,1 percent.[4]

The Government, through the Indonesian Central Securities Depository (*Kustodian Sentral Efek Indonesia*/KSEI), is developing some strategies to increase the number of investors, raise transaction value, and facilitate transactions. The target is that 2018 will become a milestone for KSEI to implement electronic proxies (e-proxies) and electronic voting (e-voting), which will facilitate investors' transactions in the capital market by taking into account Indonesia's geographical condition as an archipelago.

A number of securities companies also use FinTech to attract more investors and spur financial transactions. One of them is PT Indo Premier Sekuritas with the Ipotpay app. Ipotpay maximizes balance results with some flexible offers.

Similar to digital wallets, Ipotpay's users can use the platform as a tool for investment, payment, and money transfer. The difference is that all the money deposited using Ipotpay will automatically be placed in money market funds, with last year's yield ranging between 7 and 9 percent.[5] Ipotpay's platform is there to support the features offered by Ipotfund, Indo Premier Sekuritas's online mutual fund market service.

Technology's role in developing the capital market industry has become inevitable. As with other conventional sectors that are approaching to collaborate with FinTech, the capital market industry is also seeking opportunities to partner with FinTech providers.

OJK stated that FinTech's presence has expanded the function of mutual fund distribution channels through electronic transactions and payments. To reach a broader market and provide comfort for investors, many mutual fund sales agents and investment managers have built technology platforms—from websites to mobile apps. Some of them even hooked up with e-commerce companies and e-payment providers to reduce capital expenditure spending on technology.[6]

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4 M. Pakpahan, "Potensi FinTech Untuk Perluas Penetrasi Pasar Modal', https://ekonomi.kompas.com/read/2017/01/03/130000326/potensi.FinTech.untuk.perluas.penetrasi.pasar.modal.bagian.1, viewed on 2 June 2018.

5 AW Putri, "Ipotpay, Inovasi Indo Premier di Ranah FinTech" https://swa.co.id/swa/capital-market/ipotpay-inovasi-indo-premier-di-ranah-FinTech , viewed on 13 August.

6 OJK, Capital Market Supervision Department, Interview, February 2018.

They provide a platform for prospective investors to open accounts and conduct transactions. Potential investors no longer have to file form manually, as they can do it online. The know-your-customer (KYC) procedures can also be done electronically, including face-to-face interactions through video calls and two-factor authentication verification.

Investors can make mutual fund transactions—subscription, redemption or switching—through a single platform. All product information, such as performance and prospectus, can be accessed via these platforms. Some mutual fund selling agents even complement their platforms with risk or return indicators such as Sharpe ratio, standard deviation, beta, and perform filtering. A number of these features help investors choose products that match their risk and profile.

By utilizing tech innovations, a number of mutual fund sales agents began offering digital investment portfolio management services, including micro-investments, automated discretionary portfolios, and automated rebalancing. One of them is PT Nadira Investasikita Bersama (Investasikita), a company that offers a website-based mutual fund investment platform with robo advisory system technology, a stop-before-loss feature, as well as portfolio rebalancing.

The service helps investors choose and manage mutual funds that match their risk profiles. Investors will be recommended as to what they should do to minimize risk and maximize returns. Investasikita can help customers rebalance portfolios when the mutual funds they buy perform poorly. However, these are just suggestions. It is up to the investors to decide for themselves whether to take the suggestions or not. Investors are also handed regular evaluations of their mutual fund performances, especially when the portfolio is seeing corrected performances.

Investasikita offers a goal-based investment technology that makes it easy for investors to invest online based on objectives they aim for. Once the investors choose their investment goals and tenors, RoboKita will immediately select the right mutual funds to buy.

Currently, investors can only register through the website. InvestasiKita will launch an app-based platform in December 2019. As of November 2019, the online mutual fund marketplace offers 47 mutual fund products, including stock, fixed income, mixed, and money market products from 15 investment managers. Investors can start with an investment of just Rp10,000.

Similar to Investasikita, PT Bibit Tumbuh Bersama (Bibit) offers investment services based on each investor's risk tolerance and financial goals. This online mutual fund app recommends suitable compositions for investment portfolios after processing investors' data, beginning with age, income, and risk level. In other words, investors don't have to deal with the mulling over which mutual fund products to choose, as the app has a smart robot acting as their investment advisors. The technology used in providing these recommendations adopted a modern portfolio theory introduced by an economist, Harry Markowitz. Not only does it give advice, Bibit also monitors portfolios to maintain optimal allocation.

There are at least three processes to go through when Bibit's app makes a recommendation. First is auto risk profiling, which determines risk profiles using an algorithm after the investor answers six questions. Second is the auto financial planning, which comprises of recommendations on where to allocate mutual fund portfolios. The third is auto rebalancing, which automatically maintains optimal allocation with adjustments to age, risk profile, and market conditions.

As of June 2019, Bibit has worked with at least ten investment managers. The numbers of products sold were, among others, 15 money market mutual funds, 18 fixed-income funds, 23 equity funds, and 12 sharia mutual funds. The company also opens micro-investment opportunities in mutual funds with an initial purchase of Rp10,000. The mutual fund can be paid using Go-Pay and LinkAja without the need to send proof of transfer.

According to the Indonesian Mutual Funds and Investors' Association (*Asosiasi Pelaku Reksa Dana dan Investasi Indonesia*/APERDI), the tech innovations in the form of digital platforms are boosting the growth of micro-investment in Indonesia.

Collaboration with FinTech does not only depend on the technology's function to facilitate transactions but also includes financial education that effectively targets more specific markets, such as housewives, employees, professionals, MSMEs, and university students.

One of these innovations is OlahDana that provides sociotrading services, a platform for digital-based investors' network taking place in website forums or mobile applications. The application created by OlahDana facilitates financial mentoring services through a digital 'follow and copy-trade' feature.[7]

There are also FinTechs that target pre-Initial Public offering (IPO) markets, known as angle trading or equity

7 Pakpahan, "Potensi FinTech" viewed on 2 June 2018.

crowdfunding. In this business form, investors' pool in money to buy MSME shares in the pre-primary market, or before the company goes public. The company helps startups or MSMEs with their funding by selling shares to interested investors.

The dynamic development of FinTech in the capital market sector has made OJK issue rules that allow mutual fund transactions and payments to be made electronically. This regulation is stipulated in POJK No.23/POJK.04/2016 on the guidelines for the Mutual Funds in the Form of Collective Investment Contracts.

Not only does it utilize technological innovations, mutual fund units' transactions can be done through minimarkets, which is a breakthrough in the Indonesian mutual fund industry. PT Manulife Aset Manajemen Indonesia offers this innovative scheme after cooperating with PT Indomarco Prismatama at the end of October 2018. With this scheme, investors can pay for the mutual fund units they bought in all Indomaret outlets within proximity to where they live or work. They can pay in cash, using debit cards, and electronic money.

This process was designed in a way similar to shopping at an online store. As such, people have more choices for making payments when buying capital market products. This method is expected to attract more people to invest in mutual funds to achieve their financial goals.

Currently, investors can make mutual fund transactions at selected Indomaret stores. These mutual fund transactions are in rupiah denomination which is up to Rp5 million. However, customers still need to make the initial transaction with selling agents – in this case, Manulife Asset Management Indonesia—who conducts customer due dilligence. The Indomaret stores serve mutual fund purchase transactions (top-up) after opening an account.

Payment and purchase of mutual funds through minimarket outlets are regulated in POJK No. 39.POJK.04/2014 on Mutual Funds Selling Agents. The regulation, issued in December 2014, allows minimarkets to become the extension of mutual fund agents. They can also partner with sales agents and investment managers.

5.1.2 Banking

The adoption of technology by banks is not something new since banks initiated many technological innovations. Banking financial transactions, which initially relied on direct transactions, were replaced by the presence of credit cards and ATMs in the 1970s. Telephone banking followed this advancement, a service that has now evolved to Internet banking.

In addition to making transaction methods easier for customers, this type of innovation is also cost saving and more efficient. The development of technology also shapes consumers' preference for financial services that rely on speed, efficiency, and comfort. Thanks to technological advancements, new players outside of banking started showing up, filling the gaps that banks could not cover.

Nowadays, banks are in the middle of a digital transformation. There are demands for them to seek faster ways to reach consumers and increase added value. Research by McKinsey & Company shows that there was a significant increase in the penetration of digital banking in Indonesia from 4 percent in 2012 to 33 percent in 2014. [8]

The digital banking began to flourish as several banks offer digital platform in a bid to further penetrate their customer's base. Banks such as Bank Central Asia (BCA) offered BCA Online, Mandiri with Mandiri Online, DBS Indonesia with Digibank, and Jenius from BTPN. DBS also integrated credit card and wealth management customers into Digibank. Meanwhile, Bank Tabungan Negara (BTN) expected to boost third-party funds through the improvement in its digital banking services.

In 2017, Bank Negara Indonesia (BNI) allocated Rp1-1,5 trillion to expand its digital banking. In the same year, Bank Rakyat Indonesia (BRI) launched 13 full digital branches and 100 digital counters across Indonesia. The digital offices operate in three airports and 10 malls in 12 big cities and the 100 digital counters are available in the conventional bank branches. According to BRI, the service is part of BRI's effort to fulfill the needs of its millennial and digital-savvy customers. BRI offered the latest omnichannel feature and biometric technologies as part of their new digital banking product.[9]

Banking innovations have indeed made technology a vital means in reaching customers across Indonesia. So far, banks have relied on branch offices to process financial transactions. However, with branchless financial services rolled out by OJK, *Layanan Keuangan Tanpa Kantor dalam Rangka Keuangan Inklusif*, popularly known as *Laku Pandai* program, the Government hopes that the financial inclusion rate can increase significantly.

As of December 2019, there are 1,202,890 *Laku Pandai* agents, 106,901 ATMs, and 1,045,903 electronic data capture (EDC)

8 S. Barquin, "Digital Banking in ASEAN", viewed on 6 August 2018.
9 Jakarta Post, "BRI Launches Full Digital Branches, Counters," https://www.thejakartapost.com/news/2017/03/10/bri-launches-full-digital-branches-counters.html

machines. These infrastructures enable banks to reach 1.5 million people who did not have financial access previously.[10] This achievement means that the Government cannot rely solely on conventional financial institutions to meet the financial inclusion goal. The opportunity also lies in FinTech as 69 percent of the unbanked population own mobile phones that allow them access to FinTech services.

This is why innovation that focuses on the use of technology continues to move in a more dynamic direction, which is marked by the emergence of startup companies. By looking at the data, FinTech companies emerged as a partner that can help banks improve their competitiveness. The first example of FinTech services that banks can utilize is data analytics, which allows banks to analyze customer habits and needs, thus enabling them to create financial products that match those needs. The second one is customized online services that can cater to customers' needs. Third is cost-saving services that can improve the efficiency of banking marketing activities.[11]

Other FinTech innovations that banks can benefit from include e-aggregators, big data, digital ID verification, cloud computing, implementation of orders through smart contracts, and others. There are two crucial points brought by FinTech innovation: information access and contestability.[12]

This kind of cooperation is shown by the innovations offered by IT consulting company, Blockchain Zoo. Not only does it focus on the financial industry, the company also provides consultations and validation technology applications, as well as a digital recording of business activities.[13]

Like most FinTech services, Blockchain Zoo offers technology that enables efficiency in financial transactions. In the banking sector, Blockchain Zoo implements Anti-Fraud technology, Letter of Credit, Audit, and Compliance, Supply Chain Management, to ATM Switching. To date, Blockchain Zoo has carried out socialization and exploration with 13 Regional Development Banks (*Bank Pembangunan Daerah*/BPD).

The blockchain technology offered by Blockchain Zoo is an excellent innovation in the financial sector. Through this

10 G. Rahmah, 'Industri Teknologi Keuangan Didorong Bangun Kolaborasi', *Koran Tempo*, 8 August 2018.
11 Pardi Kendy, 'Tingkatkan Daya Saing Perbankan Melalui FinTech', https://ekonomi.kompas.com/read/2016/12/23/153424326/tingkatkan.daya.saing.perbankan.melalui.FinTech, viewed on 13 August 2018.
12 MA Nizar 2017, 'Teknologi Keuangan: Konsep dan Implementasinya di Indonesia', *Warta Fiskal*, *vol. 5* (2017) pp. 5-13.
13 Blockchain Zoo, Chairwoman of the Board of Directors, Interview, November 2017.

method, banks no longer need a third party to act as an intermediary in the transaction process. Blockchain technology also has a little chance of being breached because this system does not use third parties as intermediaries in the network. Instead, selected participants in the network host the database server. The risk of data leak is therefore much lower than conventional data centers.

In today's digital era, the use of technology by the banking industry has become a necessity. All banks, both commercial and rural banks (*Bank Perkreditan Rakyat*/BPR), must follow suit in adopting technology to adjust the evolving needs of consumers or run the risk of being left behind. Collaboration with FinTech is an option that can be taken into account to make digital transformations.

5.1.3 Non-bank Financial Institutions

Like banks, the non-bank financial industry (*Industri Keuangan Non-Bank*/IKNB) also seeks to establish partnerships with FinTech so they can expand the market segments. Some IKNB institutions are an extension of the banking sector; their primary function is to reach unbankable customers—something that banks are unable to do due to tight regulations, complicated procedures, and other hindrances.

IKNBs cover the insurance industry, pension funds, financing institutions, specialized financial services institutions, and microfinance institutions (MFIs). OJK recorded that the IKNBs' turnover is now more than Rp1,100 trillion, with assets value totaling more than Rp2,200 trillion.[14] Unfortunately, the activities of the IKNB businesses are still centralized in Java, meaning that there is a vast market of consumers that yet to be explored.

FinTech, which usually comes in the form of an application, facilitates financial transactions of insurance companies, pension funds, and finance companies. FinTechs offer better efficiency, technological sophistication, and adequate human resources, which may attract non-banks to explore cooperation with FinTech-based business actors.

In the insurance industry, Indonesian insurers' use of FinTech still lags behind some of the neighboring countries.[15] A number of insurance firms in Southeast Asia, in countries such as Malaysia, Singapore, and Thailand, have built an insurance technology (insurtech) industry

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14 OJK, Non-Bank Financial Industry Supervision Department, Interview, April 2018.

15 N. Aldila, "OJK: Asuransi Digital Berbeda Dengan FinTech Lending", http://finansial.bisnis.com/read/20180317/215/750943/ojk-asuransi-digital-berbeda-dengan-FinTech-lending, viewed on 15 August 2018.

supported by numerous startups.

In Indonesia, established life insurance companies still dominate digital insurance products. One of them is FwD Life, which utilizes technological innovation to simplify the process of purchasing insurance products between agents and customers through their FwD Mobile app.[16] Through technology innovation, the insurance buying process can be simplified from 16 steps to just 6 steps.

The app has many features to provide pieces of training for insurance agents online, help customers understand their financial needs, offer paperless sales systems, and live chat services. FwD also developed a digital office to improve engagements between customers and agents, as well as providing product distribution channels through e-commerce. The company plans to invest Rp500 billion in developing digital technology in the insurance business until 2020.

Life insurer AXA Financial Indonesia chose the same path. The company launched a digital tool to expand its customer base. According to AXA, the device provides easy access to information for several purposes, such as creating retirement fund, children's education fund, business capital, and tourism or pilgrimage fund.

In addition to boosting gross premium income, Sequis Life launched mobile applications platform, Sequiz Ez, for agents and revamped site Sequis Online for customers in 2016. The adoption of a digital system will assist the company in managing and monitoring agent's performance and lifting operational efficiency. Sequis Life spent between Rp100-150 billion each year to develop its IT system.

Not all insurance companies build FinTech products to increase digital penetration. PT Asuransi Tugu Pratama Indonesia, Tbk., for example, chose to collaborate with an aggregator company, such as startups, instead of creating their own app. This model has begun to flourish in Indonesia.[17] They work together in offering insurance policies for personal accidents and Go-Car cars, one of Gojek Indonesia's services.

OJK has emphasized that technology insurance-based companies must guarantee the security of policy purchases. Each insurtech platform will also have to be registered with OJK, as

16 R. Kamdani, "FinTech Dorong Lahirnya Asuransi 3.0", https://FinTech.id/Idea%20PDF/FinTech%20Talk%20-%20Opini%20Editorial%204%20-%20FinTech%20Dorong%20Lahirnya%20Asuransi%203.0%20-%20Rudi%20Kamdani.pdf, viewed on 13 August 2018.

17 RA Pitoko, 'Ini Strategi Asuransi Tugu Pratama Hadapi FinTech di Indonesia', https://ekonomi.kompas.com/read/2018/04/10/223931126/ini-strategi-asuransi-tugu-pratama-hadapi-FinTech-di-indonesia, viewed on 15 August 2018.

it is the case with P2P lending FinTech companies.

Further, pawnshop also adopts digital technology. PT Pegadaian (persero), for example, has developed the Pawnshop Digital Services (*Pegadaian Digital* Services/PDS) application. The application, which targets millennial generation, complements Pegadaian's marketing network of more than 4,300 outlets.

5.2 FinTech 3.0 Models

Despite the increase in use of digital services, formal financial institutions, such as banks and non-bank financial institutions, have not optimally covered the entire Indonesian population. As Internet and smartphone penetration expanded, FinTech startups emerge to reach consumers who have been lacking access to conventional financial services. This trend is called FinTech 3.0.

One characteristic that FinTech 3.0 has is that startup companies are working in a market that has not been covered by banks. This strategy is implemented by using big data, artificial intelligence, and the power of cloud computing. This innovation is a development that has taken place in the global financial world.

Efforts to spur the FinTech 3.0 ecosystem are prominent in developing countries, which are driven by economic development reason. In Asia, the People's Republic of China and India are advanced examples of the development of FinTech—successfully pushing the digital industrial ecosystem that is inherent in increasing financial access. FinTech in Indonesia also advances towards the same goal, which is to connect unbanked communities to financial institutions.

FinTech 3.0 fever has also developed in Europe, the United States, even in some countries in Asia since the mid-2000s. In Indonesia, however, it can be argued that FinTech development was a bit late. Aftech estimated that the highest growth of FinTech players happened around 2015-2016, with a rate of around 78 percent. In 2016-2017, the growth rate of FinTech players increased at 39 percent. Aftech estimated that the number of FinTech businesses in 2016 was between 135 and 140, which continued to increase to almost 235 companies in 2017.

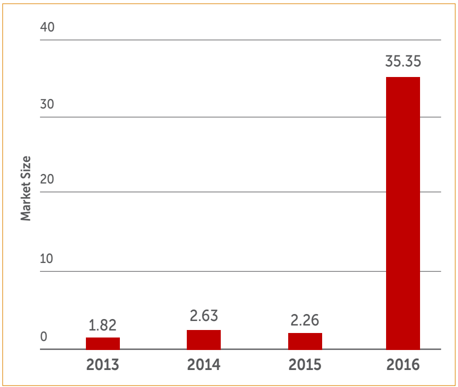
Gradually, FinTech businesses began to build their own IT infrastructure.[18] About 49 percent of the companies, for example, built data security solutions or spent capital expenditures to develop one. The companies that develop digital signature and allocated capital expenditures for

18 M. Siregar, "FinTech dan Inovasi" presented on 22 March 2018.

data storage solutions reached 23 percent and 34 percent respectively.

Figure 5.1. Market Size of FinTech in Indonesia (US$ million)*

Figure 5.1



* Cambridge Centre for Alternative Finance, "Cultivating growth, the 2nd Asia Pacific Region, Alternative Finance Industry Report", https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2017-09-cultivating-growth.pdf, viewed on 12 August 2018.

2016 was a special moment for the FinTech industry. In this period, Indonesia became one of the countries with the highest growth rate of the FinTech market.[19] Initially, in 2013-2015, FinTech market size in Indonesia grew at a moderate rate of around 15 percent. However, in 2016 the market size increased exponentially to US$35,35 million, far from the US$2,26 million recorded in 2015, as depicted in Figure 5.1. This 1,462 percent growth is the highest compared to other countries in Asia Pacific.

The soaring market volume of FinTech industry throughout 2013-2016 was mainly attributable to the growth of P2P lending services, which rose from US$0,11 million in 2015 to US$21,65 million in 2016. Meanwhile, donation-based crowdfunding and equity-based crowdfunding contributed to the increase in market volume each by US$3,29 million and US$3,2 million in 2016.

The Cambridge Centre for Alternative Finance (CCAF) noted that there were at least nine FinTech models in Indonesia recorded in the data, including P2P lending, donation-based crowdfunding, equity-based crowdfunding, P2P lending for real estate, debt-based securities, reward-based crowdfunding, balance sheets, consumer lending, and revenue sharing or profit-sharing crowdfunding.

Of these, around six models were introduced in 2016, while the remaining three: P2P lending business, reward-based crowdfunding, and crowdfunding donations have been around since 2013.

The dominating contribution of FinTech P2P lending models compared to other models is the reason for OJK to issue POJK No.77/POJK.01/2016 on IT-Based Lending and Borrowing Services. This regulation requires P2P lending providers to register with and obtain a license from OJK. As of October 2019, there are 144

19 *Ibid*.

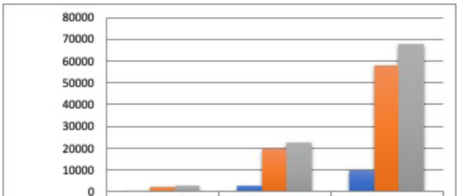
companies registered with OJK and it grew to 164 companies in December 2019.

OJK also noted that P2P lending companies disbursed Rp67,99 trillion worth of financing as of October 2019. This figure far exceeds the total loans disbursed in December 2018, which was Rp22,66 trillion. In December 2017, the value of loans disbursed only reached Rp2,56 trillion. Figure 5.2 depicts that Java is the area that dominates P2P lending's market. P2P lending FinTechs have joined hands with 578,158 lenders and served 15,98 million borrowers as per October 2019. This number far exceeds that of December 2018 with 207,506 lenders and 4,36 million borrowers.

The total loan disbursement until October 2019 shows that the highest loan distribution occurs in the province of Central Java, as illustrated in Figure

Total Amount of P2P Lending FinTech's Loan Disbursement (Rp bilion)*

Figure 5.2

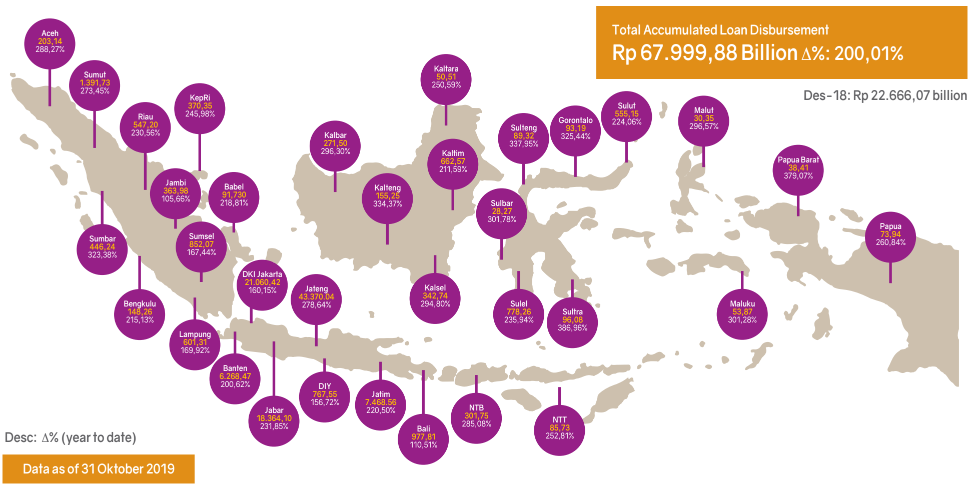


	2017	2018	Oct-19
Outside Java	378,32	3.048,61	9.700,73
Java	2.186	19.617,46	58.229,15
Total	2.565	22.666,07	67.999,88

* OJK 2019.

Accumulated Loan Distributions by Province*

Figure 5.3



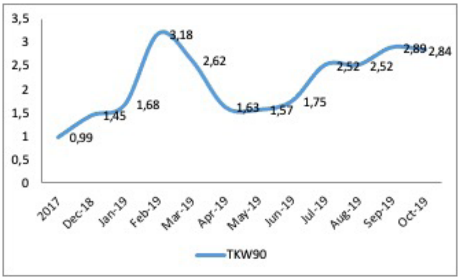
* *Ibid.*

5.3. DKI Jakarta and West Java followed in second and third positions. Figure 5.3 also depicts that the highest lending in Sumatra occurred in the province of North Sumatra. Meanwhile, the highest growth of loan disbursement (year to date) was recorded in Southeast Sulawesi, at 386,96 percent, followed by West Papua 379,07 percent.

The growth of loan disbursement is subsequently followed by the growth of Non-Performing Loan (NPL). The non-performing loan ratio above 90 days (TKW90) was 2,84 percent in October 2019, as illustrated in Figure 5.4. Although it declined from September, the ratio was still higher than the rate in June. Figure

Non-Performing Loan Ratio of P2P Lending FinTech*

Figure 5.4



* *Ibid.*

5.4 also shows that FinTech's NPL ratio fluctuated throughout 2019.

To improve FinTech transparency, OJK requires all P2P lending entities to display loan quality repayment success rate that is reported up to 90 days after repayment due date (TKB90). Basically, TKB90 is calculated from 100 percent minus TKW90. OJK asked FinTech actors to display the 90-day success rate to the public as of April 2019. The implementation of TKB90 is to ensure players disclose their loan performance on their website, which may prevent irresponsible disbursement. TKB90 becomes the "health" indicator of the industry.

As of October 2019, OJK noted that TKB90 of FinTech P2P lending was 97,16 percent. OJK recorded the lowest TKB90 in 2019 occurred in February 2019, which was 96,82 percent. The value decreased by 117 basis points from December 2018 at 98,55 percent.

The ability to repay loans will have an impact on FinTech P2P lending companies to maintain TKB90's performance. That is why every company is required to be more selective in accepting prospective borrowers. One of them is by developing a credit scoring system that can assess the suitability of borrowers. This method collects various non-financial data, such as mobile phone usage, social media, and utility bill.

Another way to do credit scoring is by doing a psychometric evaluation. Different from banking credit scores that look at the history of loan repayment, a number of P2P FinTechs developed a more complex credit score engine based on risk analysis of the psychological and personality of prospective borrowers. Thanks to machine learning technology, the credit scoring system measures the attitudes, good intentions, and self-confidence of recipients to repay loans.

This method uses a questionnaire to measure behavioral and psychological traits associated with willingness to repay. The test can be delivered face to face through manual form, back and forth using Short Message Service (SMS), or using mobile apps. FinTech companies use this data aggregation to build models that can assess the ability and willingness of borrowers to pay for loans.

FinTech lending brings together those who need financing from funders who are willing to provide funds. They give a platform to bring together investors and borrowers. In short, the function of the platform is only to provide loans.

Startups such as Amartha, Investree, Kredivo, and Modalku are FinTech P2P lending companies. Amartha earns fees from both lenders and borrowers, while the lenders earn profit from profit sharing. On average, Amartha earns the same amount of revenue as lenders do, which is an average of 15-30 percent per year. A portion of the income is profit for Amartha, while lenders earn a return rate of 15-17 percent. Each borrower is subject to different rates depending on their credit score, type of business, duration of borrowing, and previous loan track record.[20] Amartha's long-term borrowers usually receive a lower profit share.

In contrast to Amartha, Investree focuses on prospective borrowers who already have guaranteed income, such as catering companies or production houses that already have contracts with clients, but are in immediate need of working capital.[21] The invoice provides a sense of comfort for lenders. Investree loans are maximum 80 percent of the invoice. The average loan interest rate is 12-20 percent per year. Investree imposes borrowers a 3-5 percent marketplace fee on every loan. Lenders can earn a return rate of 12-20 percent per year. Investree has also begun targeting funding for employees. Until the middle of 2017, there were at least 40 companies that have worked with Investree. As of 5 December 2019, Investree has channeled Rp4,24 trillion of loan to 1,240 borrowers.

On the crowdlending front, TaniFund is a notable crowdlending FinTech

20 Amartha (PT Amartha Mikro Fintek), Founder & CEO, Interview, March 2018.
21 Investree (PT Investree Radikha Jaya), Co-Founder & CEO, Interview, June 2017.

company in Indonesia. This company provides technology-based facilities that connect farmers with lenders.[22] Through TaniFund, farmers and small and medium businesses in the agricultural sector have more increasingly straightforward access to funding. They need financing to grow their businesses and reduce dependence on intermediaries. TaniFund implements a revenue sharing for the sale of agricultural products of 40 percent for investors, 40 percent for farmers, and 20 percent for TaniFund. In addition to TaniFund, other crowdfunding-based FinTech companies in Indonesia include Kitabisa and Mapan.

On asset management, Finansialku is one FinTech company that offers such service to Indonesian customers. This company offers consultation and training services in financial planning. Another company is Bareksa. Similar to Finansialku, Bareksa also takes over the role of conventional financial planners. In the past, people who wanted to make investments should consult with financial planners. Now they can go to a site or app, fill out electronic forms, choose an investment menu, and transfer funds. As an integrated financial portal, Bareksa provides education for tens of thousands of customers who want to invest in the capital market. This educational forum is called the Bareksa Fund Academy. Through this forum, customers gradually become customers of Bareksa and invest in the capital market.

OJK requires FinTech P2P lending companies to use digital signatures. The use of digital signatures is the main component of the KYC process that will enable FinTech players to reach out to more customers throughout Indonesia.

All digital signatures must be certified by a Certificate Authority (CA) company. One of them is PrivyID, which has been registered with OJK as an organizer of Digital Financial Innovation in the e-KYC cluster. Several FinTech companies, such as Akseleran, Investree, Amartha, and Koinworks have collaborated with PrivyID.

OJK is aware that Indonesia is among Asia's most prominent countries when it comes to FinTech use. On one hand, there is a huge financing need while access to funding is still limited. On the other hand, the use of the Internet and smartphones are growing fast—supported by an enormous middle-class population.[23] This is the reason why OJK encourages the presence of technology-based financial services to increase financial inclusion, especially for MSMEs.

22 TaniFund (PT Tani Fund Madani Indonesia), Director, Interview, November 2017.
23 OJK, Banking Supervision Department, Interview, 13 February 2018.

The massive growth of the FinTech industry is unstoppable amidst the globalization of technology. FinTech seemed to prove the existence of economic democratization, which was not only joined by big players but also micro, small and medium-sized entrepreneurs. They are targeting a consumers' market wider than banks. Banks and FinTechs do not have the same competition space, but can be categorized similarly. Hence, proportional regulations are needed to provide a sense of security for consumers, especially regarding data security and ownership, privacy, and data governance.

On the other side of the coin, 407 unregistered P2P lending businesses were found by the regulator's Investment Alert Task Force.[24] To follow up on these findings, the Investment Alert Task Force has summoned the unregistered P2P lending companies to stop their businesses, delete all apps offering lending services, settle all obligations to their users, and immediately apply for registration to OJK.

OJK also reported those illegal companies to the National Police's Criminal Investigation Agency and asked the Ministry of Communication and Information Technology to block their websites and social media accounts. OJK also requested Google Indonesia management to remove their apps from Google Play Store, and asked banks to freeze their accounts.

The Investment Alert Task Force urges people not to engage in activities with unlicensed entities, as they have the potential to harm general public. Problems that can arise from the existence of illegal FinTech companies include criminal acts of money laundering or terrorism financing, misuse of consumer data and information, loss of potential tax revenues, and a breach of trust in developing the P2P lending industry.

5.3 Development of Digital Financial Innovation in Indonesia

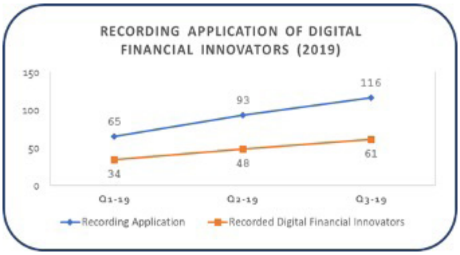
The emergence of FinTech startups, such as P2P lending companies, marked the era of FinTech 3.0. Nevertheless, the growth and development of the FinTech industry do not stop there. The industry keeps growing, and newer FinTech business types emerged in the market, which is called Digital financial innovators. As explained previously, there are 61 recorded Digital financial innovators per October 2019, and at least 40 more

24 Otoritas Jasa Keuangan 2018, '*Satgas Waspada Investasi Imbau Masyarakat Waspadai FinTech peer to peer lending tak berizin*', https://www.ojk.go.id/id/berita-dan-kegiatan/siaran-pers/Pages/Siaran-Pers-Satgas-Waspada-Investasi-Imbau-Masyarakat-Waspadai-FinTech-Peer-to-Peer-Lending-Tidak-Berizin.aspx, viewed 30 July 2018.

companies are still in the assessment process by OJK. Figure 5.5 depicts the details of the growth in the recording application OJK received. According to the latest data, by June 2019, the total transaction of Digital financial innovators is noted to be more than Rp6 trillion. This number is quite promising, considering that Digital Financial Innovation has just been around for about a year, and the total transaction noted itself is only from the 34 Digital financial innovators, which got recorded first and merely for the period of 6 months starting from January to June 2019. This number is expected to rise significantly along with the number of FinTechs, which are emerged and recorded at OJK.

Statistics of Recording Application for Digital Financial Innovation

Figure 5.5



So far, OJK has noted 15 types of FinTech businesses growing in the Indonesian market, with the details as follow:

a. **Aggregator**

An aggregator provides information about financial products and services offered by financial institutions to help customers compare easily and pick one that best suits their profiles and needs. For example, through an aggregator, customers can easily compare existing insurance products, loan alternatives, et cetera.

b. **Financial Planners**

A financial planner helps customers to do thorough financial planning in an attempt to ensure their financial health or achieve some specific life goals by encouraging saving habits or making productive investments. With their technology infrastructures, a financial planner may enable customers to choose the products that best match their risk profiles.

c. **Blockchain-Based**

Blockchain-based is a platform that utilizes blockchain technology to run business process. Investors could fund projects on the platform by buying tokens using Indonesian Rupiah currency, with profit sharing distributed accordingly among investors and project owners using the blockchain technology.

d. **Credit Scoring**

Credit Scoring conducts valuation on the profile of the prospective customers who wish to make a loan application and provide an indication about the customers' credit eligibility using alternative data. The final decision will still be on the hand of the financial institution, but credit scoring is expected to give the financial institution a necessary reference in reviewing the loan application.

e. **Claim Service Handling**

Claim Service Handling is a subset of insurtech that specifically allows customers to make insurance claims easily with the help of technology, with an aim to make the claim process relatively faster. In addition, the Claim Service Handling also promotes insurance products digitally, as such, it somehow works as the marketing channels of the insurance.

f. **Project Financing**

Project Financing is a FinTech that helps project owners to be able to publish their projects on the platform to get some funding from prospective investors. The projects will be in a crowdfunding scheme, which means that many investors can fund one project.

g. **Digital DIRE (*Dana Investasi Real Estate*)**

Digital DIRE, which stands for Real Estate Investment Fund, facilitates property owners who wish to get funding before starting commercializing their properties. The property will be offered to investors through the platform, and the return earned from the property will be shared among investors proportionally.

h. **Funding Agent**

Funding Agent connects specific financial institutions such as BPR/ Bank Perkreditan Rakyat Syariah (BPRS) with prospective investors. It helps financial institutions to find individuals who wish to put some money in the financial institutions in the form of a product, such as a deposit. It will add funding to the financial institution, but it will also work practically just the same as an investment for the clients.

i. **Financing Agent**

Financing agent connects specific financial institutions, such as BPR/ BPRS, with the prospective borrowers. It helps provide financing options offered by such BPR/BPRS to the individuals or MSMEs in need, and allow them to apply for one easily through the platform.

j. **e-KYC**

e-KYC or electronics-know your customers is a FinTech that enables digitalization of the verification process required in account opening, loan application, et cetera. to meet the standards set by the regulations related to Anti-Money Laundering/ Combating the Financing of Terrorism (AML/CFT). With e-KYC, there is no need to have a face-to-face meeting, and the whole process could be done faster.

k. **Non-CDD (Customer Due Diligence) Verification**

Non-CDD Verification facilitates an online verification of the customers' profile. This one does not yet meet the AML/CFT standard set by the regulation but is still good to have. This is usually used by digital platforms such as P2P Lendings to verify their users' data.

l. **Online Distress Solution**
   Online Distress Solution mediates borrowers and banks in an attempt to settle potential bad debt. FinTechs will negotiate with the Bank and connect borrowers with Refinancing Partners.
m. **Online Gold Depository**
   Online Gold Depository provides platforms that allow customers to be able to buy gold in retail, in which the real gold bar is stored accordingly and can be redeemed by the customers anytime. Customers may trade and transfer ownership of the gold through the platform.
n. **Social Network and Robo Advisory**
   Social Network and Robo Advisory create an ecosystem that allows prospective investors to meet with each other and discuss issues surrounding investment, providing advice about the best investment and the corresponding strategy.
o. **Tax and Accounting**
   FinTech classified in Tax and Accounting cluster helps provide financial reporting and financial management to individuals or MSMEs. It also has a bank reconciliation feature, in which with the API (Application Programming Interface)-sharing mechanism, it allows customers to link their platform accounts with the bank accounts to some extent.

5.4 Institutions Relevant to FinTech

Bank Indonesia

Since 2017, the Central Bank (*Bank Indonesia*/BI) has been overseeing FinTech transactions related to payment system. In this regard, BI Regulation (*Peraturan Bank* Indonesia/PBI) No.19/12/PBI/2017 on the implementation of FinTech. Under this rule, FinTech providers offering payment systems services must register with the central bank before they can run their business. This rule was issued to prevent economic impacts that may harm the community.

The providers of technology-based payment system services must convey information about the technology service products offered.[25] The business model they run must meet the established criteria. If the requirements that must be fulfilled fall under the authority of another regulator, the business actor who runs the payment system must continue to

25 Bank Indonesia, Deputy Governor, Interview, December 2017.

register with BI. This process applies to companies that offer FinTech service business combinations.

The Central Bank also makes regulatory sandboxes, in which it oversees and evaluates FinTech services and business innovation processes that provide payment. The goal is for BI to know whether the products offered are safe. This limited test is carried out for six months. In the initial stage, the company's operating area will be limited to using a license to measure how much risk the offered product has.

In the regulatory sandbox, BI will make records, collect data, and analyze the business.[26] If BI finds potential risks that may harm the society, BI might close the company. In short, before issuing permits, BI will check the business model, transaction process, risk mitigation, and the robustness of the payment system offered. The checking is important to investigate the potentials for money laundering. BI will issue a permit if the business and the company are considered safe—not possessing dangerous risks.

So far, BI is still reviewing the e-commerce e-wallet permit issuance, especially regarding the security of payment systems and risk mitigation. To suppress potential losses incurred by customers, the Central Bank has asked many companies to complete documents and requirements.

Ministry of Cooperatives and SMEs

Technological advances are steering economic growth trends towards digitalization. In several sectors, this trend often causes commotion that stems from the public's unpreparedness for technological advances. Ideally, innovations in technology should bring positive impacts for equal wealth and welfare distribution among people. The presence of e-commerce, for example, has allowed people who were unchartered in the national business map to contribute actively to the state's economic growth.

This positive role of digitalization motivates the Government to create chances for technological transformations. A concrete example would be the 'Ayo UMKM Jualan Online' movement, which is aimed to encourage MSMEs to join online platforms. This government-initiated program is established in cooperation with six e-commerce marketplaces, including Bukalapak, Tokopedia, Lazada, and Blibli.

The program aims to give MSMEs a shot at competing at a much broader market by

26 Bank Indonesia, Payment System Policy Department, Interview, December 2017.

going online. 'Ayo UMKM Jualan Online' is a collaborative program between the Ministry of Cooperatives and SMEs and the Ministry of Communication and Information Technology. Their target is for this program to facilitate 8 million MSMEs with online sales.

The Government also has a mission to utilize MSMEs by incorporating FinTechs. Starting in 2018, the Ministry of Cooperatives and SMEs, through the Revolving Fund Management Agency (*Lembaga Pengelola Dana Bergulir*/LPDB), partner with P2P lending companies to strengthen the financing of cooperatives and MSMEs.

In 2018, the LPDB planned to disburse some Rp1 trillion worth of loans to MSMEs where Rp300 billion would be allotted to lending-and-borrowing cooperatives, Rp200 billion for real sector cooperatives, Rp300 billion for MSMEs, and Rp200 billion allocated for the banks and non-bank financial institutions.[27]

In the past, the LPDB faced several issues, from poor human and technological resources, inefficient organization structure and governance, to limited networks. Debtors' data are not yet digitalized. By working with FinTech, the LPDB can adapt their ways of working, creating efficient governance of organizations and technology in a bid to expand the access and channels of revolving funds disbursement.

One-way for LPDB to do this is by cooperating with FinTech institutions and ecosystem to develop an IT system. Their current target is to create a Core Micro Financing System (CFMS) or a FinTech-based debtor information system, which includes lending partners' big data, a credit rating system, e-money, e-reporting, even an e-payment channel. The entire business process—especially the way funds are disbursed—is done through CFMS, making things simpler and more accessible for cooperatives and MSMEs.

Ministry of Finance

The buyers of the Government Bond (*Surat Berharga* Negara/SBN) are no longer dominated by professionals. In recent years, new investors from millennials group emerge as potential buyers. This change in composition motivates the Ministry of Finance to recruit several FinTech businesses, such as Investree and Bareksa, to become marketing distributors of retail savings bond series SBR003. This collaboration is also done to reach a broader market,

27 B. Setyo, 'Paradigma Baru LPDB, Pengelolaan Dana Bergulir', presented on OJK FinTech Day, Makassar, 9-10 November 2017.

especially millennials. The Ministry of Finance is also working with Bank Rakyat Indonesia (BRI), Bank Mandiri, BCA, Bank Permata, Bank DBS Indonesia, and Trimegah Sekuritas.[28]

There are several reasons why the Ministry of Finance sells retail SBN online. First, the target sales will not be met otherwise. In addition, an online scheme is also related to the Government's goal to increase the number of domestic investors. A larger, more diverse investors' base will reduce market vulnerability.

Secondly, the online sales of retail SBN can increase inclusion in the SBN market. Indonesia's demographics bonus in the era of digital economy supports the Government's plans to sell retail SBN online. From 255 million Indonesians, 81 million are between 18 and 38 years old. The third reason is the number of digital buyers in Indonesia, which increases each year. In 2016, there were 24,9 million online buyers. The number rose to 28,1 million in 2017 and is predicted to reach 43,9 million in 2022.

In July 2018, Investree managed to sell Rp15 billion worth of retail SBN. The FinTech companies aim to double the proceeds during their next sale. The Ministry of Finance hopes FinTech's involvement in the retail SBN market can attract young investors who, between 18-45 years old.

Coordinating Ministry for Economic Affairs

The Government seeks to boost electronic sales. One way is by publishing the 2017-2019 e-commerce roadmap. One of the programs included in the roadmap is the optimization of digital-based funding for MSMEs and startups that provide e-commerce platforms. This is where FinTechs can make a difference, by providing funds for producers or e-commerce sellers while funding consumers.[29] E-commerce platforms that bring together producers and consumers can offer their services in the form of business-to-business, business-to-government, business-to-customer, or customer-to-customer.

Micro, small, and medium-size industries can use the funds from FinTechs to increase their working capital and improve competitiveness. The same thing applies to small-to-medium importers of raw materials who are operating within a bonded logistics center (*Pusat Logistik Berikat*/PLB). With the funding

28 Ministry of Finance Republic of Indonesia, Directorate General of Budget Financing and Risk Management, Interview, November 2017.

29 M. Rosihan, "Kolaborasi FinTech Lending dan Program Pemerintah di E-Commerce', presented on OJK FinTech Day, Medan, 22 March 2018.

they received, these industries will have the required capital to compete better. Funds from FinTech can also increase the working capital of e-catalog vendors for government auctions. As for the public or the consumers, loans obtained via FinTech will increase their purchase power.

Indonesia's e-commerce market is indeed lucrative. The Indonesian Internet Service Providers Association (*Asosiasi Penyelenggara Jasa Internet Indonesia*/ APIJI) recorded that Indonesia's Internet penetration level has reached 51,8 percent, of which 63,5 percent of Internet users have done online transactions. The Internet also increases the income of the small and mid-size business actors by up to 80 percent and helps increase economic growth by about 2 percent. Internet networks for SMEs increase chances of employment by 1,5 times.

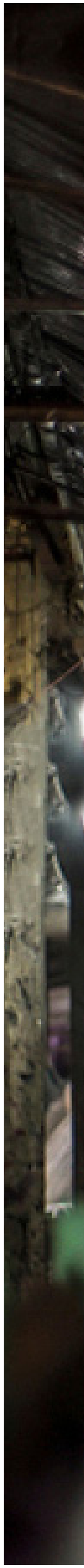
Unfortunately, MSME products that are sold online and in marketplaces only account for 2-8 percent, and only 5-7 percent the products sold in marketplaces are made by Indonesian MSMEs. In Indonesia's case, most of the items sold online are imported products. Another issue is that the national logistics capacity is not enough to handle the doubled volume of e-commerce goods influx. Shipping is also still quite expensive. That is why the Government hopes that with funding from FinTech, local MSME goods' producers and startups from the upstream sector can increase their business competitiveness.

FinTech's Role in Supporting MSME Financing and Financial Inclusion

For years, international communities have thought of ways to alleviate poverty. They designed financial services starting with savings, loans, and investments—all to help people from falling into poverty and to prevent the poor from getting poorer. However, for the 767 million global citizens living with no more than US$1,90 a day, situations like illnesses, death of a cattle, broken farming equipment, even wedding or funeral expenses are more than enough to put them back into the poverty hole.[1]

The World Bank discovered that most of the world's poor population live in the countryside, having low education. Most of them work in the farming sector and more than half of them are not yet 18 years old. The international community hoped that micro financial services would be of

1 World Bank, "Understanding Poverty", http://www.worldbank.org/en/topic/poverty/overview, viewed on 13 July 2018.



Chapter 6

much help to the group, including those residing in Indonesia.

Karlan et al. argue that traditional microcredit services do not live up to many people's expectations.[2] This condition is unfortunate considering Indonesia's MSMEs sector was able to absorb 116,7 million workers in 2017.[3] It shows that 97,2 percent of the state's workforce is making money from the MSME sector. Despite dominating the economic structure, the number of loans disbursed to the MSME sector as per June 2018 reached Rp1086,5 trillion, or just 19,68 percent of the entire outstanding credit. This percentage indicates how most of the business actors in the MSME sector are lacking access to loans from banks or other non-bank financial institutions. The number of MSME bank accounts in September 2017, which was 14,3 million, reflects that assumption.[4] This number means that only 22,45 percent of MSME actors have bank accounts. OJK even noted that some 49 million MSME businesses are not eligible to obtain bank loans. This situation is ironic given the fact that MSME is a very potential market for financial services industry, especially banks and non-bank financial institutions, to disburse credits or financing to.

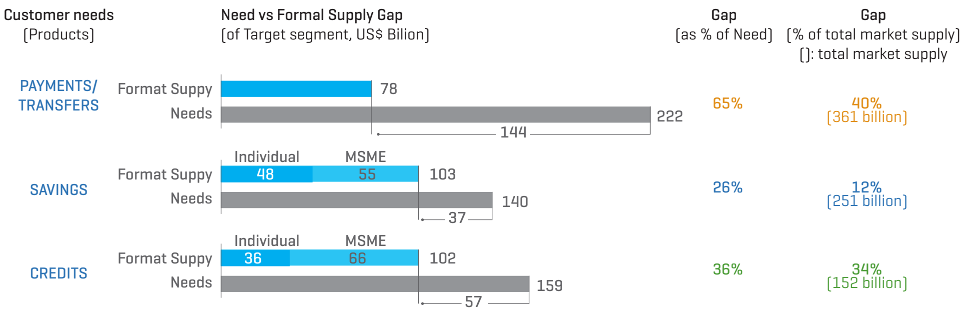
However, it seems that MSMEs are getting an answer to their problems of lending hardships, albeit slowly. Digital infrastructure development has created an opportunity for micro-financing to expand its reach. FinTech brings promises of benefits—both for existing micro financial institutions and new ones, allowing them to enhance efficiency, reduce costs, and tap new markets.[5]

In short, FinTech offers tech-based solutions. By collaborating with other financial services with a variety of platforms –such as crowdfunding, investment managers, mutual fund agents, a marketplace for micro-investments, peer-to-peer (P2P) lending, and micro insurance—FinTechs are able to create and offer low-cost, affordable financial services business models. The collaboration can also be used to trim down operating costs while giving FinTech the ability to offer a broader range of products to wider levels of the society. Hence, this chapter will elaborate on the role of FinTech in creating access

2 D. Karlan, *et al*, 'Making Microfinance more effective', Harvard Business Review (2016).
3 Ministry of Cooperatives and SMEs, cited in Organisation for Economic Co-operation and Development 2018, *OECD OECD Scoreboard on Financing SMEs and Entrepreneurs 2019*, (OECD Publishing, 2019).
4 Department of Research and Banking Regulatory OJK, 'Dukungan Industri Perbankan Dalam Rangka Penguatan Industri UMKM', presented on OJK FinTech Day, Makasar, 9 November 2017.
5 World Bank & Central Bank of Malaysia 2017, 'Revolutionizing Microfinance: Insights From The 2017 Global Symposium On Microfinance' http://pubdocs.worldbank.org/en/332301505318076916/GSM2017-Synthesis-report-draft-August-9th-2017-Final.pdf, viewed on 14 July 2018.

Supply and Needs in Financial Industry in Indonesia*

Figure 6.1



* *Ibid.*

to funding to MSMEs and increasing financial inclusion in Indonesia.

6.1 FinTech as a Tool to Increase MSMEs' Access to Funds

FinTech complements the functions of microfinance institutions, as well as government and non-governmental programs, in offering accessible microcredits to all levels of the Indonesian society. FinTech came when people were in need of alternative funding sources. So, no wonder that FinTech, a business taken up by many startup companies, is seen as a solution for the financial industry.

The banking industry has invested in innovation. However, banks have not fully applied the innovation strategy into their internal organizations. The banking sector has not been able to reach all levels of society. While banks are trying to find ways to develop new platforms, newly emerged startup companies are beginning to offer innovations to improve business scale amid tightening regulations, higher costs, and greater infrastructure.

The limitation of banks and many formal financial institutions in providing financing ultimately creates a gap between the needs and supply of funding. An ADB-commissioned study reveals that the difference between supply and demand in the payment and transfer in Indonesia's financial industry in 2015 reached US$144 billion.[6] Figure 6.1 illustrates that the amount of formal financial service providers in payment sector accounted for just 35 percent of the total needs.
The rate of digitizing payments is also

6 Asian Development Bank, "Accelerating Financial Inclusion in South-East Asia With Digital Finance"https://www.adb.org/sites/default/files/publication/222061/financial-inclusion-se-asia.pdf, viewed on 2 July 2018.

limited. Only 16 percent of government transfers are paid to beneficiaries account via e-wallet. A lot of domestic remittances in the country still use cash. Only 36 percent of the payments use e-wallet service. The good news is the Government and regulators continue to pursue digitizing payments.

The gap in credit services is also still high. Figure 6.1 depicts that Indonesia's formal financial service providers only supplied US$102 billion worth of credits, consisting of US$36 billion to individual customers and US$66 billion to MSMEs. Meanwhile, the credit demand in the financial market reached US$159 billion. This means that there was a credit-financing gap of US$57 billion. Formal financial service providers only met 64 percent of the demand. One of the widest gaps in financing occurred in the micro sector.

The ADB-commissioned study also points out that there is a close and consistent link between digital finance and efforts to accelerate financial inclusion. Solutions from digital finance application, according to the study, can play an important role in closing the financial inclusion gap. Digital solutions can at least address about 40 percent of unmet demand volume for payment services and 20 percent of unmet credit demand in the MSME segment.[7] Certainly, digital finance alone cannot completely close the gap in financial inclusion. However, the study estimates the cumulative effect of financial inclusion—driven by fast-tracked financial digitization—can raise the Gross Domestic Product (GDP) by two to three percent in markets such as Indonesia. That much of GDP growth can increase the income of Indonesians by 10 percent, especially the income of people who have been making less than US$2 per day.

In the Indonesian context, regulatory initiatives that support digital financial applications have the potential to reduce the gap between supply and demand in the payments, savings and credits sectors. Digital financial applications are projected to generate additional electronic payments of US$54 billion or reduce the gap by 37 percent.

The same thing is expected to happen in the savings and credit financing for the MSME sector. Digital financial applications are predicted to increase credit financing by US$11 billion and raise savings by US$13 billion. This means that digital financial applications may reduce the supply-and-demand gap in the credit and savings sectors by 20 percent and 35 percent respectively.

Many financial industry actors are hoping that digital financial applications, in the

7 *Ibid.*

form of FinTech, can be an engine to narrow down the micro-financing gap. OJK sees FinTech's strategy of targeting unbankable as efficacious, for example, through the FinTech P2P lending service. Some P2P lending FinTech companies can offer small loans.

To OJK, advantages of FinTech are cheap, easy and flexible. To obtain financing, for example, a customer only needs to show his ID card (*Kartu Tanda Penduduk*/KTP). The mini loan facility does not require customers to have a bank account as no collateral is required. Further, the process of getting to know your customers (KYC) can be done by merely scanning the ID card and taking a face selfie picture. This type of loan facility is undoubtedly much more flexible than those offered by regular banks. With these advantages, OJK is confident that FinTech will be able to push financial inclusion to penetrate further.[8]

Aside from being able to reach unbankable groups, FinTechs can also increase the ratio of bank customers. Most FinTechs only provide loans with less than a year tenors. As the customer's business grows and the tenor and loan amount increases, FinTechs are advised to collaborate with formal financial industries such as banks.[9] They can upgrade and become bank customers, and act as bank aggregators to attract new customers. The concept is quite successful. Many FinTech customers, who previously did not have bank accounts, have now gone to become bank customers and debtors.

P2P lending can also target potential unbankable markets. One of the segments OJK observes is the invoicing business. Many small-job contract holders need quick, small-to-medium size capitals. They even have invoices from employers or contracts that are ready to be cashed when the task is over. The invoices can be used as collateral for debt-settlement. However, so far this credit potential has remained untapped by banks.[10] OJK has directed many P2P FinTech companies to enter the credit segment in this sector, such as by providing loans with less than one-year tenor. The funding can help small-job contract holders to sustain their business.

OJK sees the high potential of funding offered by FinTech companies in Indonesia, especially to reach areas that are not exposed to microfinance institutions or Rural Credit Agencies.[11] With extensive technological reach, FinTech loan service can help MSMEs to

8 OJK, Non-Bank Financial Industry Supervision Department, Interview, April 2018.
9 OJK, Digital Financial Innovation Group, Interview, January 2018.
10 *Ibid*.
11 OJK, Banking Supervision Department, Interview, February 2018.

access financing and enhance business continuity.

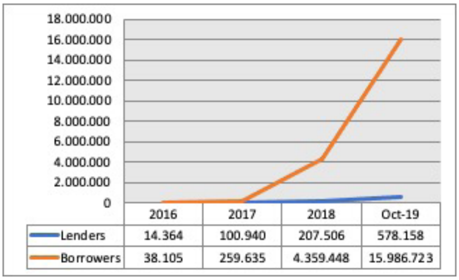
6.2 P2P Lending

P2P lending is one of the most popular FinTech services in Indonesia. With FinTech in payment services, P2P lending dominates the structure of Indonesia's FinTech market. As of October 2018, 46 percent of the FinTech companies were engaged in financing services, overtaking FinTech in payment services, which accounted for 29 percent.[12]

Indonesian FinTech Association (*Asosiasi FinTech Indonesia*/Aftech) noted that a number of FinTech companies engaged in lending started at the end of 2015 and became active in 2016. Lending FinTechs' growth has accelerated since OJK

Lenders and Borrowers of P2P Lending*

Figure 6.2



	2016	2017	2018	Oct-19
Lenders	14.364	100.940	207.506	578.158
Borrowers	38.105	259.635	4.359.448	15.986.723

* OJK 2019.

issued rule No.77/POJK.01/2016 on IT-based Lending and Borrowing Services, which regulates consumer protection, administrations, governance, and relationships with the association. Once the rule was put into effect, the number of lending FinTech soared.[13]

The growth is reflected in the increasing amount of loans, including number of lenders and borrowers. Figure 6.2 illustrates that the number of P2P borrowers multiplied from 38,105 to 259,635. The number jumped almost 17 times at 4,36 million borrowers in 2018 and reaches 15,98 million borrowers in October 2019. As discussed in the previous chapter, the total amount of loans disbursed also rose significantly from Rp284 billion in 2016 to Rp2,565 billion in 2017. At the end of the third quarter of 2019, the number dramatically soars to Rp67,999 billion. Meanwhile, the average amount of loans disbursed by lenders to MSMEs declined from Rp403 million to Rp75,53 million within the same period. The decline indicates how P2P lending FinTechs have begun to tap MSME businesses. On the other hand, the number of lenders also jumped from 14,364 in 2016 to 100,940 in 2017. It rises to 578,158 at the end of the third quarter of 2019.

On gender front, male dominates

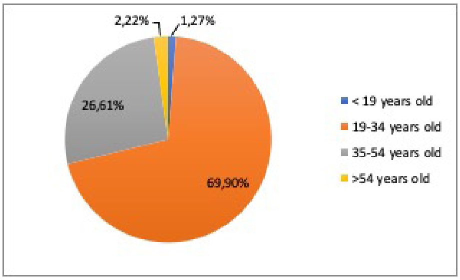
12 D. Zaini, "Analisis Data dalam Tekfin", https://FinTech.id/ideas/ideas-detail?id=402, viewed on 29 July 2018.

13 M. Siregar, "FinTech dan Inovasi" presented on 22 March 2018.

FinTech P2P lenders in Indonesia, with a percentage of 61,90 percent. Further, the lenders aged 19-34 years dominate the profile of lenders in Indonesia. Of the total lenders, 0,18 percent of them are business entities.

Characteristics of Lenders

Figure 6.3

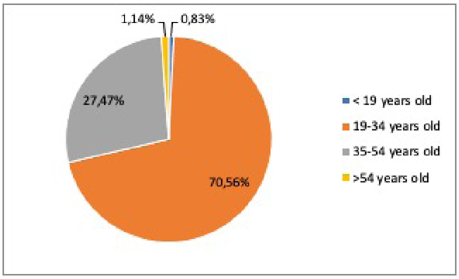


Similar to lenders, FinTech borrowers in Indonesia are dominated by males, accounting for 51,63 percent. Borrowers at the age of 19-34 years are the majority of debtors. As of October 2019, 0,12 percent of total borrowers are business entities.

FinTech companies that are offering financing services act as a platform for lenders and borrowers to meet—bridging investors and businesses requiring capitals to meet through digital apps and online accesses. It is this activity that came to the name of P2P lending. The platform's function is to disburse loans and the platform companies must not

Characteristics of Borrowers

Figure 6.4

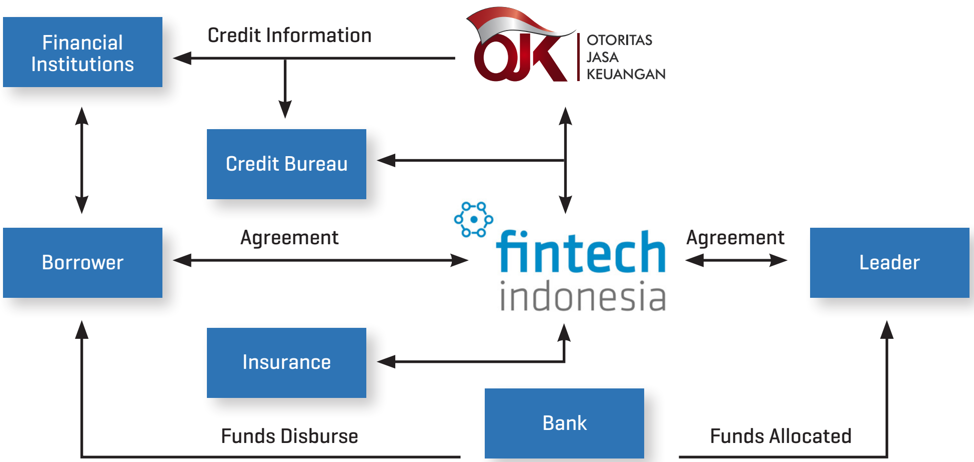


acknowledge the credits as their product. FinTech companies must also carry out account maintenance process, which is to guarantee that the loans will be paid back. Figure 6.5 illustrates the operation of a P2P lending business, which involves numerous parties, starting from OJK as the regulator, credit bureaus and other financial institutions that provide credit scores of the prospective borrowers, and insurance firms that protect and cover credit risks.

The existence of P2P lending FinTechs gives OJK hope to deepen financing penetration for the lowerclass group. The group has the potential to develop through independent business development. However, they have been hampered by the lack of access to formal financing. A number of FinTech companies have made approaches that will allow unbankable MSMEs to access loans. The approaches include those based on product need as well as easy-access to financing.

P2P Lending Ecosystem*

Figure 6.5



* M. Siregar, "FinTech dan Inovasi" presented on 22 March 2018.

Aftech categorizes financing services into six types, as shown in Figure 6.6. One of them is employee financing. In this model, P2P lenders work with corporates to provide funding for their employees. The second type is the billing-based financing with a maximum loan value of 80 percent of the nominal bill borne by the debtor of a project. The third type is work capital financing in the supply-chain business. The fourth type is the merchant cash advance, which is a small financing option with less than one-year tenor, designed for regular users of payment gateways. The fifth service is financing for online merchants, and the sixth service is microfinance lending.

The types of P2P lending for micro-financing that have developed the most are SME loans and micro productive loans. The SME loan in P2P lending business model refers to non-collateral work capital loans that have been provided by banks. Meanwhile, micro business loans refer to non-KUR (*Kredit Usaha Rakyat*) micro-credits. In addition to the two productive loan types, P2P lending also offers consumer credits. Table 6.7 describes the differences between each form of loans.

Table 6.7 above shows many FinTech companies are engaged in micro-financing, such as Amartha, Mekar, and Modalku. Their business schemes differ. Amartha, for example, provides a platform while acting as a counselor to micro business actors whom they will introduce to investors to get loans. Amartha workers also act as verifiers

P2P Lending Productive Loans – Micro & SME Lending*

Figure 6.6

B2b Employee Loan

- Individual employee loans through partners companies
- Loan size from IDR 5 Mn to 50 Mn
- 3-12 months tenor
- Interest rate -0.9-2.2% p.m
- Salary deduction by partner companies

Invoice Financing

- Short term invoive financing of reputable payors up to IDR 2 Bio
- 80% of Invoice value
- Interest rate-14%-30% annual
- Flexible tenor of 30-180 days
- Safe repayment through escrow a/c

Supply Chain Financing

- Revolving credit for purchase transactions based on Anchor recomendation
- Loan size from IDR 50 Mn to 2 Bn
- Bullet payment of 30-90 days
- Multiple drawdowns for repeat purchases
- Interest rate -14%-30% annual

Merchant Cash Advance

- Short term working capital to reputable payment gateway regular users
- Loan size up to IDR 2 Bn, tenor up to 24 months
- Fixed monthly repayment routed by partner payment gateway
- Interest rate of 14-30% annual

Online Seller Financing

- Historical data based working capital loan to sellers on E-commerce marketplaces
- Loan size up to IDR 2 Bn
- Tenor 6 months, Interest rate 14%-30%
- Direct repayment from Ecommerce marketplace from B2C receivables

Microfinance lending

- One-time loan for micro-business
- Loan size below IDR 25 mio
- Tenor 6-12 months
- Typically use group lending (Grameen model)
- Interest rate up to 60% annual

E-Commerce Financing

* *Ibid.*

Table 6.7.

P2P Lending Products*

ASPECT	SME Lending	Micro Productive	General Consumption	Micro Consumption (Daily instalment)
Interest	5-30% per year	15-50% per year	15-30% per year	Daily interest (e.g., 0.99% per day)
Loan Amount	Up to Rp2 billion	< Rp25 million	Rp5-25 million (multipurpose) Up to Rp2 billion	< Rp25 million
Referral Industry	Work Capital Loans without Collateral Bank BUKU I/II	Non-KUR (People's Business Credit) Micro Credits	Mortgage, Unsecured Loans (KTA), Multipurpose Loans	None
Tenor	3-24 months, commonly paid in stages (instalment)	Around 12 months, commonly paid in stages (instalment)	Depending on the type of products bought (housing, household goods, etc.)	Daily (up to 30 days) One time, fully paid
Additional Fees	Interest for lender plus fee for P2P company	Interest, plus fee for P2P company	Interest for lender plus fee for P2P company	Interest for lender plus fee for P2P company
KYC/ CDD	Due diligence over the borrower's business	Due diligence and KYC over alternative micro businesses	Personal and assets due diligence	Due diligence and simple KYC (e.g., salary cheque)
Companies	Modalku, Investree, KoinWorks, Crowdo	Amartha , Mekar,	Gradana and Cicil	UangTeman, RupiahPlus, and DanaCepat

* *Ibid*

of customers' eligibility.[14] Under this scheme, Amartha runs two roles at once; a microloan provider that collects and distributes funds to borrower groups, and a coach or trainer. Pieces of training and installments are done per groups. Once the micro business is deemed eligible for the loan, Amartha will market the borrower's profile to investors.

Amartha raises funds from investors. The investors' funds are then turned into third-party funds which will then be disbursed to groups. As of 11 December 2019, Amartha has channeled Rp1,68 trillion worth of loans to 456,890 micro-businesses, with the 90-day loan repayment success ratio of 99,12 percent.

Through group lending, FinTech's impact on financial inclusion is much more pronounced.[15] FinTech startups engaged in-group lending business could serve the poor society, especially those who have not been accessed by banks as they live far from the financial industry center.[16]

Mekar has a different scheme. The FinTech established by Putera Sampoerna Foundation collaborates with a number of cooperatives to foster micro-businesses while channeling funds. As of March 2017, Mekar partnered with Sahabat Mitra Sejati Savings and Loan Cooperatives (KSP), Mitra Dhuafa (Komida), and Abdi Kerta Raharja. The company sees that it fits them more to work with cooperatives since they know their members' situation better through direct interactions.

Cooperatives were chosen because they have built networks throughout Indonesia, not only as lenders but also as providers of assistance—to ensure that loans are used for business plans. They can also act as lenders with funds sourced from Mekar, or serve as a liaison for members planned to borrow from Mekar.[17] Since its launch in February 2017, Mekar has been able to disburse Rp279 million worth of loans to 52 small and medium-sized businesses in one month. Within a month, 65 individual collectors were gathered.

More than half of the lenders are people within the millennial age group. Nearly 70 percent of investors in Modalku, for example, are millennials. They dominate lenders who are registered on the Modalku platform, which as of May 2018 reached 50,000 investors. The FinTech company also noted that the net contributions to lenders reached more than Rp50 billion with a default rate below 1 percent. As

14 Amartha (PT Amartha Mikro Fintek), Founder & CEO, Interview, March 2018.
15 OJK, Financial Technology Regulation, Licensing, and Supervision Directorate, Interview, April 2018.
16 OJK, Digital Financial Innovation Group, Interview, January 2018.
17 M. Nabila, "Mengenai Platform P2P Lending Mekar dan Targetnya dalam Menciptakan Dampak Sosial", https://dailysocial.id/post/mengenai-platform-p2p-lending-mekar-dan-targetnya-dalam-menciptakan-dampak-sosial, viewed on 25 July 2018.

of May 2018, Modalku disbursed more than Rp1,67 trillion nationwide, of which Rp920 billion went to MSMEs.[18]

6.3 Credit Guarantee and Micro Insurance

The rapid growth of FinTech P2P lending is not without risk. In addition to the risks to borrowers and investors, P2P FinTechs' operation also carries a risk for the P2P companies themselves, which is the risk of default. Although the risk is not directly attached to the company—since the funds loaned are not third-party funds, but it may threaten the company's sustainability.

Aftech recognizes that the primary challenge faced by P2P lending businesses is to identify and verify customers. One of the strategies applied by some P2P FinTechs is sharing data of blacklisted customers.[19] From this collaboration, they know which customers have received funding, thus avoiding multiple financing.

Some FinTech companies also develop risk management and customer verification in various forms. They use machine learning to assess prospective customers using big data. Unlike banks which evaluate customers through surveys, face-to-face meetings, direct signatures, studies of borrowers' requests, to verification of personal and business profiles before approving applications, FinTech companies read data they have as a tool to verify customers.[20]

They use alternative non-financial data collected from a variety of sources, such as Internet browsing history, telephone records, geographic locations, and cellular credit top-ups. This collection of financial and non-financial variables helps build customer profiles and statistics, probability and non-probability models, which are used to predict loan returns. A similar method is applied for identity verification.

The practice of giving loans in FinTech P2P lending uses the same principle. If someone provides a correct description of a debtor profile, and the lender trusts the debtor's pay-off ability, the loan will be approved. The observation process does not stop after the loan is disbursed. Lenders also pay attention to the customers' loan payment patterns and behavior. Machine learning is a tool that helps supply information about customers

18 AD Putera, 'Pemberi pinjaman di Modalku mayoritas generasi mileneal' https://ekonomi.kompas.com/read/2018/05/30/123700726/pemberi-pinjaman-di-modalku-mayoritas-generasi-milenial, viewed on 27 July 2018.
19 Asosiasi Fintech Indonesia, Interview, November 2017.
20 Zaini, "Analisis Data dalam Tekfin", viewed on 29 July 2018.

automatically into the central system. The device will become smarter and more accurate with more data input, resulting in more precise decisions.

Not only that, risk assessment and data experiments are also critical. For example, an applicant who has a history of online gambling will be seen as having high risk and less likely to receive loans, even though he is financially able to pay it off. The data are companies' reference to actualize financial inclusion for the non-bankable communities—quickly and on a large scale. Nowadays, FinTech companies utilize data that are so rich; a vast improvement from what used to be a passive record.

To deal with this issue, through POJK No. 18/POJK.03/2017 concerning Reporting and Requesting for Debtor Information through the Financial Information Service System (*Sistem Layanan Informasi* Keuangan/SLIK) and PBI No. 15/1/2013 concerning Credit Information Management Institutions (*Lembaga Pengelola Informasi* Perkreditan/LPIP), OJK encourages P2P lending FinTechs to take part in the credit reporting system in Indonesia. Through these regulations, P2P lending FinTech companies may voluntarily report to SLIK. For P2P lending companies that have not taken part in SLIK, however, can still use the SLIK data as they are required to work with LPIP.

To date, there has been no P2P Lending company that reports to SLIK, although some have proposed to do so. This is due to the incompatibility of data or reporting infrastructure being used by the FinTech companies. Further, P2P Lending companies are required to become a member of Indonesian FinTech Lenders Association (*Asosiasi FinTech Pendanaan Bersama* Indonesia/AFPI) Fintech Data Center (FDC) as FDC provides information, on a real-time basis, on debtor's borrowing history.

Since 2017, KoinWorks and Modalku have collaborated with Pefindo Biro Kredit (PBK). Through this partnership, P2P FinTechs can access the credit history of prospective borrowers, their credit behaviors, credit score, and the presence of other institutions as a source of funds. By doing so, KoinWorks and Modalku can explore the background and additional information about prospective borrowers, which is useful in determining their eligibility. The track records of debtors with faltering installments will be recorded in PBK and affect their future lending prospects.

As of May 2018, 18 P2P FinTech entities

cooperated with PBK. The number increases to 45 as of November 2019.[21]

In addition to credit bureaus, some P2P lending FinTechs have also begun to establish cooperation with some insurance agencies, especially those engaged in credit guarantee. Credit guarantees need to be acquired considering P2P lending FinTech companies are unable to bail out investors' funds if a borrower fails to repay the loans, as stated in OJK Regulation No.77/POJK.01/2016.

Through cooperation in the provision of credit insurance, lenders in P2P FinTech companies are protected by insurance or credit guarantee that can compensate them if the debt has not been paid due to unfavorable situations experienced by the debtors, such as death or permanent disability. This credit insurance provides additional comfort to lenders.

One of the FinTech companies that provides credit insurance is Amartha, collaborating with the Indonesian Credit Guarantee Company (*Perusahaan Umum Jaminan Kredit* Indonesia/Perum Jamkrindo) since September 2017. For Amartha and Perum Jamkrindo, this collaboration is their first credit guarantee business in the P2P lending sector.[22] Since then, some FinTech companies have established similar partnerships to guarantee the funding they disbursed. Investree, for example, collaborates with Jamkrindo and Asuransi Kredit Indonesia (Askrindo) Syariah, through which each of Investree's financing invoices for the project procurement of goods and services is set at a maximum of Rp2 billion within 12 months, in accordance with OJK regulation No. 77/POJK.01/2016 on FinTech Financing.

From Amartha and Investree, Jamkrindo guarantees about 31,000 MSME debtors as of June 2019. The average of guarantee fees that are paid by MSMEs on each company is quite different, based on the financing type. On average, MSMEs of Investree pay about Rp3,9 million, while MSMEs of Amartha pay about Rp53,000. Not only Investree and Amartha, some other FinTech companies are also interested in working with Jamkrindo. As of the end of June 2019, Jamkrindo planned to cooperate with at least ten FinTech companies.

Investree also establishes a similar partnership with Zurich Topas Life. This life insurance program protects

21 AP Situmorang, 'Beroperasi 27 Maret, Pefindo Biro Kredit Gaet 55 LK dan 18 FinTech', https://www.merdeka.com/uang/beroperasi-27-maret-pefindo-biro-kredit-gaet-55-lk-dan-18-FinTech.html, viewed on 29 July 2018.

22 T. Mahadi, 'Masuk FinTech, Jamkrindo Gandeng Amartha', https://keuangan.kontan.co.id/news/masuk-FinTech-jamkrindo-gandeng-amartha, viewed on 29 July.

customers from unexpected risks and provides guarantees of creditors' investments during the loan installment period.[23] Meanwhile, KoinWorks partners with Allianz to offer the same protection to their customers. KoinWorks borrowers must pay a premium of around 0,24 percent of the loan value per year.

KoinWorks also provides fund protection services to avoid defaults. This protection is given to borrowers whose credit has not been paid by the due date. The amount of compensation depends on the grade of the loan invested. This type of protection is similar to the reserves applied by banks. The difference is that banks are required to have reserves for impairment losses (*Cadangan Kerugian Penurunan Nilai*/CKPN) to anticipate bad loans.

PT Asuransi Asei Indonesia (Persero) is eyeing the same business potential. In June 2018, Asei established a partnership with a FinTech company named as a credit guarantor, in which in the event of credit default, Asei will provide compensation amounting to 70-80 percent of the amount lost to the FinTech company. By the end of 2018, Asei became a guarantor to 3-5 FinTech companies.

Despite working with different credit guarantee companies, the applied credit insurance scheme is similar to one another. Premium insurance is charged to the borrower. However, not all FinTech companies provide protection because the loan period they provide to debtors is relatively short. One of them is UangTeman, which has a maximum borrowing tenor of 30 days.

Beyond credit guarantees, some P2P FinTech companies also offer other risk mitigations in the form of protection funds. Usually, the protection funds are taken from the profit, which FinTech companies will allocate to protect investor funds in the event of default.

Some other FinTech companies take different approaches to avoid failure to pay off debts, which could incur losses to funders. Akseleran, for example, uses non-conventional guarantees in the form of invoices, inventories, and equipment as collateral. Modalku also implements a personal guarantee.[24] That way, companies do not need to contact emergency contacts in the event of default, such as what happened in RupiahPlus' case. Modalku also offers alternative investments for lenders,

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23 D. Setiaji, 'Investree dan Zurich Topas Life Bekerja Sama Luncurkan Produk Asuransi Kredit', https://id.techinasia.com/investree-dan-zurich-topas-life-bekerja-sama-luncurkan-asuransi-kredit, viewed on 29 July 2018.

24 D. Setyowati, "T-cash Gandeng Sun Life Jual Asuransi Mikro", https://katadata.co.id/berita/2018/04/24/tcash-gandeng-sun-life-jual-asuransi-mikro, viewed 25 July 2018.

including stocks, bonds, gold, deposits, and property. The purpose of diversifying investments is to minimize the risks borne by investors or lenders.

For Amartha, the first filter to minimize defaults begins when prospective borrowers form and filter future group members. One group consists of 15-20 people. Usually, borrowers will form a group with people who are trustworthy, and add those who can help each other when a member experiences difficulties. In other words, members understand each other's characters. With a system of joint responsibility in the group, they will chip in to pay the installments of a member who fails to make a payment. In other words, if one member of the group is having trouble paying, the other members will cover the shortfall.

This scheme allows Amartha to have a 0 percent non-performing loan (NPL) ratio and 99,84 percent payment timeliness. Amartha also sends teams to provide assistance and monitor the progress of a debtor's business. Every week, the team visits debtors to give them pieces of training on financial management while collecting installments. This strategy is powerful to monitor a borrower's paying ability.

Although the P2P lending industry has improved its financing guarantee scheme, OJK requires all P2P lending companies to report the data and track record of its debtors. The report must be submitted to SLIK by 2022 at the latest. OJK is currently asking volunteers to deposit debtors' data into SLIK voluntarily, considering that the industry is still very young. The inclusion of P2P lending debtors' data is expected to enrich the existing debtors' database owned by various financing institutions, which is still dominated by banks and formal financing institutions' debtors.

Not only does it provide credit guarantee, the insurance industry also offers other microinsurance products that members can obtain in just one day. The trend follows changes in the customer's transaction behavior that are becoming more flexible and digitalized. As a result, today's insurance can sell premiums with an on-demand concept—based on consumers' needs.[25] A micro-based digital insurance shift allows consumers to buy premiums for just of Rp1,000 per day. It was difficult to see such a scheme in the past, as car insurance, health insurance, and life insurance policies require at least a one-year membership period.

The types of microinsurance innovation that are quite popular today are accident insurance and life insurance. Industry players in some countries have been

25 OJK, Digital Financial Innovation Group, Interview, January 2018.

experimenting usage-based insurance. For instance, consumers can buy online travel insurance per every trip made. For vehicle insurance, if the consumers rarely use their cars, they can purchase insurance only when using vehicle. For consumers, this scheme will provide drastic savings. Meanwhile, the insurer can generate more profit by applying this scheme, provided they manage a large number of policyholders.

To provide such services, some insurers and FinTechs have started collaborating. For example, PT Sun Life Financial Indonesia, which partners with Telkomsel's e-money provider T-Cash, to sell micro-insurance products. They offer three insurance products through smartphones: Proteksi Mikro Aktif, Proteksi Mikro Siaga, and Proteksi Mikro DBD. The service is called Telco insurance. The Canadian financial service provider aims to keep up with the changes in consumer behavior, which is shifting towards digital. That way, the products they issue can continue to be enjoyed by the public.[26]

Long before the Sun Life and T-Cash's partnership, Mitra Ibisnis Terapan (MIT), the owner of Premiro's insurance product, has also partnered with CekAja since 2016 to sell insurance products through online platforms. Through this type of cooperation, the public is expected to purchase Premiro insurance following their respective protection needs through CekAja.com.[27]

A partnership is also established between FWD Group and two FinTech companies, PadiPay and FinPay. FWD Group's subsidiary, FWD Life, adopted the FinTech approach with the release of iFWD Liberate in June 2015. iFWD is one of the insurance distribution channels that uses technology-based online system (e-commerce). iFWD Liberate provides easy access for people to purchase products while paying premiums anytime and anywhere through their website. Consumers can buy personal accident and life insurance products, Bebas Diri and Bebas Rencana, through an online platform. FWD Life offers some online payment methods, for example, by using a credit card.[28]

In August 2018, PasarPolis, insurtech that provides aggregator service, received series A funding from Go-Jek, Traveloka, and Tokopedia. The strategic partnership aims to strengthen PasarPolis's market

26 Setyowati, "T-cash Gandeng Sun Life", viewed on 25 July 2018.
27 GP Jati, "Pasarkan Asuransi Secara Online, Premiro Rangkul CekAja.com", https://www.cnnindonesia.com/ekonomi/20160830075204-78-154715/pasarkan-asuransi-secara-online-premiro-rangkul-cekajacom, viewed on 25 July 2018.
28 FB Vistika, and H. Prasetyo, 'FinTech Memberi Pengalaman Asuransi yang Berbeda', https://keuangan.kontan.co.id/news/memberi-pengalaman-asuransi-yang-berbeda, viewed on 25 July 2018.

in offering micro insurance products to customers who live in small cities in Indonesia. PasarPolis's platform allows customers to compare protection products that suit the needs of potential consumers, with insurance premium starting from Rp7,000 per month. To date, PasarPolis has collaborated with 30 insurance companies and five-distribution partners such as JD, Citilink, Tokopedia, Go-Jek, and Traveloka. By maximizing digital distribution for the retail market, a customer receives e-polis in seconds.

The form of collaboration can be a bridge between the conventional insurance industry and FinTech startups to engage in the micro insurance segment. FinTech-based micro insurers can act as the sales outlets of insurance firms that have had difficulties accessing consumers—whether due to expensive premiums or high costs of procurements.[29] Therefore, the presence of FinTech insurers brings great hope to OJK, especially in expanding access to micro insurance acceleration.

Since 2013, OJK has been making efforts to increase insurance penetration, especially micro insurance for people with low income. To achieve the target, OJK has held a series of programs that focus on enhancing public knowledge on insurance; increasing insurers' capacity; encouraging the expansion of micro insurance products' distribution channels; encouraging product development to suit the public needs, as well as implementing regulations and monitoring to support micro insurance growth. The types of activities in the programs include creating a grand design of micro insurance, education materials, dissemination, training of trainers for potential marketing, and training business actors.

In the same year, OJK also worked with a number of agencies to launch the Grand Design of the Indonesian Micro Insurance. A number of outlines of micro insurance development were agreed upon in the design, including setting the maximum claim amount at Rp50 million and a maximum premium of Rp50,000.[30]

In 2014, OJK collaborated with insurance associations to launch six generic micro insurance products. The products are Si Peci, Si Bijak, Rumahku, Warisanku, Stop Usaha Erupsi and Stop Usaha Gempa Bumi. They were launched during the Pasar Asuransi Mikro Indonesia exhibition in Bogor, which was held on October 30, 2014.[31]

29 OJK, Digital Financial Innovation Group, Interview, January 2018.
30 OJK, 'Grand Design Pengembangan Asuransi Mikro Indonesia', http://asuransimikroindonesia.org/official/asmik/uploads/2016/05/Grand-Design-Pengembangan-Asuransi-Mikro-Indonesia.pdf, viewed on 25 July 2018.
31 Asuransi Mikro Indonesia, 'Mengurangi Kerentanan Ekonomi Melalui Asuransi Mikro: Tantangan dan Potensi di Indonesia', (Presented on Hotel Sultan, Surakarta, 29 October 2015) viewed on 25 July.

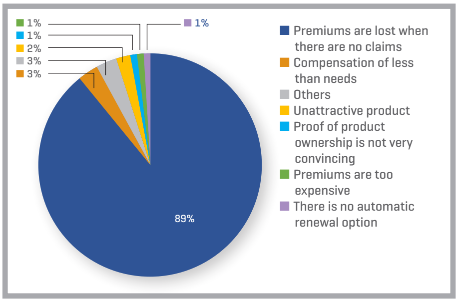
However, it took three years before the collaboration showed significant results in 2017. At that time, micro insurance started growing significantly. In the first quarter of 2017 (Q1-2017), micro insurance premium income was Rp278,2 billion, up by 8 percent compared to Q1-2015. Meanwhile, the number of micro insurance policy holders in the same period was 19,4 million, a 20,2 percent growth from Q1-2015.[32]

There are several reasons to explain why micro insurance penetration took some time. According to its survey in 2014, Asuransi Mikro Indonesia emphasized that micro insurance penetration in Indonesia is not yet optimized because the industry has yet to see the market segment as a profitable business. Micro insurance, for the industry, is not a commercially viable–or one that could strengthen the company's brand. Industry involvement in distributing micro insurance is more on corporate social responsibility (CSR) and fulfilling the authority's obligations.[33]

Another exciting finding occurred during the socialization of generic micro insurance products from February to March 2014. Of the 2,259 respondents surveyed, 44 percent did not know about insurance. Most of the participants of the socialization were farmers, housewives, and traders. Most of the respondents who were reluctant to participate in the insurance program considered that the premiums they pay will be lost if they make no claim—meaning they thought there was no benefit of having insurance

Reasons Why Respondents Do Not Buy Micro Insurance*

Figure 6.7



* *Ibid.*

The survey also revealed that the products offered by the insurance industry to micro companies are unattractive—not matching what consumers need, especially for low-income consumers. From the survey, it was shown that low-income people need funeral insurance; hospitalization insurance (substitute for lost income during their treatment); crop failure insurance; and insurance for the death of livestock.

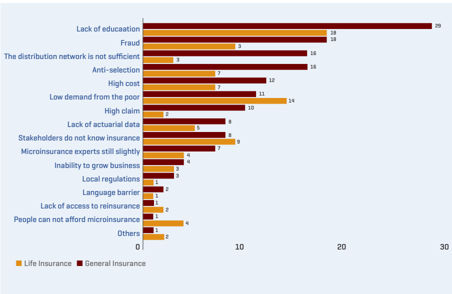
Based on surveys regarding insurance firms, respondents indicated that the lack

32 Asuransi Mikro Indonesia 2017.
33 Asuransi Mikro, "Mengurangi Kerentanan Ekonomi" viewed on 25 July.

of insurance penetration is caused by lack of educational programs for consumers. Of the 42 life insurance companies and 30 general insurance companies surveyed, 29 life insurers and 18 general insurers considered lack of education as the primary cause of low penetration. The second cause was fraud cases that affected public opinion and the third was lack of network distribution.

Problems Encountered by Insurers when Marketing Micro Insurance Products (Survey on 42 life insurers and 30 general insurers, October 2015)*

Figure 6.8

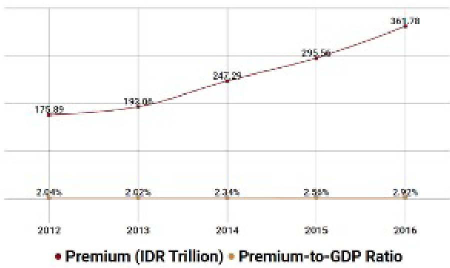


* *Ibid.*

The lack of education programs and distribution network may cause the growth of the insurance premium-to-GDP ratio that is still relatively low. Figure 6.9 depicts this situation. Looking at the premium-to-GDP ratio between 2012 and 2016, OJK saw that micro insurance industry still has rooms to grow. Thus, OJK hopes that FinTechs will be a solution to this problem.

Growth of Insurance Premium-to-GDP Ratio

Figure 6.9



* OJK 2016.

6.4 Micro Investment

Nowadays, everything is practical. Small coins used to end up in piggy banks, but now they can be used as an initial investment. FinTechs offering micro investments are providing ways for people to use small changes, using apps and online portals that require no bankbooks or cards.[34]

To support micro investment in the digital platform, OJK issued a number of regulations to make the digitalization of mutual funds possible. Efforts to increase the number of fund investors and to expand the distribution channel of mutual funds can be seen as follows:

1. OJK Circular Letter Number 7/ SEOJK.04/2014 concerning Guidelines on Electronic Subscription

34 D. Ziffer, 'Micro-Investing Apps Creating Electronic Piggybank For The Tap-And-Go Age', http://www.abc.net.au/news/2018-03-05/electronic-piggybanks-for-the-tap-and-go-age/9505854?WT.ac=localnews_melbourne, viewed on 23 July 2018.

and Redemption of Mutual Fund. The regulation allows for automatic mutual fund transactions made by investment managers and selling agents, as well as setting guidelines for system and security requirements for electronic transactions offered to investors.

2. OJK Regulation Number 23/POJK.04/2016 concerning Mutual Fund in form of Collective Investment Contract. The regulation includes detailed requirements and procedures for electronic mutual funds transactions. In addition, the regulation introduces e-money as another method of payment to invest in a mutual fund.
3. OJK Circular Letter Number 51/SEOJK.04/2016 about Implementation of Mutual Fund Distribution through Outlets. The regulation creates an opportunity for FinTech companies to serve as outlets by cooperating with selling agents to distribute mutual funds electronically.

With less than Rp10,000, a person now can invest in the stock market through these digital platforms. One of them is Tokopedia Reksa Dana. Tokopedia—one of Indonesia's most prominent online marketplaces—launched its mutual fund service on March 5, 2018. The app collaborates with Bareksa, a company that has bagged a license as a registered mutual fund selling agent (*Agen Penjual Efek Reksa Dana*/APERD) and sold mutual fund packages online. Partnering with Bareksa, Tokopedia offers money market mutual funds with a historical rate of 6-7 percent a year.[35]

The presence of Tokopedia Reksa Dana—as well as other online-based micro investment retailers—is an answer to OJK's eagerness to address the issue of low penetration of micro-investments in Indonesia.

Up until 2014, investors' ratio in Indonesia's capital market was still small. Of the 134 million middle-class population, only 0,27 percent invested in the capital market.[36]

Indonesia's middle-class segment is often identified as consumer-state people. This group has a high need to invest, but most of them know little about the significance of investing in the financial services sector, especially the capital market. Most Indonesians also still have a very conventional view of

35 N. Jayabuana, 'Gandeng Bareksa, Tokopedia luncurkan fitur pembelian reksadana online', http://market.bisnis.com/read/20180305/92/745950/gandeng-bareksa-tokopedia-luncurkan-fitur-pembelian-reksa-dana-online, viewed on 13 July 2018.

36 Muliaman D. Hadad on his Sambutan Ketua Dewan Komisioner OJK pada Gerakan Nasional Cinta Pasar Modal', Istora Senayan, Jakarta, 12 November.

investing—most of them limit their option to just bank savings.[37]

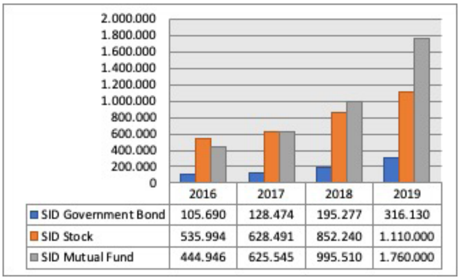
Indonesia did not see a significant growth of investors until 2016. At the time, 535,994 people were recorded as capital market investors. The number of mutual fund investors was 444,946. The type of instrument with a rather small number of investors was only Government bond, with just 105,690 investors. The positive growth of Indonesian investors is illustrated in Figure 6.10 below. In 2018, there were 852,240 stock market investors, while bond investors grew to 195,277 and mutual funds investors jumped to 995,510.

The number continues to grow as mutual funds investors increased by 77,66 percent (year on year) or reaches 1,76 million as of 27 December 2019. Meanwhile, bond investors rises to 316,130, and stock market investors reach 1,1 million.

Before 2012, the Government had difficulties in tracking stock exchange number of investors, as there were no reliable record available. Situations changed once OJK mandated every investor to have a single investor identification (SID); a policy that took effect gradually starting in 2012. Before the SID was used, there had been no exact number of investors in Indonesia.[38] Since the policy was implemented, that number has been seen to grow each year significantly, as shown in Figure 6.11 below.

Growth of Single Investor Identification (SID) Based on Instrument*

Figure 6.10

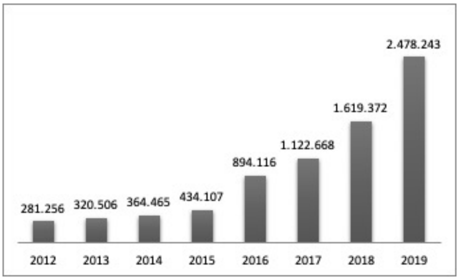


	2016	2017	2018	2019
SID Government Bond	105.690	128.474	195.277	316.130
SID Stock	535.994	628.491	852.240	1.110.000
SID Mutual Fund	444.946	625.545	995.510	1.760.000

* Kustodian Sentral Efek Indonesia (KSEI), 2019.

SID Holder Growth*

Figure 6.11



* KSEI, 2019.

37 *Ibid.*
38 Rudiyanto, 'Mengenal Single Investor Identification', https://ekonomi.kompas.com/read/2016/03/08/060700226/Mengenal.Single.Investor.Identification, viewed on 24 July 2018.

The emergence of FinTech companies engaged in micro investment businesses boosted OJK's confidence to expedite investors' penetration in the capital market. OJK believes that online platforms will have a significant impact in supporting micro-investments.

The impact was even more significant in 2017, where from January to November, Rp2,63 trillion mutual fund transactions were recorded using online platforms. From OJK's records, one of the most impressive platforms was BukaReksa, provided by one of the country's top marketplaces, Bukalapak. BukaReksa has added 50,000 new mutual fund investors in Indonesia.[39] The total amount of money invested in BukaReksa accounted for Rp 50 billion.

Similar to Tokopedia, Bukalapak also partners with Bareksa as an official APERD, as a requirement to run a mutual fund marketplace business. Article 25 of OJK Regulation No.39/POJK.04/2014 on Mutual Fund Selling Agents stipulates that FinTechs can act as an APERD or collaborate with other APERDs to become outlets. Bareksa chose the first option while Tokopedia and Bukalapak opted for the second. This collaboration is the basis of OJK's confidence that FinTechs would be a greater help for micro-investors to sell mutual funds to a bigger market in Indonesia, and boost financial inclusion.

The increasing number of marketplaces as a place for investors to buy investment portfolios is the fruit of practicality and simplicity brought by FinTechs. Today, the complications that shadow investments have begun to disperse. The lengthy process that funds owners had to go through—starting with registration, prequalification, completing requirements, and meeting agents and fund managers—has become shorter, trimmed by FinTechs. All investors have to do now is open their computers or gadgets to meet with APERDs like Bareksa and Xdana, or visit marketplaces like Tokopedia and Bukalapak.

Nevertheless, OJK keeps an eye on FinTechs development. OJK still sets their operations apart from financial services institutions like investment managers or securities companies. To OJK, investment managers of securities companies bear the risks because they issue investment products—while FinTechs only act as agents. Once FinTech companies start to produce their instruments, their status will change into a financial service company.[40]

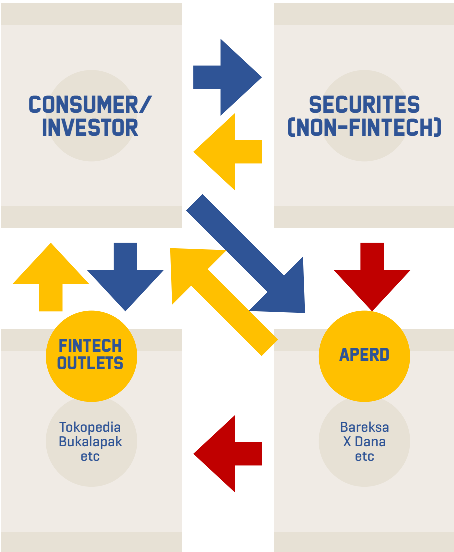
With this limitation, the type of FinTechs engaged in the micro-investment

39 OJK, Capital Market Supervision Department, Interview, February 2018.
40 OJK, Digital Financial Innovation Group, Interview, January 2018.

business is categorized into just two: those with licenses as APERD such as Bareksa and Xdana, and those retailing mutual funds from APERD such as Bukalapak and Tokopedia.

Micro Investment FinTech Business Scheme*

Figure 6.12



* M. Siregar, "FinTech dan Inovasi" presented on 22 March 2018.

Notes:

- Yellow Arrow: Three types of mutual fund providers can offer services directly to consumers or investors.
- Red Arrow: Securities firms cooperate with APERD to offer their mutual funds. The mutual fund seller then works with the marketplace as a mutual fund provider outlet.
- Blue Arrow: Consumers or investors can choose a channel to find the right mutual fund for them.

There are other types of FinTech companies engaging in these two business models. As of December 2017, Aftech noted there were 235 FinTech-based companies, of which 11 percent were working in the investment management segment such as Bareksa, Xdana, Tokopedia Reksa Dana, and BukaReksa. Aftech placed this segment in the capital market workgroup. The business model is to act as an alternative channel to distribute securities products, using alternative payment methods to purchase them—as illustrated in Figure 6.12.

As of November 2018, there were 43 online transaction portals for mutual funds registered with OJK.[41] With forms ranging from online securities firms, online-based APERDs, and marketplaces collaborating with FinTechs or securities firms that are listed as APERDs.

In the People's Republic of China, customers can purchase mutual funds and other investment products through electronic payment. This is also the case for Indonesia. Through BukaDompet in

41 Center of Information Investment Management Industry, Online Transaction Portal, https://reksadana.ojk.go.id/Public/PTOPublic.aspx, viewed 14 November 2018,

Bukalapak or Tokopedia Pay in Tokopedia, customers can buy mutual fund products.

Digitalization and FinTech collaboration contributed to the growth of the mutual fund industry. Assets Under Management, for example, increased 124 percent from Rp241,46 trillion per December 2014 to Rp540,91 trillion in September 2019. In September 2019, 17 FinTech outlets are selling mutual funds electronically.

E-money facilities in e-commerce also offer people a new way to pay electricity bill, prepaid voucher phone, insurance premium, airline tickets, and TV cable, among other services. However, there were occurrences where these top-up services offered by some providers had to be terminated by the Central Bank that has the authority over these services. This happened to TokoCash, BukaDompet and ShoppePay due to licensing issue.

Another form of digital payment is chip-based electronic money. Retail is the industry that uses e-money services the most in the country. As such, retail payment has widely adopted e-money services. The use of card-based electronic money, for example, is commonly found on TransJakarta buses, commuter train, parking gate, and tollgate payment.

The main players of card-based electronic money are e-money Mandiri and Flazz BCA. Other players are Tap Cash BNI, Brizzi BRI, Blink BTN, Mega Cash, Nobu e-money, and JakCard Bank DKI. The Mandiri bank controlled 80 percent of electronic money transaction in the first half of 2018. The use of e-money Mandiri accounted for 703,4 million transactions with a total value of Rp8 trillion. The total amount of e-money transactions grew six-fold between 2012 and 2017 to Rp12,3 trillion or equal to US$840 million. Another form of digital payment is server-based electronic money developed by telecommunication operators such as T-Cash (by Telkomsel) and XL Tunai (by XL Axiata). There are also e-wallets from banking sectors such as BBM Money Permata Bank and Ponsel CIMB Niaga account.

T-Cash consists of three different features: e-money, online payment, and pay-on-mobile. The system has a small sticker placed in a convenient place, usually on the back of the smartphone, which can be topped-up and used to pay for things at selected retail outlets that accept the method. Retail outlets which have received the payment system include fast food giants, McDonald's, and the cinema chain, 21 Cineplex. Different from chip-based electronic money, a customer cannot use T-Cash to pay toll or public transportation such as commuter trains and TransJakarta.

Telkomsel will develop and revamp T-Cash system to help and assist rural areas and steer them toward mobile or cashless banking services.[42] In cooperation with JAKmikro, Telkomsel has introduced T-cash at Mayestik Market in South Jakarta to small and medium enterprises to go cashless. The cashless program set a target to involve 500,000 small, medium enterprises in Jakarta by the end of 2018, 100,000 of which operated under city-owned market operator Perusahaan Daerah Pasar Jaya.

As of March 2018, 20 million customers in 34 provinces of Indonesia used T-Cash. To widen the customer base, Telkomsel is going to expand T-Cash services to low-income users at traditional markets. Another strategy is to broaden the cashless service network to other major cities such as Bandung, Surabaya, Makassar, and Medan. Moreover, T-Cash is opening its services to all telecommunication operators in a bid to expand its user base and survive competition from other e-wallet service providers.[43] The decision to open the service to all operators is part of its strategy to reach 40 million users by the end of 2018.

However, more than 25 million users of the T-cash e-wallet turned into using LinkAja's system in February 2019. This was followed by millions of users from e-payment platforms such as E-cash (Bank Mandiri), T-Bank (BRI), and Yap (BNI) into LinkAja's system – consolidating T-cash, E-cash, T-Bank, and Yap into a single state e-wallet.

The LinkAja platform has been initiated by the State-Owned Lender Association (*Himpunan Bank* Negara/Himbara), Telkomsel, and state-owned oil and gas holding company, Pertamina. They formed PT Fintek Karya Nusantara (Finarya) as an umbrella for the LinkAja platform.

Telkomsel owns 25 percent of LinkAja. Meanwhile, BRI (Bank Rakyat Indonesia), Mandiri, and BNI (Bank Negara Indonesia) each owns 20 percent of such e-wallet firm. Moreover, BTN (Bank Tabungan Negara) and Pertamina each owns 7 percent. The remaining one percent is owned half by an insurance firm Jiwasraya and another half percent by an investment management firm Danareksa.

The transformation aims to complement Indonesia's digital payment ecosystem and improve financial inclusion. That is why LinkAja would not only focus on big cities but also penetrate remote rural areas to help expand financial inclusion.

42 D. Amirio, "Telkomsel Vying for 6 Million New Users in T-Cash System", http://www.thejakartapost.com/news/2016/02/06/telkomsel-vying-6-million-new-users-t-cash-system.html, viewed 23 September 2018.
43 W. Tang, "T-cash opens access to all operators", http://www.thejakartapost.com/news/2018/07/18/tcash-opens-access-all-telcom-operators.html, viewed 23 September 2018.

Additionally, startup companies such as Go-Jek and Grab have developed their own electronic payment system, namely Go-Pay and Grab-Pay. Not only that these e-payment systems can be used to pay transportation fare, they could also be used to pay for other services, such as ordering food, paying electricity bill, and sending parcel deliveries. Half of Go-Jek monthly transactions are processed through Go-Pay.

According to Go-Jek, Go-Pay is a bridge for the unbanked drivers and merchants to reach a formal financial sector. Go-Pay targets the general population as potential customers, especially people who are still untouched by financial services. By having a Go-Pay electronic account, Go-Jek drivers are more likely to get a mortgage as the Central Bank of Indonesia (*Bank Indonesia*/BI) can use the digital wallet's transaction record of drivers for verification. In other words, BI can check financial transaction history of the drivers. When applying for loan, the down payment could also be managed through Go-Pay. The amount owed is deducted, in installments, from the drivers' Go-Pay account.

Go-Jek also helps banks to find potential borrowers. The transaction data of 125,000 restaurants that partner with Go-Jek's food delivery help state-owned banks to determine which may be eligible for government-subsidized micro-credit program called KUR.[44]

6.5 Digital Platform for Supporting MSMEs

In addition, digital platforms, such as Tokopedia and Bukalapak, have an essential role to support MSMEs to stay in the business. The unicorn marketplace, Tokopedia, has proven to bring positive impacts in providing jobs opportunities for online sellers in a way that the digital platform helps sellers to reach potential buyers.

To date, almost 90 percent of online sellers in Tokopedia do not have a physical shop. Tokopedia platform allows MSMEs to have online stores without having physical outlets. As they do not need to rent a shop, the online sellers may allocate working capital to expand their business. That is why selling products via online marketplaces may increase profits and prosperity of MSMEs.

Moreover, Tokopedia has helped sellers to seek access for financing of working capital. The UMKM Mitra Troopers program has assisted 51 percent of sellers in Tokopedia to boost their sales.

44 E. Maulia "Go-Jek Sparks an Indonesia Banking Revolution", https://asia.nikkei.com/Spotlight/Cover-Story/Go-Jek-sparks-an-Indonesian-banking-revolution, viewed on 23 September 2018.

The company aims to foster economic equality through digital platform. To achieve its goal, Tokopedia has collaborated with more than 4 million sellers; with average monthly visitors accounting for 78 million. Tokopedia operation has covered 93 percent of the total sub-districts in Indonesia, with total couriers who deliver parcels reaching 40,000 each day.

Similar to Tokopedia, Bukalapak has about 4 million sellers using its platform. The total users of the marketplace stand at 50 million users and daily transaction at 500,000. The total transaction value of Bukalapak's partner is Rp500 billion per month. According to Bukalapak, local products from MSMEs account for 60 percent.

To empower MSMEs, Bukalapak has cooperated with local governments in 34 provinces. Not only does it provide an online platform and marketing access, Bukaslapak also offers a series of trainings for MSMEs in maximizing an operating business. The e-commerce platform has set a goal to reach 20 million online sellers in 2023.

As of 2017, a total of 59.26 million small and medium enterprises (SMEs) operated in Indonesia. However, only 3.97 million SMEs were active online. Marketplaces such as Tokopedia, Bukalapak, and Zalora may help government program to attain the goal of seeing 8 million SMEs go online by 2020.

6.6 Equity Crowdfunding for SMEs

Another scheme offered by FinTech lenders to finance micro, small, and medium businesses is equity crowdfunding. Equity crowdfunding business had already taken place before OJK issued Regulation No.37/POJK.04/2018 on Funding Services through Information Technology-based Limited Stock Offer, which was launched at the end of 2018.

One provider of equity crowdfunding is Bizhare. Founded in 2017, Bizhare focuses on financing MSMEs involved in the franchise business. The start-up company, under the banner of PT Investasi Digital Nusantara, is targeting a 10 percent share in the franchise investment niche market, which has an annual worth of Rp7,5 trillion.

Bizhare helps business actors to seek additional capital by collecting joint funds from investors. As of May 2019, Bizhare has pooled in Rp13 billion of investment funds from 17,040 investors. The number of business actors who submitted funding to the Bizhare platform reaches 638.

Bizhare will present the business proposals that pass the selection; along with the amount of funding they seek. Thus, investors can study the proposals before investing. Of the 638 business actors who applied for funding, twelve had received capital. Bizhare is targeting to have 80 additional businesses to be funded by the end of 2019.

This type of funding scheme creates opportunities for businesses to obtain capital by selling shares without having to hold an Initial Public Offering (IPO) with the Indonesia Stock Exchange. With this digital capital investment platform, it is easier for businesses to access funding sources.

To sustain the crowdfunding business, Bizhare monitors the financial statements of companies that apply. Bizhare only finances franchisees that have operated for at least two years. To overcome the fluctuation of the franchise business, Bizhare assesses the business accounts of actors seeking to obtain funds in order to make profit projections for investors. The company only accepts two types of funding applications: for opening a new franchise business and for expansion.

Since obtaining OJK permit in November 2019, 15-20 franchise publishers are being assessed thoroughly by Bizhare analysts. One of them is an international franchise from the Republic of Korea, Chir Chicken, which operates at Kelapa Gading Mall.

The company hopes to raise Rp40 billion investment funds by the end of this year. The granting of business licenses is expected to support Bizhare's expansion in the fourth quarter of 2019. So far, Bizhare has disbursed investment funds to 22 MSME franchises, which include culinary, retail, laundry, fitness centers, automotive, and hotels.

Bizhare charges a 5 percent interest in the total initial funding. The yields offered by each MSME differ, ranging between 20 and 30 percent per year. If a funded business has a problem, Bizhare will have discussions with the business owner to find a solution. However, if the company cannot be saved, Bizhare will sell the existing assets and distribute them to investors.

Bizhare is currently preparing a secondary market system that can be used to transact shares as a way to increase investment liquidity in equity crowdfunding. This system will be implemented through a collective share custody mechanism in the Indonesian Central Securities Depository (*Kustodian Sentral Efek* Indonesia/KSEI), provided that the shares have been invested for at least one year.

To invest via Bizhare, potential investors must buy at least one lot of shares with an initial value of Rp5 million. The price of one lot of shares can vary according to the amount of funding needed. There is no limit to the number of shares to be purchased by investors. However, OJK regulates that a business can only receive investment from a maximum of 300 investors, with a total funding limit of Rp10 billion. These rules are stated in OJK Regulation No.37/ POJK.04/2018.

Bizhare is the second player to obtain a business license for equity crowdfunding. In September 2019, OJK issued a similar permit to PT Santara Daya Inspiratama (Santara), a Yogyakarta-based FinTech company.

As of November 2019, 15 SMEs have sought funds through Santara's equity crowdfunding scheme. The total funds channeled through Santara amounted to more than Rp5 billion from 1,136 financiers.

The types of SMEs funded via Santara's platform vary from livestock, plantations, and agriculture to culinary. The percentage of revenue sharing for each SMEs depends on the amount of profits obtained by the borrower and the investor's share ownership. Cakekinian Yogyakarta, for example, received Rp880 million funding, Fello BnB received Rp1,2 billion, and Kampung Tahfidz received Rp76 million.

OJK is processing the crowdfunding business license application of 10 other entities, including Pramdana, Amumnia, and Likuid. Companies seeking to be a crowdfunding provider must be a limited liability company (*Perseroan Terbatas*/PT) or a cooperative. The organizer is required to apply for OJK's permit and has a capital of more than Rp2,5 billion.

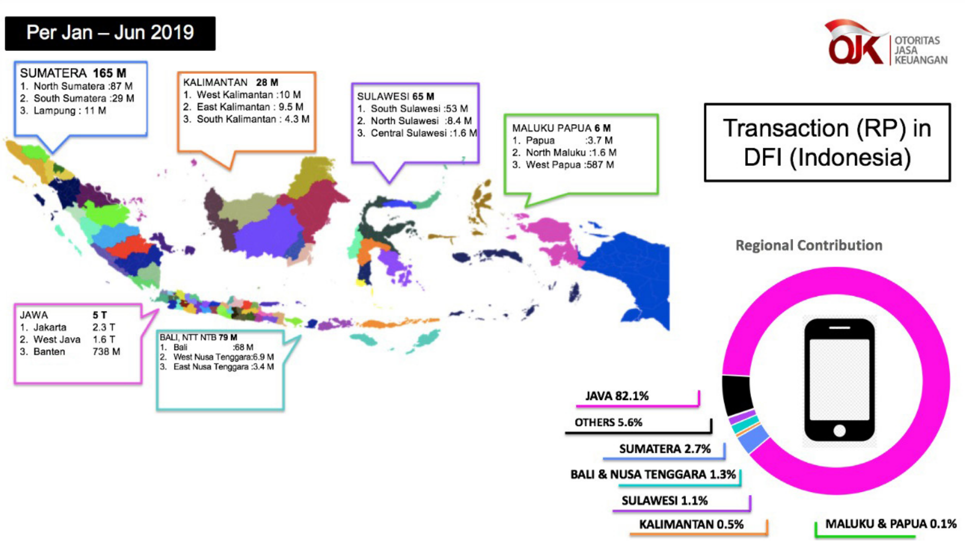
The growth of the equity crowdfunding business can be an alternative to retail investment in Indonesia. Its presence is similar to FinTech's early stage of the lending business. With the number of players predicted to increase, the funding scheme can compete with P2P lending services in the future. Moreover, the equity crowdfunding industry has a vast untapped potential and, thus, offers a tremendous opportunity. OJK hopes that the regulation issued late last year can accelerate the growth of equity crowdfunding-based FinTech businesses in Indonesia.

6.7 Digital Financial Innovation to Support Financial Inclusion and MSMEs

Digitalization in the financial sector may come in many forms. Aside from P2P lending and equity crowfunding, there are many newer FinTech business types emerging in the market. Those that are specifically governed by certain regulations fall into what is so called Digital Financial Innovation, as defined by OJK to embrace and accommodate them all to grow.

Total Transaction of Digital Financial Innovation by Region in Indonesia

Figure 6.13



OJK has noted that the total transaction of Digital Financial Innovation from January to June 2019 at least reached Rp6,18 trillion. Majority of the transactions occurred in Java, accounted for 82,1 percent or around Rp5,07 trillion. DKI Jakarta, West Java, and Banten are the top three provinces that have significant transactions. It indicates that most FinTech companies are still focusing their business around the capital city of Indonesia.

Capital limitation is the main challenge for startup companies to expand the market outside Java. However, this does not necessarily mean they do not contribute to the financial inclusion entirely, since 18,9 percent of total transactions take place out of Java.

Figure 6.13 depicts that Sumatera, with its 10 sub-regions contributed 2,7 percent to the total transaction or as much as Rp156 billion. North Sumatera dominated the transaction on the island with Rp87 billion. Meanwhile, Bali, West Nusa Tenggara, and East Nusa Tenggara-contributed 1,3 percent or as much as Rp79 billion. This was followed by Sulawesi and Kalimantan with the total of 1,1 percent and 0,5 percent respectively. OJK also noted that the whole transaction in Maluku and Papua reached Rp6 billion. Only one area where transaction has not been made until June 2019, that is Teluk Cendrawasih. Other regions, which consist of small scattered areas around Indonesia, contributed 5,6 percent of the total transaction.

The user profile reveals that there are 3,771,397 customers of Digital Financial Innovation. Most of them are males, which accounted for 48 percent. It was followed by female users, around 33 percent. Meanwhile, the rest of them did not state their gender.

The latest data also indicate that most of Digital Financial Innovation users are at a productive age. More than half of them are around 26-45 years old, with a total of 1,995,389 users. The majority of them work as employees, followed by entrepreneurs, which potentially refer to MSMEs.

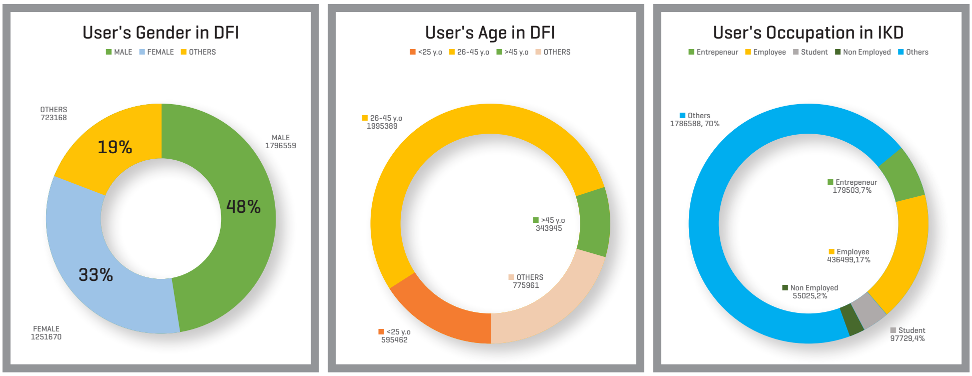
Although the number of transactions outside Java is still relatively low, it shows that Digital Financial Innovation has successfully captured the underserved market in Indonesia. The contribution of Digital Financial Innovation demonstrates a promising prospect, despite the fact it was recently existed.

OJK hopes the impact of Digital Financial Innovation will be more significant as the industry grows. It will be able to enhance financial inclusion as most of new FinTech businesses target the unbanked population and MSMEs.

Digital financial innovators' ways to help promote financial inclusion and MSME financing vary, depending on their business models. Some business models allow MSMEs to apply and get funding directly, either from one super lender (after comparing many financing options), or through crowdfunding mechanism. Some others are designed to improve MSMEs' credit eligibility, either by composing the well-structured

User Profile of Digital Financial Innovation

Figure 6.14



financial report or creating the credit scoring that works as a reference for financial institutions in assessing loan application. Here is more explanation on some business models that potentially have substantial impacts on financial inclusion and MSME financing.

a. Project Financing

Project Financing could help MSMEs to reach a broader scope of prospective investors by publishing their projects online on the project-financing platform. Project financing platform will conduct verification and review the feasibility of the projects before they are added to the platform's dashboard and shown to the public. Any individuals or institutional investors who are interested in a considerably attractive project may invest in it altogether. The platform allows for one investor to finance one project, as well as for many investors to co-invest through crowd mechanism. When the projects succeed and generate some profits, investors may get the return proportionally with the amount of investment they made in the projects. Project financing is expected to contribute positively to financial inclusion and MSMEs financing.

b. Aggregator

Aggregator is a FinTech model that provides information on some financial products and services offered by financial institutions, including but not limited to different types of loan, to help customers compare and pick one that works best with their needs and profiles. Individuals and MSMEs, that have a relatively low level of financial literacy, may find it quite a hassle to find information about financial products as they need to spend a lot of time to find the most suitable product.

Aggregator, on the other hand, provides the most efficient way for product comparison, since customers will only need to visit one site online to compare products/services from many financial institutions and choose one that best suits them. An aggregator could potentially increase financial inclusion and MSMEs financing since it could make it easier for individuals and MSMEs to apply for loans.

c. Financing Agents

Financing agents connect specific financial institutions such as Bank Perkreditan Rakyat (BPR)/Bank Perkreditan Rakyat Syariah (BPRS) with the prospective borrowers. They help provide financing options to the individuals or MSMEs in need and allow them to apply for one easily, through the platform. Moreover, financing agents usually provide some additional services such as conducting some verification and validation on the prospective borrowers' profile or offering specific scheme that allows financial institutions to control and monitor the use of fund. These could boost the confidence level of financial institution in approving loan applications, especially regarding the loan repayments. Further, some of these financing agents usually have some field agents working offline to reach out to the individuals or MSMEs that are not yet familiar with FinTechs. This is done for the purpose of maximizing the impact on the financial inclusion and MSMEs financing.

d. Credit Scoring

Credit Scoring helps financial institutions to have a better understanding of their loan applicants. It conducts valuation on the profile of the prospective customers who wish to make a loan application and provide an indication about the customers' credit eligibility using alternative data, such as social media, telecommunication, and e-commerce. The score will serve as a reference for financial institutions in assessing loan applications so that they can distribute their credit effectively. This is helpful for the unbanked population and MSMEs, which do not yet have any well-structured historical financial data (such as one managed by SLIK). One of the main problems in the low financial inclusion and MSME financing gap is that the data needed to conduct proper credit scoring and measuring credit eligibility are not available. This makes financial institutions hesitant to accept the loan applications. Credit scoring, with its specific algorithm to utilize those alternative data, therefore offers a promising solution to address this important issue.

6.8 Women Empowerment through FinTech

Efforts to provide financing as well as coaching for women's groups have started since the 1980s. Women are seen as micro-entrepreneurs who have no assets to be used as collateral, although their businesses may have prospects. Various institutions—government, private sector, and non-government institutions—continue to develop microcredit models for women. However, that effort has not yet been able to alleviate them from poverty. One of the reasons is because the financial products offered do not match their need.[45]

It has become a known fact that these women can obtain new skills such as making goods that can be sold. The presence of FinTechs that disburse loans only to women acts as a solution for those planning to expand and develop their business. To date, women's access to capital and financing—as well as a chance for business expansion—has been met with challenges such as limited access to bank loans. This limited access makes people living in rural areas become even more marginalized. Through its IT-based services platform, FinTechs aim to provide women with access to financing.

45 S. Usman, *et al* 2004, *Keuangan Mikro untuk Masyarakat Miskin: Pengalaman Nusa Tenggar Timur*, (Jakarta: Lembaga Penelitian SMERU, 2004).

P2P FinTech companies that disburse female-specific lending have a similar business model. They generally have field officers doing the legwork, for example advisors for prospective customers, verifiers, and debt collectors. The loan is usually granted in groups, in which one group consists of 15-20 women. One FinTech company that applies this strategy is Amartha.

Following the Grameen Bank model in Bangladesh that has successfully provided financing for women, Amartha applies the same concept to women in rural areas of Indonesia. One of the reasons is that women's behaviors in Asia share some similarities. They live communally in rural areas of high density, run micro-businesses that earn daily, and are isolated from conventional bank services. That is what makes these women willing to apply for a loan collectively to gain working capital.

As of June 2017, Amartha employed 160 field officers—quite a high number for a FinTech company. These officers verify prospective borrowers, collect debts installments in one area per group per week, as well as monitor and advise the borrowers on business management. Hundreds of Amartha workers also train prospective female customers in managing finances and operating businesses. These efforts are made to minimize bad loans. Once the women are considered ready, they will meet with investors through Amartha's portal or app. Their business profiles are fully displayed in Amartha application. Their form of businesses is very simple, such as making cakes and snacks. The installment payment period is on a weekly basis, and the borrower repays the loan over a 50-week installment.[46]

Deploying field officers to collect payments and provide management training is a strategy that is also applied by GandengTangan, through its GT-Trust segment. GT-Trust is responsible for advising micro businesses as prospective borrowers, which also collects data of MSMEs; verifies potential customers' businesses; analyzes the businesses' soundness from the personal, business, finance, and social capital aspects; as well as guides MSMEs until they pay off their loans—in a bid to ensure safety and control. While Amartha's field officers are employees, GT-Trust's are volunteers.[47]

There are some reasons why Amartha has a service that only provides loans to women.[48] The first reason is that financing women directly impacts both their business and social welfare. The business income

46 Amartha (PT Amartha Mikro Fintek), CEO & Founder, March 2018
47 GandengTangan 2018, 'GT-Trust peduli, GT-Trust mendampingi', GandengTangan.
48 Amartha (PT Amartha Mikro Fintek), CEO & Founder, Interview, March 2018.

can be used to get food with better nutrition for the family, or to pay for children's education. Secondly, the default risk by female customers is deemed smaller than male. Third, in general, women have more time than men to gather with group members every week.

Based on Amartha's experience, among a group of 20 members, only one or two members have bank accounts. However, they are not active in banking transactions. The income they receive is in cash, and they live far from a bank—requiring up to 30 minutes of travel to reach it. Usually, the bank account is only used to receive remittances from their children who work as migrant workers (*Tenaga Kerja Indonesia*/TKI).

In some cases, loan disbursement to women-run businesses will increase the number of women who apply for loans. They become more actively involved in businesses that were previously managed by their husbands. They are actively involved in the family business because of the credit under their names. These women have the responsibility to pay installments. Some women even run businesses without their husbands' interference. As a result, the responsibilities stemmed from managing their businesses empower them.

As long as the installments are paid in due time, weekly group meetings are followed closely, and businesses are sustained; female debtors can increase their loan ceiling. In the first year, the average amount of loan is between Rp3 million and Rp3,5 million. The loan ceiling for each group member is different, based on credit scores, business types, and their track records as Amartha debtors. The annual interest imposed averages between 15 and 30 percent, based on the concept of sharia profit sharing. The interest would be lower if previous loan payments were made in time. Once the first loan is paid off, the next loan's ceiling can increase to Rp5 million. The average maximum term of loan is one year. The highest amount of credit that has been disbursed under this model was Rp 12 million for one person. In one village, there can be up to 300 borrowers.

According to Amartha, loan disbursements can increase financial inclusion. The utilization of FinTech by creating networks in villages through groups of women—such as what Amartha does—can be the solution to encourage the availability of affordable financial access in rural areas. In other words, borrowers' access to capital becomes more affordable. Amartha has disbursed loans for women-run businesses in 500 villages, hoping to encourage women's role in a variety of sectors, such as agriculture, trade, and services, and improve their businesses' sustainability.

BOX 6.1

The Success of Shared Capital

Suherni was overwhelmed by the increasing demand for fermented cassava, known locally as *tape singkong*. The cassava gardens near her home have been replaced with houses, and she has to resort to finding suppliers from other villages. "Today, our supply comes from Pakansari, Cibinong, and Bogor," said the *tape singkong* maker from Kemang Village, Bogor Regency, West Java.[1]

Each day, a pickup truck delivers tons of raw cassavas to Suherni's home, where she peels, cleans, boils then ferments the cassavas until they become *tape*. "I have to supply 1,5 tons to Jakarta every day," she said, adding that the volume doubles during the month of Ramadan.

Suherni also supplies *tape singkong* in small amounts to retailers near her home, pegging the price at Rp7,000 per kilogram. For huge buyers from Jakarta, the price is lower. Suherni can earn up to Rp3,5 million a day from selling the *tape*. In a month, her business' turnover is around Rp100 million—an amount of money she never dreamed of having before.

1 MSME's Entrepreneur, Suherni, Interview, March 2018.

In 2014, Suherni started her *tape singkong* business with her husband. She made this bold decision after working for her village's *tape singkong* maker for decades. Making *tape singkong* was the only skill the couple had.

Their businesses kicked off with a small capital. During the first years of their business, they only managed to make 50 kilograms of *tape singkong*, most of which were sold to neighbors. One day, a person from Klender, East Jakarta, came and made a big order of *tape*.

This order required money. Suherni then borrowed Rp2 million from Amartha, a P2P lending FinTech. Along with Suherni, dozens of other women in her village became Amartha's customers. 25 of them were grouped in an assembly called the Papua assembly, and all of them can shoulder the debts of members who cannot make payments in due. “Thankfully, our group has never experienced that,” she said.

Since obtaining the loan, orders from Jakarta increased. Suherni then started to hire family members and neighbors—as well as residents of other villages—to help with the work. Today, she has more than a dozen workers, seven of whom are women. Her goal is to renovate her production area soon.

July 2018 marked her 3rd year as Amartha's borrower. Her loan ceiling has been increased by Rp2 million, to Rp4 million. Once she settles her third debt, the maximum loan limit she gets from Amartha will rise again. Nevertheless, she is not yet confident to apply for bank loans.

Suherni is not ambitious with her turnover target. “As long as I see profits,” she said. Today, her goal is to maintain the consistency of her *tape*'s quality. Not all of the cassavas she gets are of good quality. For example, if the cassavas are too ripe, the *tape singkong* will be chewy. Also, if she handles her products the wrong way, she can lose buyers to competitors.

BOX 6.1

Suherni's success in paving the way towards becoming an entrepreneur is a brilliant example of how P2P lending empowers women.

Another female entrepreneur from Kemang Village in Bogor is Wahyuni (35), who is also another P2P lending success story.

Similar to Suherni, Wahyuni began her business with her husband. In 2008, the couple rode a train from Cilebut Station to the Jakarta Kota Station carrying five cardboard boxes, each containing five dozen hangers. From the Jakarta Kota, they rode a bajaj to Jembatan Lima Traditional Market in West Jakarta, where they peddled wooden clothes hangers to traditional mini markets.

Orders started coming in. However, she did not have the money to take the orders. Her savings were not enough. Wahyuni applied for a bank loan but was rejected, and eventually forced to seek loans from an informal mobile lender known as a 'bank mobile', which has soaring interest rates.

Wahyuni's luck changed in 2014. One day, she met an Amartha field officer in a *warung* not far from home. Some of Wahyuni's female neighbors have already joined Amartha's assembly, the name given to groups that obtain collective loans from Amartha.
Soon after Wahyuni joined the assembly, she received training and guidance on how to do business until she finally obtained her first loan of Rp1 million. "I used the capital to buy wire hooks for the hangers," she said. The amount was not enough, but quite a big help to her additional capital.

Wahyuni's business then began to flourish. By the second year, she had increased her loan to Rp2 million. In the third year, Amartha granted her a loan of Rp5 million, and by the fourth year, her maximum ceiling was Rp9 million. "I used it to buy wood and wires," she said. Wahyuni spent Rp7 million to buy a truck-full of medium-density fireboards (MDF) from a factory in Bekasi. She spent another Rp2 million on wire hooks. Wahyuni then reinvested her income as capital and used it to pay her employees' salaries.

Now, Wahyuni does not only sell clothes hanger to Jembatan Lima. Her market has expanded to Tangerang and Bandung. Every Saturday, a pickup truck takes 100 cardboard boxes containing 500 dozens of hangers and delivers them to Jembatan Lima. Wahyuni sells her products wholesale at Rp24,000 a dozen. "But we still rent vehicles to deliver our goods. We do not have our own yet," she said.

Wahyuni's business has grown. Her production area has expanded, and she increased the number of employees; four women and six men. This upgrade indeed requires additional capital. "When I asked Amartha for another loan, they said that my business scale is eligible for obtaining bank loans," she said.

Wahyuni then tried applying for Rp15 million in KUR from Bank Rakyat Indonesia (BRI) in 2017. The day after she applied, an officer from the bank came to inspect Wahyuni's mini-factory. The next day, she was called to come to the bank to sign a loan agreement.

"It was so fast. I got a low-interest rate of just 0,3 percent a month because I used the KUR program," Wahyuni said.

Now Wahyuni is in her second year of obtaining BRI's loan. The maximum amount has increased to Rp25 million. "It has only been a month," she said. As she starts her second year with BRI, Wahyuni is also paying off her debts to Amartha.

Wahyuni aims to settle her Amartha debts as soon as possible—knowing that a late payment or a default would be a burden to her fellow assembly members. Two members of her assembly had defaulted, and Wahyuni and other members were forced to compensate for their debts each week.

"That is why you must choose assembly members carefully," she said. "They should be people who are committed to doing business."

Challenges and Opportunities

The presence of FinTech is a blessing to Indonesia's underbanked population. FinTech has become a bridge that allows people in need to gain financial access. The services offered have potentials to grow and develop rapidly, especially in the provision of online financing for MSMEs, which are not served by banks. Management consulting firm, Oliver Wyman, for example, predicts that there will be a shortage of US$54 billion for the MSME sector by 2020. Of the 62,9 million micro businesses in Indonesia, only one percent can develop into competitive MSMEs.

In this regard, the International Monetary Fund (IMF) and the World Bank Group (WBG) proposed a framework for countries to consider in formulating their domestic policies on Fintech. The framework, which was launched in Bali in October 2018, was called the Bali Fintech Agenda, and set out 12 elements derived from member countries' experience and cover topics relating broadly to enabling fintech; ensuring financial

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sector resilience; addressing risks; and promoting international cooperation.[1]

The IMF viewed that fintech can have a major social and economic impact for the countries. All countries are trying to reap these benefits, while also mitigating the risks. A greater international cooperation is needed to achieve that, and to make sure the fintech revolution benefits the many and not just the few.[2]

Further, the WBG noted that countries are demanding deeper access to financial markets, and the WBG will focus on delivering fintech solutions that enhance financial services, mitigate risks, and achieve stable, inclusive economic growth. The Bali Fintech Agenda provides a framework to support the Sustainable Development Goals, particularly in low-income countries, where access to financial services is low.[3]

It was acknowledged that FinTech can fill the financing void as well as take the bite of the market void that has remained untouched by banks and formal financial institutions. FinTech can also provide alternative financing for individuals and millions of MSMEs to allow them to boost competitiveness. Further, FinTech could become a new tool to increase financial inclusion. These technology-based financial services will have a positive impact on millions of people in Indonesia.

However, this does not mean that IT-based financial services are barrier-free. OJK describes that at least four risks are overshadowing the FinTech business in Indonesia. First is the risk of potential attack by hackers. The second is default risk—failing to pay loans; potential loss to investors or lenders. The third risk is fraud. Lastly, the fourth risk stems from the system's vulnerability to customer data theft and abuse. Those risks may surface if FinTech business is not properly regulated.

OJK is aware of the challenges and has attempted to address them through its policies, taking into account international recommendations, such as the Bali Fintech Agenda, while allowing for Indonesia's domestic conditions and specific challenges.

7.1 Challenges

The low level of financial literacy in Indonesia causes most of the questions and complaints submitted to OJK.

1 International Monetary Fund & World Bank Group, "The Bali Fintech Agenda – Chapeau Paper", http://documents1.worldbank.org/curated/en/390701539097118625/pdf/130563-BR-PUBLIC-on-10-11-18-2-30-AM-BFA-2018-Sep-Bali-Fintech-Agenda-Board-Paper.pdf.

2 *Ibid.*

3 *Ibid.*

According to OJK, it is the primary challenge faced by the regulator, especially in utilizing FinTechs to increase financial inclusion.[4] Therefore, OJK urges FinTech companies to provide education to consumers in an attempt to improve people's financial literacy.

Financial literacy becomes the basis to understand the characteristics, benefits, and risks of FinTech products. Consumer protection will be optimal if people have comprehensive knowledge about the features and risks of a financial product. However, many customers only follow trends and buy financial products without understanding their characteristics and suiting them to their needs. Many people purchase FinTech products just because someone they know did, without considering the potential risks involved, when in fact, they do not need the product nor possess any knowledge about it.

Indonesia now ranks fourth among the world's biggest cellular phone users. Unfortunately, Indonesians still lack knowledge about the financial industry, especially FinTech services. This situation has incurred losses to consumers, and the cases may limit the FinTech industry's development. Hence, education plays an essential role in this situation.

To address this challenge, OJK implements four strategies to improve the public's FinTech literacy.[5] First is education based on specific sectors of FinTech. When educating about peer to peer (P2P) lenders, for example, people will only be taught about P2P lending. This strategy allows people to focus on one specific product at a time.

The second approach to education is to target specific audiences. FinTech consumers are young people between 13 and 35 years old, hence, this group should be the focus of OJK. Meanwhile, the primary audience is university students aged between 17 and 25, who are considered old enough to make their own decisions—agreeing to and making their preferred agreements.

The third strategy is identifying the geographical location of the FinTech users. If most of them reside in Java and Sumatra, then the education program and campaign should be focused in these areas. This strategy is to prevent consumers from buying products because they are trending; for example, borrowing money from P2P lenders—and unprepared to pay for the additional fees and high interest rates, leading to their inability to pay off their debts.

4 OJK, Consumer Protection Department, Interview, March 2018.
5 OJK, Commissioner in charge of Consumer Education and Protection, Interview, May 2018.

The fourth method is thematic approach, for example, focusing the education on sharia or non-sharia-based FinTech companies. This method aims at making it easier for certain communities to understand FinTech products—ones that match their needs. OJK hopes the program can help them to choose financial products wisely to prevent defaults.

Another challenge in addition to literacy is to create cybersecurity standards that fit the FinTech industry. FinTech companies should meet the minimum IT security standard requirements to prevent, for example, malware viruses. Adequate cybersecurity plays a significant role to protect customer data and deposit of investment.[6] A cybersecurity standard should be checked periodically to avoid data theft and hacking.

A survey by the Indonesian Telecommunication Association (*Asosiasi Penyelenggara Telekomunikasi Seluruh Indonesia*/APTSI) revealed that 60 percent of Internet users in Indonesia are willing to share online their photos, birth dates (50 percent), and email addresses (46 percent). Some respondents even share their home addresses (30 percent) and phone numbers (21 percent). These numbers show that without advanced security standards, Indonesian consumers' identity can be easily found online.

Furthermore, another challenge in protecting FinTech consumers is the absence of face-to-face interaction for confirmation. This procedure also eliminates the know-your-customer (KYC) aspect, for example, checking the validity of an ID card before approving a loan application. On the other hand, through face-to-face interaction, a company can quickly check the ID validity of a potential debtor, whereas with electronic transaction, there is a possibility of prospective debtors using a different ID. Although FinTech transactions are not very high in value, lenders still need to know who their customers are.

In dealing with this issue, OJK signed a Memorandum of Understanding (MoU) with the Ministry of Home Affairs on 19 February 2019. This is to promote financial institutions, supervised by OJK, to collaborate with the Directorate General of Population and Civil Registry on utilization of population data, population identification number, and Electronic Citizen Identification Card (*Kartu Tanda Penduduk Elektronik*/e-KTP).

OJK also supports innovations to improve access to finance as long as the products are beneficial to the community and remain within the corridor of good governance best practices, to ensure customer protection. In this regard, OJK

6 *Ibid*.

has increased the role of The Investment Alert Task Force to prevent and prosecute illegal investment that could harm the public.[7]

The impact of low level of financial literacy to consumer protection, cybersecurity risk, and business continuity are presented in following subchapters.

7.1.1 Challenges in Ensuring Consumer Protection

The massive development of technology triggers numerous risks associated with consumer protection in the financial industry. These potential risks could also affect FinTech customers. One of the risks stemmed from low level of financial literacy in Indonesia.[8] A 2016 survey showed that although financial inclusion reached 67,8 percent, the level of financial literacy was only 29,7 percent. This number indicates that while Indonesian customers purchase many financial products or are able to access formal financial institutions, most of them do not understand the features of the products offered, including the potential risks that the products have and may cause in the future. The survey showed that consumers are only interested in knowing their rights and benefits, but only few want to know the risks or obligations that entail.

Customers' reluctance to read and learn about risks in detail may cause them harm. Majority of FinTech products are marketed through online systems without human involvement. There is often no question-and-answer mechanism between consumers and FinTech organizers. As a result, there is no guarantee that a customer fully understands the FinTech product offered, including all potential risks that might arise, even if they agree to the terms and conditions of the service.

The lack of information on the purchased products might lead to consumer dissatisfaction, and may trigger disputes. The fact is that once a customer agrees and consents to purchase one product, they are assumed to know all the risks and requirements. Moreover, each FinTech service has different potential risks as they have different business models.

Some vulnerability also overshadows P2P lending business. With easier terms and conditions than banks or traditional financial institutions, anyone can be an investor and a borrower. This scheme can lead to less accurate risk assessment, which in turn is detrimental to investors. Furthermore, some P2P lending FinTech services are not covered by insurance.

7 *Ibid*.
8 *Ibid*.

In addition, FinTech companies sometimes pay less attention to the completeness of information. With insufficient information, it would be difficult for them to look into investors' profile in detail—especially on matters related to money laundering.[9] Minimum information also makes it difficult for FinTech startups to apply the KYC principle to prospective borrowers. They also provide less detailed information on the procedures and ways for credit assessment.

In dealing with that issue, the Indonesian FinTech Association (*Asosiasi FinTech* Indonesia/Aftech) plans to build a shared digital data center, which includes—among others—a list of troubled borrowers. These data are expected to be shared by the FinTech industry to evaluate the credit quality of each customer. Aftech has also launched a Code of Conduct (CoC) for FinTech business actors. The CoC governs the FinTech companies' conduct and behavior to consumers, especially those related to lending and debt collecting schemes. According to Aftech, two billing policies are included in the CoC.[10] The first point is that each billing process must adhere to regulations. Second, collecting debts must be done with ethics, without threatening customers or causing unpleasantness. Ideally, collecting debts must be done in ways that exclude verbal abuse or behaviors that may cause stress or discomfort to customers. These procedures are expected to act as a guide for all FinTech businesses.

The debt collection process is in the spotlight after FinTech consumers protested the way RupiahPlus collected bad loans. The company's collecting method is scrutinized as they access the debtors' contact list, and then contact them to collect the loan. According to consumers, many debt collectors used harsh and threatening words. RupiahPlus explained that such debt collectors' conduct violated the company's official Standard Operating Procedure (SOP) for collection.

OJK gave a first warning letter (*Surat Peringatan*/SP) to RupiahPlus, and RupiahPlus' licensing process was suspended for three months since the incident.[11] During the three-month period,

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9 Department of Consumer Protection, "Kajian perlindungan konsumen sektor jasa keuangan: perlindungan konsumen pada FinTech", 2017, Jakarta.

10 Sari, F 2018, 'Gara-gara kasus RupiahPlus, asosiasi FinTech siapkan SOP penagihan', https://keuangan.kontan.co.id/news/gara-gara-kasus-rupiah-plus-asosiasi-FinTech-siapkan-sop-penagihan, viewed on 26 July 2018.

11 Muthmainah, 'OJK minta RupiahPlus benahi manajemen dalam kurun tiga bulan', https://www.cnnindonesia.com/ekonomi/20180726093308-78-317073/ojk-minta-rupiah-plus-benahi-manajemen-dalam-kurun-tiga-bulan, viewed on 26 July 2018.

OJK required RupiahPlus to settle at least eight of its obligations. One of them is to improve their internal management. If RupiahPlus cannot meet all requirements within the given time frame, OJK will issue a second warning.

OJK highlights that the methods and policies to protect FinTech customers are the same as the ones applied to conventional financial services customers.[12] Firstly, a FinTech company is required to be fully transparent about the product they offer—not only promoting the good aspects, but also disclosing information on costs, obligations, and risks. Secondly, a FinTech company must ensure fair treatment in its agreements with consumers, meaning that FinTech companies cannot change prices and rates at any time without giving proper notice. The consumer must be given an opportunity to approve any change in rates and interest rates, as a customer's position is equal to the FinTech business actor's.

Third, FinTech companies must be reliable—both in fulfilling the promise of giving consumers their rights as well as in maintaining data security. FinTech companies must have a reliable security system and service applications in place to prevent illegitimate access to consumers' data.

Fourth, FinTech business actors must also maintain confidentiality of the consumer's data. They should not be allowed to share data with other parties without the consumer's consent.

Fifth, as in conventional company, a FinTech company must have a unit that can handle complaints and resolve consumer disputes. They must have an email address and phone number for consumers to contact, equipped with employees to assist consumers in resolving the complaints. The company must also disclose to consumers if there are alternative dispute resolution mechanisms.

OJK as the regulator will test the complaint unit when the FinTech company is participating in the regulatory sandbox.[13] It is at this point when OJK checks and monitors whether FinTech business processes are aligned with the five principles outlined above. As part of risk mitigation, FinTech business actors must also include key facts statement when disclosing to consumers.

OJK examines the market conduct of a FinTech company to ensure that its business process, including the

12 OJK, Commissioner in charge of Consumer Education and Protection, Interview, May 2018.
13 *Ibid.*

complaint center, is in line with relevant OJK's regulations. These five principles are outlined in POJK No.1/POJK.07/2013 on Consumer Protection in the Financial Services Sector.

The Online Dispute Resolution Mechanism (ODR) owned by consumer counseling units is also one that will be monitored. OJK will review how a complaint is resolved online without involving human interaction. Some aspects tested while in the regulatory sandbox are the time taken to respond to the complaint; solution offered; and what will happen if consumer and FinTech business do not come to an agreement. Some aspects will be reviewed from time to time, for both FinTech and conventional finance industries.

OJK hopes that financial service actors—both conventional and technology-based such as FinTech—can resolve the disputes internally and directly with the consumers in a fair and effective manner. That is why FinTech business operators must have their own Internal Dispute Resolution Center (IDRC). OJK will check and make sure that the consumer complaint function through IDRC runs appropriately.

In terms of dispute settlement, OJK has established the Alternative Dispute Settlement Institutions (*Lembaga Alternatif Penyelesaian Sengketa*/LAPS). It is primarily regulated in POJK No. 1/POJK.07/2014 on Alternative Dispute Resolution in Financial Services Sector. In the event the consumers are not satisfied with the result of internal dispute resolution, they may bring a complaint to LAPS or court where the case will be mediated by the relevant institutions. OJK monitors the dispute process in LAPS, but will not interfere with the complaint if the dispute is brought to court. So far, there are 6 LAPS in operation, the Indonesian Insurance Mediation and Arbitration Board (*Badan Mediasi dan Arbitrase Asuransi Indonesia*/BMAI); Indonesian Capital Market Arbitration Board (*Badan Arbitrase Pasar Modal Indonesia*/BAPMI); Indonesian Pension Fund Mediation Board (*Badan Mediasi Dana Pensiun*/BMDP); Indonesian Banking Alternative Dispute Resolution Institution (*Lembaga Alternatif Penyelesaian Sengketa Perbankan Indonesia*/LAPSPI); Indonesian Finance, Mortgage, and Venture Capital Mediation Board (*Badan Mediasi Pembiayaan, Pegadaian dan Ventura Indonesia*/BMPPVI); and the Indonesian Arbitration and Mediation Board for Underwriting Companies (*Badan Arbitrase dan Mediasi Perusahaan Penjaminan Indonesua*/BAMPPI). However, similar body to handle FinTech dispute is yet to be established.

Many consumers, who are dissatisfied with the results of internal financial services settlement, have brought their cases to LAPS. LAPS adheres to the principles of accessibility, independence, justice as well as efficiency and effectiveness. LAPS provides three services, namely mediation, adjudication, and arbitration. There is no fee charged to consumers with disputed amount less than Rp500 million. For general insurers, the disputed amount is Rp750 million. OJK evaluates LAPS annually, including reviewing the complaints-handling standard mechanism.[14] OJK also conducts direct assessments on the field. The challenge here is that there are not many LAPS branches in districts. As a result, consumers who live outside Jakarta have to travel to Jakarta to file their complaints. Therefore, consumers sometimes prefer bringing their cases to court as there are regional courts everywhere. However, the downside to this is not all judges have ample knowledge of the financial sector.

OJK is currently preparing the second LAPS roadmap, with the goal of making the agency stronger and more credible in four years; one that is able to help and protect consumers to resolve complaints.[15] OJK hopes that the existence of a credible dispute resolution institution can increase consumers' trust in using financial products and services, including FinTech services. To attain such objective, OJK plans to integrate all existing LAPS, that are currently separate institutions, under one roof. OJK believes that uniformed service standards under one system will be more effective and efficient in resolving disputes.

In order to accelerate the integration of all LAPS in the financial sector, all existing LAPS declared their commitment to establishing a Joint Secretariat in November 2018. This joint secretariat is tasked to prepare for LAPS integration. At the same time, it also acts as an alternative single access for dispute resolution at an initial stage before directing the dispute to the appropriate LAPS.

Although no dispute related to FinTech has been brought to be resolved to date, many customers have complained to OJK about FinTech services, which have also been forwarded to the FinTech companies concerned. Various questions were asked –from regulations, the legality of companies, product, and business licensing to debt collector behavior. From the complaints, OJK noted that many consumers are reluctant to read the rights and obligations when signing the contracts. They are only interested in the benefits they gain every month.

In short, OJK facilitates consumers and FinTech businesses, then records and monitors the dispute resolution. OJK's task is to clarify and verify the complaints

14 *Ibid.*
15 OJK, Consumer Protection Department, Interview, March 2018.

and then categorizes the problems.[16] Business actors must report the resolution of consumers' complaints at least every three months. As a regulator and supervisor, OJK ensures that consumer complaints are handled well. Sanctions may be imposed when disputes are not resolved—from administrative sanctions, warnings, and direction to improve business processes. Companies must compensate consumers for loss if it is found that consumers are not at fault.

All companies (except for non-P2P lending FinTech companies) must display a sign that says the company is 'registered and supervised by OJK'. This requirement helps prevent investment frauds and scams disguised as FinTech. The supervisory team under OJK's Non-Bank Financial Industries division periodically checks the registered and licensed FinTech companies in the market. The Investment Alert Task Force, consisting of 13 ministries and state agencies including OJK, launches an investigation once there is an indication of fraudulent practice by companies offering investment products. OJK has the right to terminate FinTech businesses operating without license, which thus may harm consumers.

OJK also performs periodic checks against hybrid FinTech products. Hybrid product here means trading platforms that are outside OJK's territory but have credit or installments features, thus falls under OJK's supervision. There are also sales and purchase platforms that provide investment products. One of them is Bukalapak, which is now selling retail mutual funds.

To strengthen the risk mitigation efforts, OJK opened a contact center with 60 lines, since early 2018. The new three-digit customer service number is 157 replacing the old number 1500-655. By dialing 157, customers can ask OJK directly about FinTech. Questions can range from legality of a FinTech company, its registration status, and security system. OJK's telephone line is also a tool to increase financial literacy. At the start of January 2018, the number of incoming calls was around 2,000. By the following month, it reached 5,000 calls. This number was an increase from the number of calls received in early 2017, which was around 1,700s.

The 157 hotline also facilitates the work of the Investigation Task Force to check FinTech companies that offer products with abnormal returns. If OJK finds out that a company is operating without licenses and registrations, the matter will be brought to the Investment Task Force, who will then launch an investigation.

16 OJK, Commissioner in charge of Consumer Education and Protection, Interview, May 2018.

Until the end of 2019, the Investment Task Force discovers that there were 1,494 unlawful FinTech P2P lending companies operating in Indonesia between January 2018 and November 2019. This number has more than tripled from the year before, which accounted for 404 entities.

The Task Force investigation found that around 42 percent of the illegal P2P entities have Internet Protocol (IP) servers in unknown locations, 22 percent in Indonesia, 15 percent in the United States, and the rest were distributed in other countries, including the People's Republic of China, the Republic of Korea, and the Russian Federation[17]. This means that most of the illegal FinTech companies are operating overseas, which is the main reason why the Task Force is having difficulties preventing their emergence.

Aside from the Investment Task Force, the Legal Aid (*Lembaga Bantuan Hukum*/ LBH) also received increasing number of complaints about illegal FinTech activities. As of June 2019, Legal Aides across Indonesia receives a total of 4,500 complaints about illegal FinTechs, a significant surge from 2018 which recorded 1,330 complaints. The complaints were made via WhatsApp messages, phone calls, and face-to-face meetings. According to the Consumer Aid Foundation (*Yayasan Lembaga Konsumen Indonesia*/YLKI), complaints about online loans were the third largest in the business sector after property and banking.

Illegal FinTech platforms have similar characteristics. They are usually not registered nor licensed by OJK; often accessing the entire data available in the consumer's phone, such as contact numbers and photos; offering loans with very easy requirements, with fast disbursement process. However, they do not clearly set the amount of interest rates, penalties, and maturity period.

These companies also have no clear addresses, use unethical methods—including violence and defamation—in collecting loan repayment, and do not have a customer service hotline.

On the law enforcement, the police are having a hard time tracking down and prosecuting illegal FinTech activities. The absence of FinTech Law and the lack of the Personal Data Protection Act are noted as some of the biggest challenges in bringing illegal lending practices to court.

To this day, the government only has laws related to banking, insurance, taxation, and capital markets. Clauses on consumer data protection have been partially regulated in a number of these laws.

17 ADB recognizes 'Russia' as 'the Russian Federation'

Unfortunately, some of these rules do not stipulate consumer data protection in the event of abuse by FinTech services. OJK is supporting the immediate realization of the Personal Data Protection Act.

The Ministry of Communication and Information had proposed the draft of the Personal Data Protection Act to the State Secretariat. This draft was then submitted by the President to the House of Representatives on 24 January 2020. This draft covers some information such as the types of personal data, the rights of the owners of personal data, processing personal data, dispute settlement, international cooperation, the role of government and people, and administrative sanctions.

The Ministry of Communication and Information adopts some of the strict stipulations inspired by the European Union General Data Protection Regulation (GDPR). The European model protects citizens from privacy and data breaches regardless of where the data are stored and managed. In the latest draft which was already submitted to the House of Representatives, it is said that the owners of personal data have the rights to end the processing, expunge, and/or wipe out their personal data.

The draft is now included in the 2020 priority national legislation program. The law is expected to fill the void of regulation that protects individual data in FinTech services.

To this day, the authorities are forced to wait for a victim to file a report before they can take any action against illegal P2P lending entities. Cases are usually revealed only after consumers reported that they had been intimidated, defamed, or were running up on debts.

It is only after the people become victims that legal proceedings can take place. Without the Bill on personal data protection or FinTech Act, the police cannot build a case against illegal FinTech entities if customers do not actually file a complaint. This issue cannot be addressed with OJK Regulation on FinTech or with FinTech association's code of conduct since those only apply for licensed and registered FinTech entities.

Nevertheless, OJK has been closely coordinating with the Ministry of Communication and Information Technology to block the illegal FinTechs' websites and apps. However, illegal FinTech entities can still return online using different names. Their emergences become known through SMS and media social such as Facebook, Twitter, or Instagram.

To deal with this issue, YLKI and the Indonesian FinTech Lenders Association (*Asosiasi FinTech Pendanaan Bersama*

Indonesia/AFPI) have called on the government and legislators to roll out FinTech law. It should not only cover personal data protection and careful assessment during appraisal of creditworthiness that may minimize loan defaults, but also set business standards to ensure better protection of both the FinTech industry and consumers, such as borrowers and investors.

OJK has established a working group on consumer protection. The working group has a vital role in mitigating risks related to consumer protection.[18] However, the group that meets regularly every two months does not cover the FinTech industry, and their scope is limited to conventional financial services.

7.1.2 Challenges in Managing Cybersecurity Risk

One primary condition for a FinTech business' sustainability is reliable security system. A FinTech company must update its IT security system on a regular basis to protect itself from cybersecurity attacks. Companies must encrypt data on consumers' information, and ensure the security of all consumers' data, including account numbers. OJK evaluates whether FinTech business actors have a Disaster Recovery Center (DRC) to anticipate virus or cybersecurity attacks, and a breach of their security systems and service applications.[19]

OJK emphasizes that if customers are harmed and at no fault of their own, then the FinTech business actors must compensate them for the losses incurred. FinTech business actors can be charged with criminal sanctions if it was found that they sell or leak customers' data on purpose. The agreement between FinTech companies and consumers should also state the responsibility of the company to keep the customer data confidential.

As a regulator, OJK periodically evaluates the extent to which a FinTech enterprise's IT security can protect customers' data.[20] OJK will examine the FinTech's IT system, mainly how the DRC works when problems arise—for example in handling a virus attack or cybercrime. The reliability of this IT security system is one that will be tested once the FinTech company enters the regulatory sandbox. That is when OJK will assess whether or not the FinTech company's security system is adequate.

Threats to cybersecurity are not a figment of the imagination. PricewaterhouseCoopers (PwC) Research demonstrates that the average financial loss suffered by information

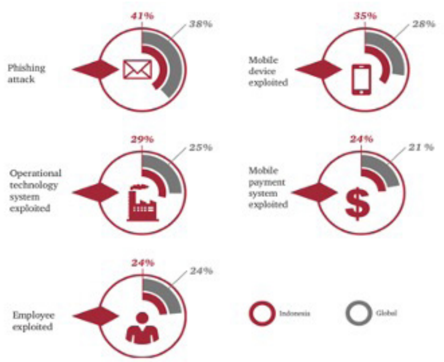
18 *Ibid.*
19 *Ibid.*
20 *Ibid.*

security in Indonesia reached US$1,2 million. Unfortunately, the average budget allocated to IT security in Indonesia was only US$1,4 million, or about 3,2 percent of the average total budget for the IT department, which reached US$44,2 million. At the global level, a striking disparity also occurs between the average budget allocated for IT security and the overall budget for the department; which is US$5,1 million out of US$138 million.[21]

Figure 7.1 shows how phishing attacks were the leading cause of cybersecurity incidents in 2016, both in Indonesia and around the globe. The increasing use of mobile devices and the implementation of mobile payment systems are also a loophole that cyber criminals exploit. Two Indonesian respondents in the survey even reported a financial loss of more than US$20 million due to cybersecurity incidents. The effects of such incidents include the loss or destruction of internal records, consumer and employee information, and financial losses, to the disappearance of intellectual property. A number of such incidents reflect how mobile security awareness needs to be raised among business people—especially FinTech actors. Furthermore, companies must strengthen the protection of privacy and information assets.

Top vectors of cybersecurity incidents*

Figure 7.1



* *Ibid*., viewed on 27 July 2018.

Data theft in digital payment systems often occurs when consumers make transactions through telecommunication networks, especially when using Wi-Fi facilities in public places.[22] Also frequent is failure of transaction while their funds have been debited, transaction nominal error, and authentication codes sent to the wrong number or user. Another potential risk is the misuse and abuse of consumers' financial data/information by ones who have access to it. For example, many online shops store credit card data to facilitate subsequent transactions. However, in some cases, data are

21 PricewaterhouseCoopers, 'Key findings from the global state of information security survey 2017: Indonesian insights', https://www.pwc.com/id/en/publications/assets/assurance/Risk%20Assurance/gsiss-indonesian-report-2017.pdf, viewed on 27 July 2018.

22 Department of Consumer, *Kajian perlindungan konsumen sektor jasa keuangan: perlindungan konsumen pada FinTech*, Otoritas Jasa Keuangan, Jakarta, 2017.

misused to conduct transactions without the consent of the consumer.

Security and data theft can also happen in FinTech services. Data theft is very likely to occur if the company does not have a reliable data security system. This weakness is what makes consumers prone to financial crimes. Data misuse endangers consumers' finances. Weak security systems also provide opportunities for hackers to remove or steal consumers' data from FinTech companies that offer personal finance services. As a result of consumer data breach, the consumers' financial statements cannot be recorded properly, and as such, the advice on consumer's personal finance may not be as desired.

To anticipate the increasing threat of cybersecurity, OJK joined an initiative to form the State Cyber and Cryptography Agency (*Badan Siber dan Sandi Negara*/ BSSN). The Ministry of Communication and Information Technology; the Ministry of Defense; the Coordinating Ministry for Political, Legal, and Security Affairs; and the police's cybercrime unit are also members of the initiative. Law No.11/2008 on Information and Electronic Transaction becomes the legal umbrella preventing cyber-attacks. To anticipate cybersecurity incidents in financial services institutions, OJK issued POJK No.38/POJK.03/2016 on the implementation of risk management from the use of information technology related to security and banking governance. OJK's Circular Letter registered as No. 18/SEOJK/02/2017 regulates the governance and security of IT system for P2P lending FinTech companies.

The challenge here is the fact that cyber-attacks tend to happen due to low cybersecurity awareness. Low awareness is a source and an easy target for attacks in the digital world. The level of IT investment in cybersecurity is currently still low as companies are unsure about the benefits that it will bring to the company. Unfortunately, no party has yet to specifically list down cyber-attacks on the financial services industry, as financial services institutions are reluctant to share information on cybersecurity incidents. This situation is exacerbated by the lack of framework and cybersecurity strategies at the national level. The distribution of power over cybersecurity is also divided among regulators, from ministers to law enforcement agencies.

OJK is designing some initiatives, which include the plan to establish an information-sharing mechanism for financial services industry to speed up recovery process while being under attack. The next step is to increase the financial services industry's cybersecurity capacity. Partnerships between the public and private sectors to share information among stakeholders will be established.

Each company's cybersecurity framework should be in line with the overall operational risks and corporate risk management strategies applied in financial services institutions. This strategy helps to pinpoint the policies on the right target. Any regulations related to cyber risks must take into account existing technical standards as a starting point. The central element of any rule's framework is to promote cybersecurity awareness among staff. In addition to focusing on data privacy, cybersecurity regulations must require financial services institutions to develop effective control and response frameworks to address risks of cyber-attacks.

7.1.3 Challenges in Maintaining Financial Institution's Business Continuity

Trust is a crucial asset for financial institutions. However, the bond of trust in financial institutions can be easily damaged due to the threat of cyber-attack or the integrity and security of consumer data.[23] At such situations, the financial institutions' reputation may experience irreparable damage. Loss of trust and confidence from clients and the public are obstacles for financial institutions to maintain business continuity.

Therefore, business continuity planning (BCP) matters. By having business continuity planning, financial institutions could have the ability to remain in compliance with applicable regulations, minimize financial loss, continue to serve customers and financial market participants, and mitigate the adverse effects on institutions' reputation.[24] Critical components of BCPs include business impact analysis, risk assessment, risk management, and risk monitoring, and testing activities.

FinTech startups must create a business continuity plan that ensures critical business process continues during emergencies, from disaster strikes, human error, terrorism to cybersecurity breach. It should include a collection of procedures and information to provide maintenance, quick recovery, and immediate resumption of business activities, including service to customers.

The first challenge is to establish good BCPs that can reduce the probability and impact of an incident. A good plan is expected for a company to resume business activities to as close to normal

23 Whelan, P, 'How a business continuity plan can help financial institutions stay secure and hold on to trust', https://www.allcovered.com/the-learning-center/how-a-business-continuity-plan-can-help-financial-institutions-hold-on-to-trust-630, viewed on 26 September 2018.

24 Federal Financial Institutions Examination Council, 'Business continuity planning booklet', https://www.fdic.gov/regulations/examinations/supervisory/insights/sisum06/bcp.pdf, viewed on 26 September 2018.

levels in as short a time as possible when an incident occurs. Financial institutions must develop a proactive approach to cyber-resilience to minimize the impact of cyber-attacks. This strategy can help lessen the risk of an attack.

Another challenge is to allocate resources properly throughout the development and maintenance of a business continuity planning.[25] For a complex institution, it may need a business continuity-planning department with a team of departmental liaisons throughout the company. Conversely, it may only need an individual BCPs coordinator for a smaller and less complex institution.

The third challenge may occur in synchronizing data when dealing with an active or backup environment, especially if the distance between the primary and backup location is greater. As an illustration, the more massive and more complex a financial institution is, the more difficult synchronization can become.

7.2 Opportunities

Beneath all of those challenges, FinTech remains a door to many opportunities—starting from big data utilization to potentials of collaboration. Amartha, for example, utilizes big data and machine learning to investigate a prospective debtor's eligibility through their social media accounts and browsing history. Amartha develops a technology to assess the credit scoring of potential borrowers.[26] UangTeman, a FinTech company offering short-term loans, also utilizes big data-based credit risk algorithm to evaluate prospective debtors in real time. These startup companies use big data to analyze purchase transactions and identify fraud risks.

As startups, FinTechs cannot manage all businesses on their own. At this stage, FinTech companies need to establish a partnership. Collaboration thus becomes an option for FinTech players to widen their business scope. Investree, for example, collaborates with e-commerce companies to finance merchants trading in e-commerce platforms.[27] They also partner with dozens of well-known companies in providing financing to employees. Investree plans to cooperate with Tokopedia to tap the small-medium enterprise (SME) sector. FinTech will be an integral part of the e-commerce and transportation ecosystem. Meanwhile, Bareksa collaborates with Bukalapak, providing mutual funds investment services called BukaReksa on the site.

The potential for cooperation is not limited

25 *Ibid.*, viewed on 26 September 2018.
26 Amartha (PT Amartha Mikro Fintek), CEO & Founder, Interview, March 2018.
27 Investree (PT Investree Radhika Jaya), Co-Founder & CEO, Interview, November 2017.

to funding, mergers, and acquisitions only. There are also chances to collaborate in the provision of technology. Collaborations between MFIs and FinTech enable the two entities to target more specific markets with the support of big data-based technology. The existence of Microfinance Institutions (MFIs) also allows FinTechs to provide empowerment for debtors to prevent risks of bad credit.

Perum Pegadaian is eyeing this type of collaboration opportunity. The state-owned company has taken part in discussions about the opportunity for business-to-business cooperation with many FinTech companies.[28] The targeted FinTech companies are quite varied, from peer-to-P2P lending to other digital finance fields that are in line with Pegadaian's business, such as artificial intelligence, the blockchain, and digital marketing.

FinTech can also collaborate with multi-financing companies and banks to act as the channeling agent for MSME loans.[29] As a lender, this business scheme is more affordable and efficient for banks compared to opening new physical branches to attract more customers. In other words, banks can use FinTech customer base. This partnership eases banks to meet the Government's mandate of disbursing 20 percent of their total credit to the SME sector. On the other hand, customers that have been identified unbankable by banks and multi-financers—due to their lack of collateral—can now be referred to FinTech companies, allowing them better access to financial services. The partnership offers not only a win-win solution for both parties but also one that has a significant impact on consumers and their need for innovative financial services.

Moreover, OJK sees FinTech as a tool to help the banking sector work more efficiently. By acquiring FinTech technologies, such as blockchain, banks can allocate their funding more efficiently.[30] The blockchain technology also eases the digital process of recording the funds of customers who plan to obtain microloans. Micro insurers can also utilize blockchain technology for claiming payments—especially if the amount is small and dispersed in many regions. Through blockchain, the claims can be paid quickly. Therefore, OJK urges financial service institutions to utilize FinTech.

The simplest form of bank-FinTech cooperation is to provide investments to

28 Lestari, R, 'Pegadaian ingin gandeng FinTech', http://finansial.bisnis.com/read/20180315/89/750410/pegadaian-ingin-gandeng-FinTech, viewed on 7 August 2018.
29 Investree (PT Investree Radhika Jaya), Co-Founder & CEO, Interview, November 2017.
30 OJK, Digital Financial Innovation Group, Interview, January 2018.

help FinTech companies grow. Mandiri Capital Indonesia, a venture capital subsidiary of Bank Mandiri, for example, is partnering with Amartha through the Series A funding scheme that will continue in the form of ultra-micro loans for non-bankable societies.[31] Mandiri Capital also facilitates loan for Amartha through Bank Mandiri's Laku Pandai agents.

The existence of FinTech does not only benefit the banking sector, it also helps startup companies continue to grow and become more efficient. In this context, Amartha helps Mandiri in terms of technology and smart behavior management. The amount of ultra-micro loans Amartha provides to the unbankable population only ranges between Rp2 million and Rp3 million. The appraisal process is done using technology, taking into account the psychological character of the debtors. This kind of cooperation is what companies like Mandiri Capital Indonesia seek for in a bid to improve IT innovations. In addition to Amartha, Mandiri Capital Indonesia has also distributed funding to a number of FinTech companies, including Privyid, Moka, CaShlez, and Yokke.

Meanwhile, Bank Permata is now aggressively developing digital services for its customers through a collaboration with Amartha. With limited branch offices, the subsidiaries of PT Astra International Tbk (ASII) and Standard Chartered are trying to reach MSMEs in rural areas regions by cooperating with Amartha.[32] As of May 2018, their cooperation resulted in Rp17 billion worth of loans disbursed to 5,000 borrowers. Bank Permata's decision to choose Amartha as a partner is inseparable from the FinTech's specific market segment—micro industries run by women.

Bank Bukopin also made the same effort, channeling bank loans to micro businesses by cooperating with TaniFund, a subsidiary of TaniHub, which is a marketplace for agricultural products. When starting the collaboration in 2017, Bukopin provided TaniHub with business capital participation to redeem agricultural produce, with a value around Rp8 billion, to help the company buy farming products and pay distribution costs.[33]

Other cooperation between banks and FinTech companies can be seen in the collaboration between Bank Danamon

31 PT Mandiri Capital Indonesia, Head of Investment, Interview, November 2017.
32 Almawadi, I, 'Kisah Bank Permata gandeng FinTech melawan rentenir dan tengkulak', https://www.bareksa.com/id/text/2018/05/09/kisah-bank-permata-gandeng-FinTech-melawan-rentenir-dan-tengkulak/19245/analysis, viewed on 9 August 2018.
33 Nirmala Aninda, 'Tahun ini Bukopin salurkan KUR lewat FinTech', http://finansial.bisnis.com/read/20180202/90/733738/tahun-ini-bukopin-salurkan-kur-mikro-lewat-FinTech, viewed on 5 August 2018.

and Investree. By partnering in host-to-host services, the partnership allows Investree to provide all transaction data they want to have in the form of text files, using special software. The goal is so that the fund transfer process-taking place on the platform can be done faster.

Banks owned by regional governments may also have the opportunity to expand through collaborations with FinTech companies. The cooperation will bring mutual benefits to both entities. First, regional development bank (*Bank Pembangunan Daerah*/BPD) can utilize digital technology services provided by FinTech to advance their businesses, whereas FinTech companies can have access to BPD's customers.

Second, utilization of FinTech may assist BPDs in increasing financing for micro, small and medium enterprises in remote areas through the Micro Business Credit (*Kredit Usaha Rakyat*/KUR) program. Moreover, the presence of FinTech encourages BPDs to improve IT infrastructure and their human recourses. This, in turn, could help BPDs to increase their core banking system and encourage switching process among the banks.

Third, the cooperation between two parties may also lead to the development of product divergence and improvement of digital services. One example is to establish a partnership with FinTech companies that provide efficient remittance services through digital wallets. By doing this, Indonesian migrant workers could send money to their families' accounts in BPDs through apps developed by FinTech companies, with faster notification.

Another example is PT Bank Pembangunan Daerah Sumatera Utara (Bank Sumut), a regional bank that has optimized digital banking in the form of fee sharing-based cooperation with FinTech companies, such as Investree and Pinjam.co.id. This collaboration may help Bank Sumut boost its third-party funds (*Dana Pihak Ketiga*/DPK) in education and health sectors and penetrate finance for MSMEs at the same time.

Another illustration is the cooperation between Bank Jabar Banten (BJB), a regional bank owned by the administrations of West Java and Banten, and Tani Fund. The bank offers a source of funding for farmers in several regencies on Java Island by channeling its money through the KUR program. The collaboration may attract more regional development banks to work together with FinTech enterprises, especially in helping regions to generate revenue and increasing financial inclusion in rural areas.

Further, FinTech company Amartha has also cooperated with PT Bank

Table 7.1.

Collaboration between FinTech and BPDs

Bank	FinTech
Perbarindo and Perbarindo DKI	AFPI
Bank DKI	Pendanaan, Maucash, Do-it, Aktivaku, UangTeman, Kredit Pintar, Dompet Kilat, Pintek, Danain
Bank Pembangunan Daerah Bali	Pendanaan, Maucash, Do-it, Aktivaku, UangTeman, Kredit Pintar, Dompet Kilat, Danain, DanaRupiah
Bank NTT	DigiAsia, Fintag, DigiSign
Bank NET	DigiAsia
Bank Pembangunan Daerah Jateng	Amartha
Bank Pembangunan Daerah Sulselbar	GandengTangan
Bank Jabar Banten (BJB)	Crowde, TaniFund
Bank Pembangunan Daerah Sumatera Utara	Investree
Bank SulutGO	Investree, Fintag, Adakami, Pintek, Akseleren

Pembangunan Daerah Jawa Tengah (Bank Jateng) since August 2019. It supports MSMEs in the Central Java region. The collaboration between Amartha and Bank Jateng focuses on digitizing credit distribution and financial product innovation. It facilitates access to services and lending to the MSME segments in Central Java.

Amartha has served more than 35,000 business partners in 45 regions in Central Java and hopes to be able to reach out to more MSME actors.

As of December 2019, there are at least 10 BPDs which collaborate with P2P FinTech entities, as shown in Table 7.1. The cooperation is in line with OJK's objective, which encourages BPDs to collaborate with FinTech to expand its outreach through digital products and services.

The same type of cooperation can be extended to rural banks (*Bank Perkreditan Rakyat*/BPR), considering there are still many areas in Indonesia, as well as markets that are still left untapped by traditional financial institutions.

OJK encourages the two entities to collaborate in ways like FinTechs cooperate with commercial banks cooperate. The collaboration enables both BPRs and FinTechs to operate more effectively and efficiently, primarily since they focus on the same goal which is to develop MSMEs.

The form of cooperation between BPRs

and FinTech can be in form of financing—for both the FinTech and the bank, or in provision of technology and systems for BPRs.[34] That way, FinTech can provide platforms, while BPRs become creditors and also provide debtors. Another collaboration model is for FinTech companies to offer platforms and debtors, while BPRs become creditors.

In compliance with OJK Regulation No.75/POJK.03/2016 on the Standard of Information Technology Implementation by BPRs and Sharia BPRs (*Bank Perkreditan Rakyat Syariah* BPRS), the two entities must utilize IT to support business operations. The IT referred to here is the core banking system and data center.

Taking into account the regulations mentioned earlier, the potential for BPRs to cooperate with FinTech is not only limited to providing funds, but also through technical support. The collaboration can also lower BPR's spending on technology. This collaboration is very likely to occur considering that 94 percent of BPRs in Indonesia have computerized, and 75 percent have integrated computerization.

Another form of cooperation is for FinTechs to utilize BPR's channeling. In this context, P2P lending FinTech can be the starting point for collaboration among BPR and FinTech, since BPR primarily works in similar ways as P2P lending. BPRs usually have a smaller capital base than commercial banks and smaller target markets. On the other hand, P2P lending is a form of loan-based crowdfunding that allows individuals and lenders to meet in a technology platform.

BPRs with commercial banks have carried out this channeling collaboration model because BPR can reach a more specific target market than commercial banks. However, BPRs also have difficulty achieving more specific customer targets with limited capital and technology capacity. Therefore, collaborating with FinTech companies can also be an option.

Amartha implements a concrete example of collaboration between BPR and FinTech through its partnerships with four BPRs in Malang: Pujon Jaya Makmur, Dhana Lestari, Centraldjaja Pratama, and Mitra Catur Mandiri. Here, Amartha channels financings to micro-entrepreneurs by digitizing BPR access. With this collaboration, Amartha helps micro-entrepreneurs in the rural areas to obtain access to funding and assistance by cooperating with BPRs as borrowers. Amartha hopes that this collaboration can help alleviate poverty, increase women's participation in development, and reduce income gap.

34 OJK, Banking Supervision Department, Interview, February 2018.

Table 7.2.

Collaboration between FinTech and BPRs

BPR	FinTech
Sukawati Pancakanti Gianyar	DanaRupiah, DigiAsia, DigiSign, Modalku
Supradanamas	UKU, PinjamModal, Do-It, Crowdo
Putra Niaga Mandiri Palopo	Cashcepat
Daya Perdana Nusantara	Do-It, Crowdo, DigiSign
Fidusia Civitas	Do-It, Crowdo
Varia Centra Artha	Modalku
Bekasi Bina Tanjung Timur	Modalku
Pujon Jaya Makmur	Amartha
Dhana Lestari	Amartha
Centraldjaja Pratama	Amartha
Mitra Catur Mandiri	Amartha

Many other FinTechs followed Amartha's footsteps. Modalku, for example, signed a partnership with three BPRs to provide joint funding as capital for micro and small businesses at the end of September 2019. The three BPRs are PT BPR Varia Centralartha (Bank Varia), PT BPR Bekasi Binatanjung Makmur (BPR BBTM), and PT BPR Sukawati Pancakanti (BPR Kanti). Meanwhile, Do-It cooperates with BPR Supradanamas, BPR Daya Perdana Nusantara, and BPR Fidusia Civitas. Table 7.2 shows a number of collaborations between FinTech entities and BPRs.

OJK's Role in FinTech Development in Indonesia

Compared to other nations, the existence of FinTech in Indonesia is relatively recent. Despite being a new player, FinTech products and services have shown significant growth from year to year in Indonesia. That is why OJK, as the regulator and supervisor of the financial industry, has been paying particular attention to FinTech services over the last few years.

Based on OJK's observation, the development of FinTech in Indonesia is somewhat unique compared to developed countries, primarily due to different market characteristics. In Australia, for example, FinTech grows and expands to simplify and streamline transactions, whereas in Indonesia, the abundance of FinTech services serves as a tool to push financial inclusion. This means that FinTech can act as a means to expand financial service access to all parts of Indonesian society. As such, FinTech growth needs to be driven in a bid to achieve the financial inclusion target.

Chapter 8

Consequently, the model of supervision and the regulatory approaches applied in Indonesia is different from other countries. OJK does not only look at the best practices in the financial industry, but also seeks to formulate the best-fitting regulations that will enable FinTech in Indonesia to grow and thus improve the country's financial inclusion.[1]

8.1 FinTech Supervision

One of OJK's main concerns is how to strike a balance between regulations and industry's development. OJK understands that if rules are too strict, the FinTech industry will have difficulties growing. For example, if FinTech startup companies are required to spend an ample amount of cost to meet capital requirements. On the other hand, overly loose FinTech controls will pose risks to customers and the industry itself.

On the other hand, violations and poor governance due to lack of regulations might cause the FinTech industry to be unsustainable. As a result, the FinTech industry that is currently in high demand may slowly be avoided. In this regard, OJK continuously strives to find ways to allow FinTech industry to grow sustainably, achieve financial inclusion, and protect customer's interest. Those are principles that OJK adheres to in supervising the FinTech industry.

There are at least two aspects that OJK watches for in overseeing the implementation of FinTech in Indonesia, namely financial and technological.[2] The financial element involves business processes with all of the tools, such as governance and risk management that can encourage FinTech to flourish. The technological aspects are pertaining to the system and technical issues. The use of technology in FinTech must meet certain standards to ensure its safety.

To supervise FinTech development, OJK has imposed three regulations. First, POJK No.77/POJK.01/2016 on Information Technology-based Lending services. The regulation focuses on peer-to-peer (P2P) lending businesses, and OJK's supervision will be based on a prudential approach. The regulation serves as a reference for FinTech companies to maintain good corporate governance, especially if they want to be registered and licensed. As such, OJK urges FinTech enterprises to prioritize information disclosure and transparency in running their businesses. By doing this, lenders and borrowers have access and ability to measure potential risks. The risks are related to the interest charged

1 OJK, Vice Chairman of the Board of Commissioners, Interview, March 2018.
2 *Ibid.*

to the borrowers and the returns expected by the investors. Usually, the higher the risk involved, the higher the return that investors will seek, and vice versa.

Measured risks will lower the cost of funds so that lenders can offer lower interest rates. Transparency, accompanied by healthy competition in the P2P lending market, will reduce the cost of funding. On the other hand, lenders will ask for higher interests if there is no adequate assurance on the P2P lending products offered.

In carrying out its function as a regulator, OJK seeks to encourage the FinTech market to grow and prosper healthily. A competition will appear when the numbers of FinTech companies and lenders increase, which in turn will bring down the cost of lending. OJK will build such an approach in carrying out its supervisory duties.

The second regulation is POJK No.13/POJK.02/2018 that covers innovation in digital technology for the financial sector. This regulation will serve as a legal umbrella for all FinTech companies that have not been regulated by other authorities. At this moment, FinTech companies which offer payment and P2P lending services are the ones which will be excluded from the obligation mentioned in POJK No. 13/POJK.02/2018. According to OJK, rigorous regulation and risk management, which lead to prudential supervision, may not be particularly suitable for innovation in digital technology for the financial sector. Therefore, OJK must maintain a good balance in carrying out its duties as FinTech supervisor and regulator, one that could both support the growth of the FinTech industry and ensure consumer protection. This is in line with OJK's intention to promote creativity and innovation, while at the same time ensure that business processes and technology meet the requirements necessary for consumer protection.

To develop digital finance innovation, OJK supervises FinTech enterprises using market conduct approach (Vice Chairman of the Board of Commissioners 2018b).[3] OJK encourages FinTech association to set their standard operational disclosure and conducts based on regulatory principles that OJK imposed. OJK also employs regulatory sandbox to provide a realistic environment for new FinTech entities to be tested, before being evaluated and registered.

The third regulation is POJK No.37/POJK.04/2018 on Funding Services through IT-based stock offering. The regulation is to provide space for startup companies to obtain funding through the stock market as well as to enhance

3 Vice Chairman of the Board of Commissioners, Keynote speech on FinTech Inclusion Forum, 31 July 2018.

financial inclusion. Under the regulation, small-medium enterprise (SMEs) can raise funds from retail investors through equity crowdfunding using online platforms.

Almost all FinTech services are within OJK's supervision domain, except for payment system that is under the Central Bank (Bank Indonesia/BI)'s authority. Since the FinTech industry is growing expeditiously, OJK accelerates its efforts to reach all segments of FinTech. OJK realizes that if they do not issue FinTech regulations immediately, there is a risk that Indonesia's FinTech market could fail to develop.

8.2 Regulatory Framework of P2P Lending

In drafting the regulations, there are two things that OJK considers.[4] First, OJK will issue rules when the services or financial products have circulated in the market widely, but regulation governing such services or products is absent. Second, regulations are issued for market deepening purposes, or to develop industries and markets to grow in the future.

This first approach was also the framework that OJK used when issuing regulation No.77/POJK.01/2016 on Information Technology-based Lending services. At that time, numerous FinTech companies were offering P2P lending products. Fund owners were willing to lend money to customers in need. The P2P lending market was growing fast in Indonesia, and OJK saw that the market needed new regulations so that P2P businesses could provide lending services legally and, thereby, give legal certainties for the parties involved, primarily to ensure consumer protection.

Therefore, in order to enforce governance in P2P lending practices in Indonesia, OJK regulation on P2P lending was issued. This regulation sets out various requirements for FinTech companies, including capital requirements as well as defining relationship between lenders and borrowers. Since the issuance of POJK No.77/POJK.01/2016, funding through P2P lending FinTech tends to increase.

One of the references used by OJK in issuing regulations is the 'rule-making rule'. This provision regulates the procedures of drafting regulations. In the process of issuing regulations, for example, OJK has a 20-day deadline for delivering drafts to the public.[5] During this period, OJK conducts discussions and solicits opinions, as well as takes into

4 OJK, Vice Chairman of the Board of Commissioners, Interview, March 2018.
5 *Ibid.*

account the aspirations of the society, the industry, as well as related regulators and institutions. The public has the opportunity to review and harmonize the draft with applicable provisions.

This discussion took place long before the regulator issued POJK No.77/POJK.01/2016. Although some commented that the enactment process of this regulation was too long, OJK wanted to ensure that the regulation to be applied can be understood and implemented. OJK hopes that the P2P lending regulations could support Indonesia's economy in the future.

When formulating POJK 77, OJK involved stakeholders: from university law experts, private law consultants, information technology experts, various ministries, banking industry, FinTech associations, and a number of OJK's internal task forces.[6] On the academic aspect, OJK sought opinions from University of Indonesia (Universitas Indonesia/UI) and Gajah Mada University (Universitas Gajah Mada/UGM) law experts, as well as IT experts from Bandung Institute of Technology (Institut Teknologi Bandung/ITB). Several ministries and agencies such as the Ministry of Communications and Information Technology, the Coordinating Board of Investment (*Badan Koordinasi Penanaman Modal*/BKPM), the Ministry of Cooperatives and SMEs, and the Ministry of Finance were also involved in drafting the regulation.

OJK also reached out to the House of Representatives' (*Dewan Perwakilan Rakyat*/DPR) Commission XI, which handles financial sector, to provide input, aside from communicating every article in the regulation to the public. Within OJK, there was also a special team that formulated the POJK No.77/POJK.01/2016, called the Digital Economic Innovation Development team.

With regard to the implementation of the regulation, OJK cannot stand alone. The regulator closely coordinates with the Ministry of Communication and Information Technology. Before OJK grants a registered status to a FinTech company, the company must first apply to the Ministry of Communication and Information Technology for certification. The Information Technology and Electronics (ITE) Act stipulates that electronic systems that serve public interest must be registered and certified. Many aspects such as data protection, data technology, data center, and data recovery center are taken into consideration by the Ministry of Communication and Information Technology when issuing certificates.

6 FinTech Supervision and Licensing Department, 2018.

In other words, there are some requirements that FinTech companies must meet when registering, as well as when applying for a license. Requirements for obtaining a license are stricter compared to requirements to be registered. Once registered, for example, each company must fix its business model to get a license. The registration status is usually valid only for 1 year. A FinTech company must conduct 11 standard operating procedures (SOP) altogether to obtain a license. If a FinTech company is unable to meet the requirements to get a license, its registration status is revoked.

Further, OJK is also reviewing rules on the use of escrow and virtual accounts in the FinTech business. Escrow accounts are checking accounts at banks used by lenders to receive from and disburse to borrowers. Meanwhile, virtual accounts are a user identification number, used by both the investors and the borrowers. The purpose of separating these accounts is security—so that funds deposited in the escrow account cannot be diverted. One aspect to be regarded is the purpose and designation of the use of an escrow account.[7] OJK limits the period for funds to be kept in an escrow account to a maximum of seven business days.

In the market, FinTech companies offer a diverse range of products and services, not only lending and borrowing through P2P channels. There are also FinTech companies that provide investment products and financing based on crowdfunding. In dealing with such situation, OJK will adjust rules following the development of FinTech products in the future.

Further, OJK has conducted studies especially on crowdfunding in the capital market. What should be observed is whether FinTech companies manage the funds or distribute the collected funds directly to prospective borrowers. This will be the basis that OJK uses in formulating some obligations for FinTech enterprises to meet.

It is important to distinguish the difference between FinTech models as in P2P lending business, for example, FinTech companies act as a facilitator between lenders and prospective borrowers, and only provide the means for investors and borrowers to meet.

On the other hand, crowdfunding-based FinTech businesses usually involve many investors interested in financing a particular project. Factors that investors would consider are project managers, business model, and project risks. In practice, it is possible for FinTech companies to disburse funds or launch

7 Directorate of FinTech Regulation, Licensing and Supervision, 2018.

products to be funded by small investors. Each service has different requirements, both concerning governance, capital, and risk management. All of these elements are highly dependent on the business process implemented. The conditions and requirements of a FinTech company that provides investment products such as private equity mutual funds (*Reksa Dana Penyertaan Terbatas*/RDPT), for example, should consider these three elements, as those are what OJK will regulate.

8.3 Regulatory Framework on Digital Financial Innovation

After issuing the regulation on P2P Lending (No.77/POJK.01/2016), OJK released regulation No. 13/POJK.02/2018 concerning Digital Financial Innovation in the financial services sector. According to OJK, the new regulation will serve as a legal umbrella for the FinTech industry as a whole, with the exception of P2P lending and payment system.[8]

This regulation covers three stages of FinTech legal compliance. The first stage is the requirement for FinTech startups to file recording application so that OJK can monitor the business development. The recording requirements are straightforward. FinTech business actors, among others, only need to provide data to be assessed by OJK. If they meet certain criteria, they will be given the recording status and named as Digital financial innovators.

The second stage is regulatory sandbox, which is essentially the testing mechanism of all relevant aspects of the business process. In conducting the regulatory sandbox, OJK will use prototyping approach. It will select a sample of prototypes for each business model cluster based on several criteria set forth beforehand, to be observed and evaluated more thoroughly in one year, with the additional time of up to six months in some specific cases.

OJK will make a recommendation to advance to the registration stage if Digital financial innovators meet all the requirements and standard set in the regulatory sandbox. In cases where not all requirements have been met, the Digital financial innovators are requested to make improvements; otherwise, they could not receive a recommendation for continuing their business. The registration process is the third and the last stage that should be followed by Digital financial innovators.

As of October 2019, there are 61 Digital financial innovators recorded, classified into 15 clusters based on their business models, in which 40 of them are selected

8 OJK, Vice Chairman of the Board of Commissioners, Interview, March 2018.

as Prototypes of the Regulatory Sandbox. The details are summarized in Table 8.1. Per December 2019, OJK has been actively conducting the Regulatory Sandbox testing on 23 Prototypes, and by March 2020, they are expected to be given one decision out of three:

1. To be recommended to advance to the registration;
2. To be rectified, with the maximum additional time of 6 months;
3. Not recommended to run the business.

With this new legal umbrella, OJK hopes to monitor and foster FinTech companies in a wider scope. The goal is to have FinTech business actors meet the requirements, while allowing their business model to grow sustainably. This procedure is not similar to the POJK No.77/POJK.01/2016, which requires a FinTech company to be registered first. Once the requirements are met, a P2P lending FinTech company may obtain a license from OJK. The requirements stipulated in No.13/POJK.02/2018 requires FinTech startups to be recorded first.

The 2018 regulation also stipulates that Digital financial innovators shall promote

Table 8.1.

Digital Financial Innovation Landscape

Cluster	Recorded	RS Prototype	Sharia	Conventional
Aggregator	21	8	2	19
Credit Scoring	8	6	0	8
Financial Planner	7	4	0	7
Online Distress Solution	1	1	0	1
Financing Agent	5	3	1	4
Claim Service Handling	2	2	1	1
Project Financing	5	4	2	3
Online Gold Depository	1	1	0	1
Social Network & Robo Advisory	1	1	0	1
Funding Agent	1	1	1	0
Blockchain-based	4	4	4	0
Digital DIRE	1	1	0	1
Verification Non-CDD	1	1	0	1
Tax & Accounting	1	1	0	1
E-KYC	2	2	0	2
TOTAL	61	40	11	50

financial literacy and financial inclusion to all segments of the Indonesian society. Moreover, they shall provide a technology-based customer service center that is in line with OJK's effort to promote education and protection for customers. This initiative includes transparency, fair treatment to customers, reliability, data protection, as well as quick response in handling customer complaints and dispute with affordable costs. To protect customers and maintain financial system stability, licensed or registered financial institutions are not allowed to cooperate with Digital financial innovators that are not yet recorded and/or registered with OJK or with other authorities.

In short, the legal umbrella provides a reference for all types of FinTech enterprises, which are not yet regulated by other regulations. This rule includes recording and registration process of the FinTech company, as well as monitoring system. FinTech companies are also required to submit periodic performance report and risk-self assessment report to OJK and provide protection to customers, including keeping customers' data confidential. This regulation will mitigate risks of money laundering and prevent terrorism fundraising through FinTech. OJK hopes that the legal umbrella will further stabilize financial services system in Indonesia.

Moreover, with the rapid growth of the FinTech industry, there is a possibility in the future for OJK to issue more detailed regulations for each subsector. This more specific regulation is also aimed at distinguishing it from the legal umbrella for the FinTech industry in general. Moreover, Digital financial innovators may not wish to solely get registered at OJK but possibly to get licensed, which is the highest level of licensing status in OJK.

The goal of the OJK regulations is to provide legal certainties for both FinTech business operators and investors. Legal certainties will give clear positions for every party involved in FinTech services. On the contrary, legal uncertainties will make it difficult to resolve problems when disputes arise which could disrupt the stability of the financial services industry. The rule for each subsector, however, will refer to POJK No.13/POJK.02/2018 as the legal umbrella.

8.4 Regulatory Framework on Equity Crowdfunding

To provide legal certainties and protection to business actors involved in equity crowdfunding activities, OJK issued POJK No.37/POJK.04/2018 on Funding Services through IT-based stock offering on December 31, 2018.

The rule lists some provisions on organizing an equity crowdfunding business that regulates the parties that conducts public offerings and investors who will invest in the company. In addition to providing legal certainty, the regulation is expected to make it easier for the public to obtain funding, especially for expanding the business scale of MSMEs.

Companies seeking to be a crowdfunding organizer must be a limited liability company (*Perseroan Terbatas*/PT) or a cooperative. The organizer is required to apply for OJK's permit and has a capital of more than Rp2,5 billion. It must also possess expertise in IT. The purpose of organizing funds is not only to market shares, but also to assess the issuers' finances—including their financial statements. Organizers are prohibited from acting as underwriters, bookrunners, and/or investment managers.

For issuers planning to offer their shares, OJK has several terms and conditions. The issuer must be a PT with assets under Rp10 billion, excluding land and buildings. To promote market deepening, OJK prohibits issuers that are controlled by a business group (conglomerate)—either directly or indirectly—from using this crowdfunding scheme. In addition, issuers that are a public company—or a subsidiary of a public company—are prohibited from selling their shares through this instrument. Further, the issuers are also not allowed to have more than 300 shareholders.

Through this funding scheme, investors who purchase the shares will get the same treatment as when they buy capital market instruments. They will receive dividends when the company makes a profit, and they have rights at the Annual General Meeting (AGM).

To ensure the security of investors, OJK limits the amount of funds that can be placed by means of this mechanism. Investors with annual income of Rp500 million or less can only invest up to 5 percent of their yearly income. Investors with income above Rp500 million can invest up to 10 percent.

However, OJK makes an exception to legal entity investors; they can invest unlimited amount. Exemptions are also given to investors with at least two years of experience in capital market investment, which can be proven by showing their securities accounts. This scheme is not limited to domestic investors only, it also applies to foreigners.

Shares offering through crowdfunding are not categorized as a public offering, as referred to in Act No.8/1995 on the Capital Market. The reason is the issuance of the shares is carried out by FinTech organizers (with OJK authorization). With this regulation, small companies with a paid-up capital of Rp30 billion or less can source funding from the public outside the capital market.

The shares offering period should be no more than 60 days. Funds can be collected for up to 12 months. The total amount of funds pooled from the offering is limited to Rp10 billion at most. This stock offering is not limited in frequency, meaning the company can do it more than once.

8.5 Regulatory and Supervisory Challenges

Registered companies must be able to adapt their business to prevailing rules. This requirement is one of the challenges for OJK as a financial services regulator. According to OJK, every FinTech company must comply with the rules. They may continue their business if they meet the requirements, and must strive to meet the requirements if they have not. Every company must go through the entire process, and FinTech business actors must comply with applicable regulations.

In practice, OJK receives much input from business actors in the financial industry regarding the implementation of POJK No.77/POJK.01/2016, especially regarding the licensing process. Although the licensing process can be lengthy, this is because OJK wants to ensure that the business process of FinTech companies is in line with OJK regulations and does not pose bigger harm.

Another challenge for OJK is to make regulations that can be easily understood by FinTech companies. The goal is for industry players to follow the rules relating to the registration process and licensing. As a business entity that is supervised by regulators, FinTech business actors must comply with regulations. The challenge for the regulator is to strike a balance between ensuring that the industry will not be over-regulated, and at the same time, providing adequate consumer protection.[9]

The fact is, the FinTech industry is growing very fast, while regulations come later, trying to keep up with the fast-paced innovations in FinTech. What often happens in the field is, as regulations issued to govern the financial industry, the targeted market is already far ahead, making it hard to catch up with the financial markets.

The financial services offered by FinTech target a variety of sectors. There are loans to finance health, education, housing, cattle ranches, fisheries, and agriculture. The wide range of industries that FinTech companies touch upon becomes another challenge for OJK, especially in reviewing the legal aspects and business models of each service.[10] This learning process is time-consuming. More importantly,

9 OJK, Non-Bank Financial Industry Supervision Department, Interview, April 2018.
10 FinTech Supervision and Licensing Department, 2018.

OJK does not want to issue permit to a FinTech company that cannot sustain its business. The sustainability of various FinTech services is one of OJK's main considerations in issuing licenses and in supervising the FinTech companies. As such, OJK requires each FinTech company to submit their future business plans.

8.6 Incubator, Regulatory Sandbox, and FinTech Infinity

The POJK No.13/POJK.02/2018 requires FinTech business actors in digital finance to test their products through a regulatory sandbox mechanism before marketing the product. This is done through regulatory sampling objects where selected FinTech players represent their peers, which have the same business models. According to OJK, this incubation stage in the regulatory sandbox lasts from six months to one year and is extendable by another six months. During the trial period, OJK assists FinTech companies to avoid and prevent frauds in running their business activities. FinTech companies that pass the test obtain a recommendation for applying for registered status.

In the regulatory sandbox, OJK assesses the reliability of business process, inclusiveness of business model, financial instruments, and good corporate governance of FinTech companies. In other words, the regulatory sandbox is a media for startup companies—as well as banks and non-bank financial institutions that create digital financial innovations—to test the business models they develop. This evaluation is especially critical considering many of the birth processes of FinTech business models are hybrid.

Moreover, while in the regulatory sandbox, companies follow several stages of assessments. Some factors assessed include management profiles and the board reputation, the novelty of the innovations offered, product benefits, and funding. On the external side, OJK will assess several aspects, including but not limited to consumer protection, information, education, and consumer dispute resolution.

Through the regulatory sandbox, OJK can have a better understanding of the management and product conditions offered by FinTech company. After passing the assessment stage, OJK will conclude the feasibility of the company.

Both OJK and BI, as FinTech regulators in Indonesia, developed regulatory sandboxes for FinTech players. The difference between the two regulatory sandboxes is that OJK's focuses on financial services products, while Bank Indonesia's oversees the payment system.

OJK has been looking for the most suitable form of regulatory sandbox that fits the needs of Indonesia's FinTech industry. To gather referrals, OJK has held plenty of discussions with other nations' regulators, including the People's Republic of China; Hong Kong, China; and Malaysia. The regulatory sandbox to be applied in Indonesia may be similar to the models applied in other countries, or a combination of several countries' models. However, the goal is not to seek the best practice, but to find the one that best fits Indonesia's needs.

To complement the above efforts, OJK also established a cooperation with several FinTech regulators overseas, such as Monetary Authority of Singapore (MAS) in 2018, to enable FinTech players who are interested in starting their businesses in the other's jurisdiction. This is done through a referral mechanism between the two regulators. The cooperation also covers sharing of information and experience in supervising FinTech industry, including managing the regulatory sandbox. OJK will continue to extend the cooperation with other FinTech regulators, such as Japan Financial Services Authority (FSA), Securities Commission (SC) Malaysia, and Bangko Sentral ng Pilipinas (BSP), to strengthen its supervisory function and development in FinTech.

One of OJK's main considerations is the fact that FinTech development in Indonesia is expected to encourage financial inclusion. This is what distinguishes it from the regulatory sandboxes and FinTech developments of other countries—such as Singapore where the level of financial inclusion is prevalent. FinTech development in Indonesia should not only aim at making the companies grow but also serving unbankable society segments. OJK hopes that a broader opportunity for Indonesians to access the financial services sector will drive the country's economy. With a broader reach, FinTechs are believed to be able to also increase financial literacy. One way to support it is by providing education to customers in rural areas.

Furthermore, OJK established and launched a FinTech Center called OJK Innovation Centre for Digital Financial Technology (OJK INFINITY) in August 2018. It is hoped that the Center could serve as a platform where FinTech actors, academics, FinTech associations, investors, customers, and regulators gather to seek and exchange information, discuss and consult. OJK also hopes that OJK INFINITY can serve as a national hub for all stakeholders to coordinate, communicate, and collaborate, including aligning BI and OJK Regulations on FinTech.[11] This initiative, in turn, could allow the FinTech ecosystem to grow in Indonesia and support regulatory

11 OJK, Group of Digital Financial Innovation, Interview, January 2018.

sandbox process.

The concept of OJK INFINITY is like an innovation hub for regulators, FinTech players, professionals, and academics to discuss and understand how the market mechanism works for the benefit of the whole FinTech ecosystem.[12] All the knick-knacks and information networks on FinTech are centralized in one place. In other words, OJK INFINITY is a knowledge center for FinTech services.

8.7 Digital Finance Innovation Roadmap and Action Plan 2020–2024

Given the importance of digital finance for economic sector, in 2020 OJK introduced Digital Finance Innovation Roadmap and Action Plan for the year of 2020–2024. This Roadmap focuses on developing a supportive and comprehensive digital financial ecosystem to create a financial services industry that is competitive, resilient to change, and fit for the future.

This Roadmap also complements financial inclusion strategies by (i) ensuring stable digital financial services that are safe and equipped with appropriate risk management practices; (ii) enabling contributive digital financial services that focus on empowering people and expanding financing to micro, small, and medium-sized enterprises (MSMEs); (iii) ensuring inclusive digital financial services that are affordable, convenient, and scalable; and (iv) supporting sustainable digital finance that is responsible and aligned with the Sustainable Development Goals.

OJK sees its role as an accelerator, facilitator, and incubator of FinTech in Indonesia with five key approaches, which are: 1) Policy and regulatory framework (research, policy, and regulation); 2) Regulatory sandbox (review of business models and business governance, and prototypes); 3) Capacity building (workshops, seminars, and FinTech summits); 4) Facilitation (co-working spaces and consultations); and 5) Collaboration (with other regulators, FinTech hub, and international organizations). OJK understands the importance of balance in providing an enabling regulatory framework to support innovation in the FinTech sector; while also ensuring the safety and soundness of the financial sector and consumer protection.

8.8 Inter-Agency Collaboration

Another effort to further develop the FinTech industry, OJK coordinates with many domestic institutions, such as the Ministry of Communication and

12 OJK, Vice Chairman of the Board of Commissioners, Interview, March 2018.

Information Technology, related to cyber-security issues. OJK continues to strive to increase its capacity on cybersecurity issues in order to improve OJK regulations to keep up with emerging challenges.

Business and technology aspects become an integral part of FinTech development. On the business aspect, OJK closely coordinates with BI, Ministry of Finance, and the Coordinating Ministry for Economic Affairs; whereas for technology aspects, OJK closely coordinates with the Ministry of Communication and Information Technology.

In addition, the presence of OJK INFINITY was proven to enhance coordination and collaboration among inter-agencies in developing FinTech industry, including to support regulatory sandbox. The partnership built at OJK INFINITY involves government institutions at the national level, local and central government, experts and academics, Financial Service Authority from overseas, international agencies, and Indonesian FinTech Association (*Asosiasi FinTech Indonesia*/ Aftech).

The association plays a significant role in intermediating coordination between OJK and FinTech actors, especially to exchange information and to support regulatory principles. The association also coordinates with OJK to prepare a Code of Conduct (CoC) for FinTech players.

In FinTech business, transparency is key, as such it is at the core of FinTech CoC. The CoC requires all FinTech players to disclose all costs for customers, including interest rates and fines for late payment. FinTech players are also required to specify addresses, emails and telephone numbers so that customers can lodge complaints. FinTech CoC also aims at preventing excessive disbursements of loans to customers that could trap them in bad debts. In this regard, FinTech players are prohibited from manipulating customer data for the purpose of disbursing more loans. In order to further promote customer protection, the practice of intimidation is strongly prohibited, as well as using third parties to collect debts.

By launching a CoC for responsible lending, FinTech association assists the regulator in protecting customers from possible act of fraud and other unethical actions by FinTech players. All FinTech players, particularly members of the association, must abide by the code of conduct.

Collaboration among government agencies at the national level, however, still needs to be improved because the FinTech industry is snowballing. OJK sees that there are needs for more discussions among government institutions with the goal of accelerating FinTech development and creating more structured supervision over the FinTech industry.

FinTech in Indonesia: Lessons Learned

The presence of the FinTech industry can increase financial inclusion in Indonesia. The growth of various FinTech services contributed to the Government's efforts in improving the country's financial inclusion rate set in the National Strategy on Financial Inclusion. Not only does FinTech offer a more straightforward way in doing transactions, it also seeks to reach markets that are untapped by existing formal financial institutions. That is why OJK and other policymakers, as well as financial industry players regard FinTech as one of the financial inclusion agents that can combine technological innovation and business development for borrowers.

FinTech arrives with a solution to fill a financing gap in the financial industry, primarily by catering to micro-financing that targets MSMEs. Although MSMEs dominates business entities in Indonesia, the amount of loans disbursed to this business group is far from adequate, especially when compared to loans to large companies. For many years, most segments of the MSMEs have had no access to financing from either banks, capital markets, or non-bank financial institutions, despite contributing significantly to the national economy. Micro Business Credit (*Kredit Usaha Rakyat*/KUR), which is disbursed through many banks, and a part of banks' obligations to meet the minimum credit ratio for MSMEs, has not fully reached micro, small, and medium entrepreneurs. Additionally, the majority of KUR disbursements are concentrated in the trade sector and still dominated by businesses located in Java.

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Microfinance institutions in the banking sector at the regional level, such as rural bank (*Bank Perkreditan Rakyat*/BPR) that should target micro consumers, have not also optimally performed as they face difficulties reaching customers in remote areas. Further, the number of BPRs has also continued to shrink due to poor governance. Although the number of non-bank financial is quite high and dispersed all over Indonesia, only few of them are registered with OJK. Furthermore, with regard to Microfinance Institutions (MFIs), as of the third quarter of 2019, there are 194 MFIs which have obtained operating permit across Indonesia. Since the MFIs Law was put into effect in 2015, thousands of microfinance institutions may still exist, although they have not applied for a license from OJK. One of the constraints MFIs faced is insufficient management skills. Fortunately, some microfinance institutions packed in form of government programs are targeting the lower-middle class. One of them is the Institute for Capital Management of Marine and Fishery Enterprises (*Lembaga Pengelola Modal Usaha Kelautan dan Perikanan*/LPMUKP), which focuses on fishermen groups who have had difficulty in accessing funding. Similarly, the Ministry of Agriculture provides subsidies for micro insurance for rice and corn farmers.

Given the above conditions, it could be said that the presence of FinTech complements the function of microfinance institutions, supported by programs be them provided by the Government or otherwise, in providing access to finance for the society in Indonesia. FinTech offers an alternative source of funding for middle to lower class people in need. Certainly, the services offered by FinTech businesses cannot entirely close the financing gap, but their presence can at least curb it down. This technology-based digital financial solution can at least meet 40 percent of the demand volume that has not been tapped by payment services and caters to 20 percent of the unmet demand for credit in the MSME segment.[1]

Another important role that FinTech plays is that it can increase the customer's ratio in the banking sector, such as what is being provided by peer-to-peer (P2P) lending services. Many micro business actors did not have bank accounts. However, after their business grew – thanks to capital funding from FinTech startups, they now have bank accounts and have become debtors of banking institutions.

1 Asian Development Bank, "Accelerating Financial Inclusion in South-East Asia With Digital Finance" https://www.adb.org/sites/default/files/publication/222061/financial-inclusion-se-asia.pdf, viewed on 2 July 2018.

Although FinTech in Indonesia has just been around for a number of years, Indonesia's 3.0 FinTech industry—driven by startup companies—has slowly begun to show its power. The number of P2P lending companies registered in OJK continues to grow every year, reaching 144 companies in October 2019 and continued growing to 164 companies as of December 2019. In line with this, the total disbursement in the P2P lending market rises every year and reaches Rp67,99 trillion as of October 2019, with a Non-Performing Loans (NPL) ratio of 2,84 percent. The numbers of lenders and debtors also climb every year as Internet penetration and the demographic bonus of the Indonesian population supports the development of FinTech. Similar scenario is also seen where companies have started to expand their business segments from crowdfunding, wealth management, capital markets to insurance.

Inevitably, the emergence of various FinTech services has also changed the landscape of the national financial industry. Other sectors like the capital market, banks, and non-bank financial institutions joined in and began to adopt the use of FinTech by collaborating with startups or developing their platforms. Many government institutions, such as the Ministry of Finance, have also collaborated with FinTech in selling Government bonds (*Surat Berharga Negara*/SBN) to increase the number of domestic investors. The Coordinating Ministry of Economic Affairs hopes that FinTech can fill the funding needs of the e-commerce market. Further, the Ministry of Cooperatives and SMEs has joined hand with FinTech businesses to channel revolving funds for cooperatives and micro businesses.

Collaboration between financial industry players and FinTech startup companies continues to emerge. For example, Mandiri Capital Indonesia, a subsidiary of Bank Mandiri, which injected funds to Amartha to provide ultra-micro loans to people who have lacked access to banking services. Amartha also collaborates with Bank Permata to channel financing to MSMEs in remote areas. It is also encouraging to note that FinTechs and banks' partnerships are not limited to funding, mergers or acquisitions; they also collaborate in providing technology, such as what Bank Ganesha and Investree do through their mobile apps for MSMEs. There is also a partnership between Bank Danamon and Investree to provide host-to-host services which allows faster funds transfer through platforms. FinTech companies have even begun exploring to cooperate with BPR and even pawnshops.

In short, the collaboration between FinTech startups and existing financial institutions could be an excellent combination to increase financial inclusion, while at the same time boosting innovation and improving the quality of financial products for all levels of Indonesian society.

Additionally, through FinTech collaborations with mutual fund sales agents, consumers can buy micro investment products at an affordable price. With wider reach of consumers, cooperation can also occur in the insurance industry, following changes in society's transaction behavior that is shifting towards digitalization. On the P2P lending business, it was noted that some P2P lending FinTechs target the micro segment by providing micro-loans. Not only do they provide a platform, but they also foster and train micro-entrepreneurs to make their businesses sustainable. Experience demonstrated that funds that focus on community groups (group lending) have a more significant impact on financial inclusion. Additionally, in collaboration with credit bureaus and insurance institutions, some FinTech companies also provide guarantees for the micro-loans offered.

Interestingly, FinTech is also a powerful tool for empowering women. FinTechs can play a role in two domains at the same time: developing women's businesses –by providing microfinance, as well as provides coaching. The latter can be done by, for example, facilitating capital access for women, coupled with mentoring programs. The result can be seen, for example in Kemang Village, Bogor Regency where microfinance for women has successfully reached 500 villages. In many cases, lending for women will increase the number of women who apply for loans. They are now more involved in managing the business because they are more aware of their responsibility to pay installments. A number of these responsibilities drive women to become more empowered. Since receiving loans from P2P lending, many female entrepreneurs have upgraded their creditworthiness status and are now eligible for KUR and bank loans.

On the other side of the coin, massive technological innovation has triggered many risks for consumer protection in the financial industry, which can negatively impact FinTech customers. Other risks include failure to make a payment, which is detrimental to investors or funders. Further, due to the nature of FinTech, which is technology-based, there is also a potential for attacks by hackers when the FinTech system is not complemented by strong cybersecurity, which in turn could trigger fraud and misuse of customer data. The risks possibly arise amid low levels of financial literacy in Indonesia. That is why mitigation measures are essential for FinTech businesses to anticipate and reduce some of these risks. Equally important, the reliability of the IT security system must be the main prerequisite for a sustainable FinTech business.

Related to FinTech development in Indonesia, OJK has promulgated three regulations. First, POJK No.77/POJK.01/2016 on Information Technology-based Lending services, which focuses on P2P lending businesses, and the relevant OJK's supervision is based on a prudential approach. The rule serves as a reference for FinTech companies to maintain good corporate governance, especially if they want to be registered and licensed. The second is POJK No.13/POJK.02/2018 that covers innovation in digital technology for the financial sector. This regulation acts as a legal umbrella for all FinTech companies that are not yet regulated by other authorities, and makes exception for P2P lending services, which have been regulated by OJK with its earlier regulation. In developing digital finance innovation, OJK's supervision on FinTech enterprises is based more on a market conduct approach. The third regulation is POJK No.37/POJK.04/2018 on Funding Services through IT-based stock offering. The regulation, related to crowdfunding, is expected to make it easier for the public to obtain funding, especially for expanding the business scale of MSMEs.

The development of FinTech to improve financial inclusion must put consumer protection as a top priority. Regulations are made not to curb creativity and innovation, but to prevent practices that harm consumers and erode customers' confidence, which will eventually jeopardize the country's financial stability. That is why the regulations and policies created to govern and develop the FinTech industry must be done in a balanced manner. The aim is to encourage the FinTech industry to be innovative, remain sustainable, achieve financial inclusion targets, and protect consumers.

The development of the FinTech industry must also consider the distribution of loan disbursements. To date, FinTech loan disbursements have been concentrated in Java. Hence, FinTech companies must attempt to widen their customer outreach to disburse more loans outside Java. It is hoped that along with wider areas of distribution, the level of financial inclusion can be more evenly distributed throughout Indonesia.

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