

Regulating U.S. Credit Analytics in the Age of Enhanced Data Science

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Overview

Credit variables prohibited by U.S. Law

Basis for the prohibitions

Are the prohibitions effective?

Impacts of “big data” and machine learning

A hypothetical example

Predictions

U.S. Fair Housing Act (1968)

The Fair Housing Act (1968) prohibits explicit use of:

- race / color;
- religion;
- sex;
- national origin;
- familial status; and
- handicap;

in matters of extending credit to buy or rent residential property.

Therefore, these variables are not permitted in constructing individual credit scores for residential lending.

U.S. Equal Credit Opportunity Act (1974)

The Equal Credit Opportunity Act (1974) prohibits explicit use of:

- **race / color;**
- **religion;**
- **sex;**
- **national origin;**
- **marital status;** and
- **age;**

in matters of extending credit.

Therefore, these variables are not permitted in constructing individual credit scores generally.

(Certain exceptions exist for age: possible to give discounts for those 65+; possible to account for retirement age in assessing income; etc.)

Basis for Variable Prohibitions

Some authorities identify the *absence* of “causality”, “controllability”, and/or “social acceptability” as rationales for prohibiting these variables.

However:

- an absence of causality is not a necessary condition (e.g., **handicap** could have a causal impact on one’s ability to repay a loan, but is prohibited);
- an absence of controllability is a necessary, but not sufficient condition (e.g., **income** is largely uncontrollable, but not prohibited); but
- an absence of social acceptability is both a necessary and sufficient condition.

Are Prohibitions Effective?

For avoiding “disparate treatment”? Yes.

For avoiding “disparate impact”? Only to a limited extent.

This is because effective proxies are available to substitute for the prohibited variables:

- **race / color, religion, and national origin** often are correlated with **place of residency**;
- **gender** often is correlated with **profession**;
- **marital status** often is correlated with **type of dwelling**;
- **age** often is correlated with **purpose of loan**; etc.

Are Prohibitions Effective? (Cont.)

Although disparate treatment is clearly illegal, disparate impact is not necessarily illegal.

In the past, disparate impact has provided a basis for challenging lender practices.

It sometimes has led to prohibiting certain (proxy) variables unless they were both:

- 1 relevant to business practices; and
- 2 non-substitutable.

However, enforcement has varied over time.

“Big Data” and Machine Learning

“Big data” – Availability of vastly more credit variables for analysis.

Machine learning – Algorithms that both:

- ① handle big data efficiently; and
- ② greatly improve forecasting ability through quantitative relationships that are currently opaque to conventional statistical analyses.

Assuming certain credit variables continue to be prohibited, what will be the impact of big data and machine learning on disparate treatment and disparate impact?

Possible Impacts of BD and ML

Optimists would argue that:

- the introduction of machine learning will reduce disparate impact (as well as disparate treatment) because of less direct human involvement in decision making; and
- the use of big data, in conjunction with machine learning, will reduce disparate impact because the availability of more variables will allow credit decisions to be tailored to individuals, rather than demographic groups.

Pessimists would argue that big data and machine learning will increase disparate impact because of an enhanced ability to find more effective, but less transparent, proxy variables.

Who is right?

A Hypothetical Example

Consider a hypothetical example.

Suppose:

- males are more likely to default on loans than females;
- young adults are more likely to default than old adults; and
- young adult males are more likely to default than young females, old males, and old females.

A Hypothetical Example (Cont.)

For simplicity, assume young males take greater risks than others for both biological and cultural reasons.

In particular, assume exactly two causal factors underlie the observed young-male behavior:

- 1 a high testosterone level (biological); and
- 2 social incentives to attract young females (cultural).

Given these assumptions, **gender** and **age** are not causal factors, but are highly correlated with the true causal factors of **testosterone level** and **social incentives**.

A Hypothetical Example (Cont.)

Currently, few lenders would want to ask for a borrower's **testosterone level**; and no obvious measure exists for the degree to which a borrower is subject to **social incentives**.

However, today's lenders can use proxy variables such as **profession**, **length of credit history**, **type of automobile**, etc.

With big data and machine learning, tomorrow's lenders will be able to use even more effective variables, such as **social-media contacts**, **frequency of online purchases**, **types of online purchases**, etc. (In fact, they even may have access to **testosterone level**.)

Predictions

The pessimists are right:

- big data and machine learning will enable lenders to find increasingly more effective proxy variables for true causal factors; and
- persistent correlations between true causal factors and prohibited variables will lead to greater disparate impact.

Furthermore, the presence of widely dispersed, online peer-to-peer lending markets will make it nearly impossible for the U.S. government to regulate the use of proxy variables in credit analytics.

In the long run, the implicit cognitive dissonance will be resolved by finding both (1) the use of effective proxy variables for true causal factors, and (2) disparate impact, to be socially acceptable.



Financial Education Renaissance in Japan

Shinichi Yoshikuni

Chairman

The Central Council for Financial Services Information

27 July, 2018

Global Forum for Financial Consumers

Prologue



Financial education becomes a global agenda

Financial literacy is defined as;

“a combination of financial awareness, knowledge, skills, attitude and behaviors necessary to make sound financial decisions and ultimately achieve individual financial wellbeing”

HIGH-LEVEL PRINCIPLES ON NATIONAL STRATEGIES FOR FINANCIAL EDUCATION

OECD/INFE August, 2012 (approved by the subsequent G20 summit)

Goal 4: Ensure inclusive and quality education for all and promote lifelong learning

By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles,

Goal 8: Promote inclusive and sustainable economic growth

Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all

United Nations 2015 SDGs (Sustainable Development Goals)



The origin of Financial Education in Japan

Financial literacy is essential to an independent and complete life

Eiichi Shibusawa, the father of Japanese capitalism

完全の人たらんとするにはまず金に対する覚悟がなければならぬ

渋沢栄一 「論語と算盤」

Money can become either a blessing or a curse, depending upon the literacy of the owner

Empress Shoken, wife of Emperor Meiji

持つ人のこころによりて、宝とも仇(あだ)ともなるは黄金(こがね)なりけり

昭憲皇太后御製



The Central Council for Financial Services Information

Purpose of the Council

To provide the general public with the information on financial services and consumer education, in cooperation with the local committees for financial services information, the government, the Bank of Japan, local governments, as well as private institutions, thereby contributing to sound development of the national economy.



The Central Council for Financial Services Information

Organization

- 41 members...Representatives from the financial industry, economic and consumer fora, press, academia, BOJ
- 9 councilorsDirectors of related ministries and BOJ
- 2 advisors..... FSA Commissioner, BOJ Governor
- Secretariat located within the BOJ Information Services Dept.
- Three tier system (Central, Local, and Grassroots)



The Central Council for Financial Services Information

Local Committees

- Local committees are located in all 47 local governments
- Formed mainly by local governments, branches and offices of the Bank of Japan
- With 480 Financial services advisors.



The Central Council for Financial Services Information

Basic principles of the Council

- ① Fair and neutral
- ② Keeping the network open
- ③ Encourage Grassroots, local movements

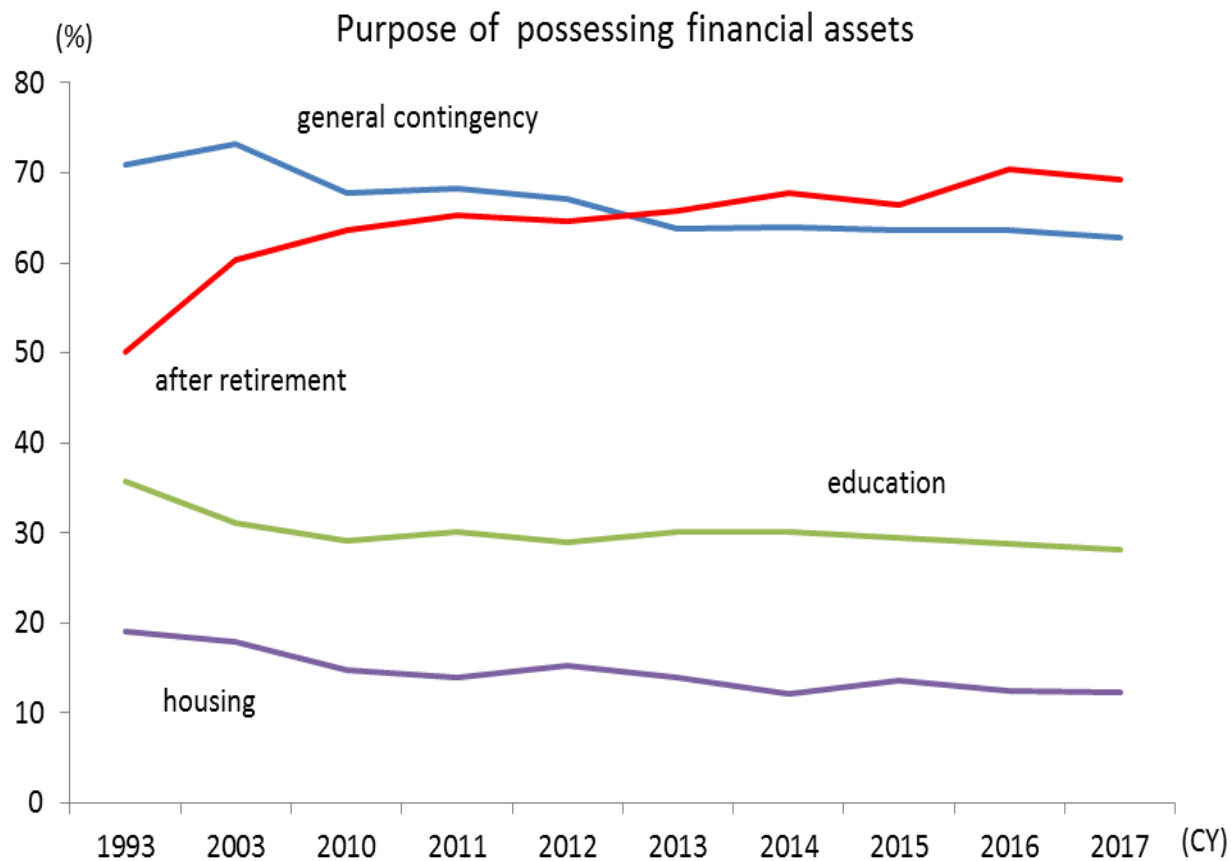


Evolution of the Council in the 21st century

- 2001 the name of the council changed from Savings Promotion (1952), and Savings Information (1988) to Financial Services Information
- 2002 Forum on Consumer Education on Finance (until 2012)
- 2005 Declares the First Year of Financial Education
Agenda for Finance and Economics Education
- 2007 *Financial Education Program*
- 2012 OECD/INFE High Level Principles
- 2013 *Report of Study Group on Financial Education*
Committee for the Promotion of Financial Education
Consultative Meeting for the Promotion of Financial Education at School (until 2015)
- 2014 Financial Literacy Map
- 2016 *Financial Education Program total revision*
Financial Literacy Survey

Why financial literacy becomes the central issue

① Aging and uncertainty about the future



Why financial literacy becomes the central issue

② Increase in financial fraud

Fraud		2010	2011	2012	2013	2014	2015	2016	2017
Fraud by telephone	number (cases)	6,637	6,233	6,348	9,204	11,256	12,741	13,605	17,915
	amount (¥ billion)	10.1	12.7	16.0	25.9	38.0	39.4	37.5	37.4
By financial products	number (cases)	112	773	1,986	1,875	1,228	663	348	n.a.
	amount (¥ billion)	0.7	6.9	18.6	17.9	12.5	6.7	2.5	n.a.



Why financial literacy becomes the central issue

- ① Global Financial Crisis
- ② OECD/INFE
- ③ Consumer education legislation

Financial Literacy Map (2015 revised version)

	Categories	Primary School Students ^(Note)	Secondary School Students	High School Students	University Students	Young Adults	Adults	Senior Citizens
		Forming the foundation of the capability to live in society.	Cultivating the basic capability to live independently in the future.	Cultivating basic skills to live independently when they become adults.	Establishing the ability to live independently as adults.	Starting to live independently in terms of lifestyle and financial aspects.	Living independently and assuming full-fledged responsibility as working people.	Covering living expenses mainly with pension income and money obtained by cashing out financial assets.
Family budget management	Family budget management	Being able to recognize the difference between needs from wants and buy things according to a plan.	Gaining a better understanding of household income and expenditure, and managing income and expenditure practically through school activities.	Learning how much money is spent on oneself, and being able to make better choices and decisions while bearing in mind one's family budget as a whole.	Understanding the necessity of income and expenditure management and being able to spend money according to a plan in order to improve one's skills, while improving the balance of payments by earning more from a part-time job as needed.	Being able to spend money on one's hobby or improving one's skills according to a plan, while properly managing income and expenditure to support one's household income.	Being able to understand income and expenditure as well as assets and liabilities of one's household by keeping a household account book as the breadwinner of the household, and improve the balance as necessary.	Being able to manage income and expenditure and take necessary action for improvement according to a post-retirement plan.
Life planning	Life planning	Understanding the importance of earning money through work and of using money according to a plan for future needs, and acquiring the aptitude to save money.	Gaining a better understanding of work, and understanding the necessity of life planning and making a life plan based on one's own sense of value.	Thinking of one's life plan in association with one's occupational choice, and making a life plan while estimating one's lifetime income and expenditure.	Envisioning one's dreams and hopes in detail so that one can achieve them while engaging in an occupation after graduation, and working hard in study and training toward realizing those dreams and hopes. Having an image of one's real life, while bearing in mind the funds for the three biggest events in life.	Working on a life plan so that one can achieve one's dreams and hopes while engaging in the occupation one has chosen. Being able to estimate how much money one would need to achieve one's life plan, and to save money and manage assets according to a plan.	Reconsidering one's life plan, financial plan, and assets to hold when necessity arises in light of the changes in one's circumstances, and making constant efforts to achieve one's life plan in view of one's life in old age. Engaging in financial education for children at home in cooperation with school.	Reviewing one's post-retirement life plan while taking into consideration the effective use of leisure time and contribution to one's family and society. Changing one's lifestyle to one affordable with a pension and making steady efforts so that one can live a spiritually rich and stable life.
Understanding of financial knowledge and financial/economic circumstances, and selection/use of appropriate	Knowledge of the basics of financial transactions	Learning from actual cases of financial trouble that primary school students are involved in, and being cautious to avoid such trouble, and acquiring the ability to compare	Understanding the basics of contracts, and distinguishing scams and swindles and avoiding getting involved.	Gaining a better understanding of contracts and responsibilities accompanying contracts, and acquiring the skills for gathering information and using it	Being able to engage in appropriate consumption behavior by comparing collected information. Understanding the laws and systems applicable to various types of selling and soliciting practices, and being able to conclude a contract carefully and take necessary action. Trying to sign a contract carefully so as not to be	Acquiring basic knowledge that senior citizens would need in asset management, and being able to consult with experts as necessary.		



Financial Literacy Survey (June 2016)

Online Survey

Survey period: from 29th February to 17th March 2016.

Sample size: **25,000** individuals aged 18 to 79.

International comparability: as many questions from **INFE toolkit** and **FINRA Survey** as possible.

Behavioral economics: questions from behavioral economics were introduced and brought interesting results.

Publication of the **data for each prefecture**: gathered interest of media and the general public.

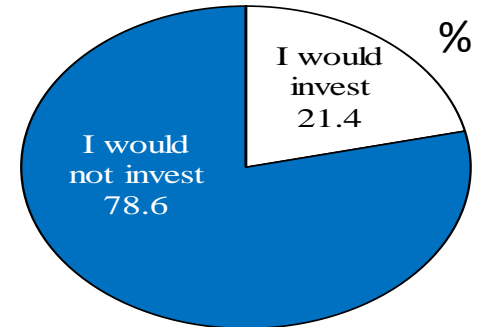
To be conducted again in 2018

International Comparability

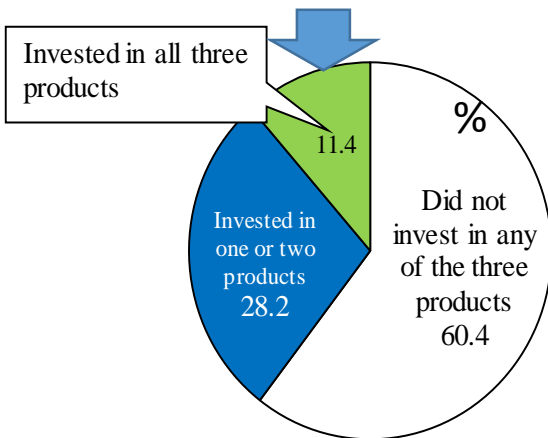
	INFE(2016)	HK(2016)	Japan(2016)	Ranking
(1)Knowledge				
Interest rate	58%	79%	66%	10
Compound interest	42%	58%	43%	16
Risk and return	81%	96%	75%	24
Definition of inflation	78%	97%	61%	29
Diversified investment	64%	74%	46%	29
(2)Behavior				
Considering affordability when purchasing something	80%	90%	70%	28
Paying bills on time	79%	89%	85%	13
Keeping watch on financial affairs	72%	82%	58%	27
Setting long-term financial goals	51%	58%	47%	17

Findings: Investment Behavior

Suppose that, if you invest 100,000 yen, you would either get a capital gain of 20,000 yen or a capital loss of 10,000 yen at a 50% probability. What would you do?



Have you ever purchased any of the following financial products?
 1. Stocks 2. Investment trusts
 3. Foreign currency deposits/MMFs



	All samples	Those who invested in all three products*(Q34)	Those who did not invest in any of the three products*(Q34)
Correct answers (25 questions)	55.6	68.5	47.2
Related to wealth building	54.3	73.5	42.9
Risk and return (Q21-3)	74.8	86.4	65.8
Diversification effect (Q21-4)	45.8	69.8	32.1
Deposit insurance (Q33)	42.3	64.2	30.8
Those with strong loss aversion (Q6)	78.6	50.9	89.1
Those who participated in financial education at school, etc. (Q39)	6.6	15.3	4.2



Challenges facing financial education

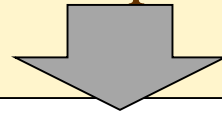
School Education

- The Council has succeeded in promoting financial education at schools through various initiatives
 - The latest national study guideline incorporates 60 to 70% of the contents of the Financial Education Program
 - Still, given the time constraints and other obstacles, we should promote financial education taking account of practical needs at schools

Challenges facing financial education

Obstacles at schools

- Time constraints: teaching and preparation
- Lack of expertise in practical application
- Needs for more insightful study method such as active learning
- Lack of flexible resources adaptable to various environments



Good financial education requires good teaching materials to be flexibly applied to various needs as well as innovative methods such as a workshop at seminars for teachers



Challenges facing financial education

Universities

- Strong needs for financial education to provide self-help skills after graduation
- Providing lectures and pamphlets designed specifically for university students based upon the Financial Literacy Map



Challenges facing financial education

Ordinary citizens, Senior citizens

- Lack of information delivery channels
- Negative sentiment toward financial education



(recent initiatives)

- “Financial Literacy for Adults” published by the Council
- Lectures at public institutions, contributions to magazines, etc
- Collaboration with the Ministry of Health and Labor and the FSA on the education program on iDeCo and Tsumitate NISA



Challenges facing financial education

- How to encourage savings under zero/negative interest rates
- How to enhance financial literacy of teachers in an environment of rapid financial innovation



- Not only students but also young teachers have not experienced positive interest rates
- FinTech gives rise to a reverse literacy-gap between teachers and students



FinTech and financial education

FinTech has a wide influence on payments, settlements and financial services, and could stimulate various economic activities, including e-commerce and "sharing economy" businesses.

Moreover, financial literacy and education are needed to promote the sound development of FinTech.

.....
Given the far-reaching implications of FinTech, the Bank established its "FinTech Center" on April 1 in the Payment and Settlement Systems Department.

Information Technology and Financial Services: The Central Bank's Perspective
Remarks at the FinTech Forum by Haruhiko Kuroda, governor of the Bank of Japan
April 2016



FinTech and financial education

source: "White paper on Consumer Affairs 2017" Consumer Affairs Agency

FinTech is not well known, but users give it a high rating.

- Nowadays, the trend of providing FinTech (new financial services utilizing IT, such as automatic household accounts book service) is seen all over the world, and in the future it is expected that users will increase in Japan as well.
- 78.3% of respondents said "I do not know" about FinTech.
- Of those who answered, "Yes, I do.", 3.5% answered "mobile payment," 1.4% answered "personal property management," etc. Although these numbers are low, about half of the users responded that they are "using it on a daily basis," and 95.6% said that they felt it was "convenient."
- On the other hand, among non-users, 77.6% said "I do not intend to use it."



Epilogue

Money will not manage itself, and Lombard Street has a great deal of money to manage

Walter Baghot 1873

Money will not manage itself, and we should learn how to manage money, and how to avoid abusing money. In order to do so, we should revive the original spirit of Japanese Capitalism, i.e., Financial Education Renaissance

Shinichi Yoshikuni 2018

FINTECH DEVELOPMENT & FINTECH REGULATIONS IN ASEAN: A REVIEW

Trinh Quang Long

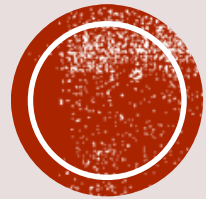
*Asian Development Bank Institute &
Ton Duc Thang University (Vietnam)*



IAFICO 2018 Conference, Tokyo, July 27-28/2017

CONTENT

- FinTechs Development in ASEAN
 - ASEAN FinTechs Characteristics
- Potentials/Drivers for FinTech development in ASEAN
- Regulation issues



FINTECH & FINTECH DEVELOPMENT IN ASEAN

FINTECH?

- “FinTech”: new breed of firms that specialize in providing financial services primarily through technologically enabled mobile and online platforms.
 - Different from earlier generations of finance-related technology (focused on providing services to already-established financial firms)
 - Providing services directly to consumers.
- Fintech is changing finance in fundamental ways, from investment management to capital raising to the very form of currency itself.
- Fintech innovation has lowered the barriers to entry, expanded access to financial services, and challenged traditional understandings about how finance works.

FINTECH?

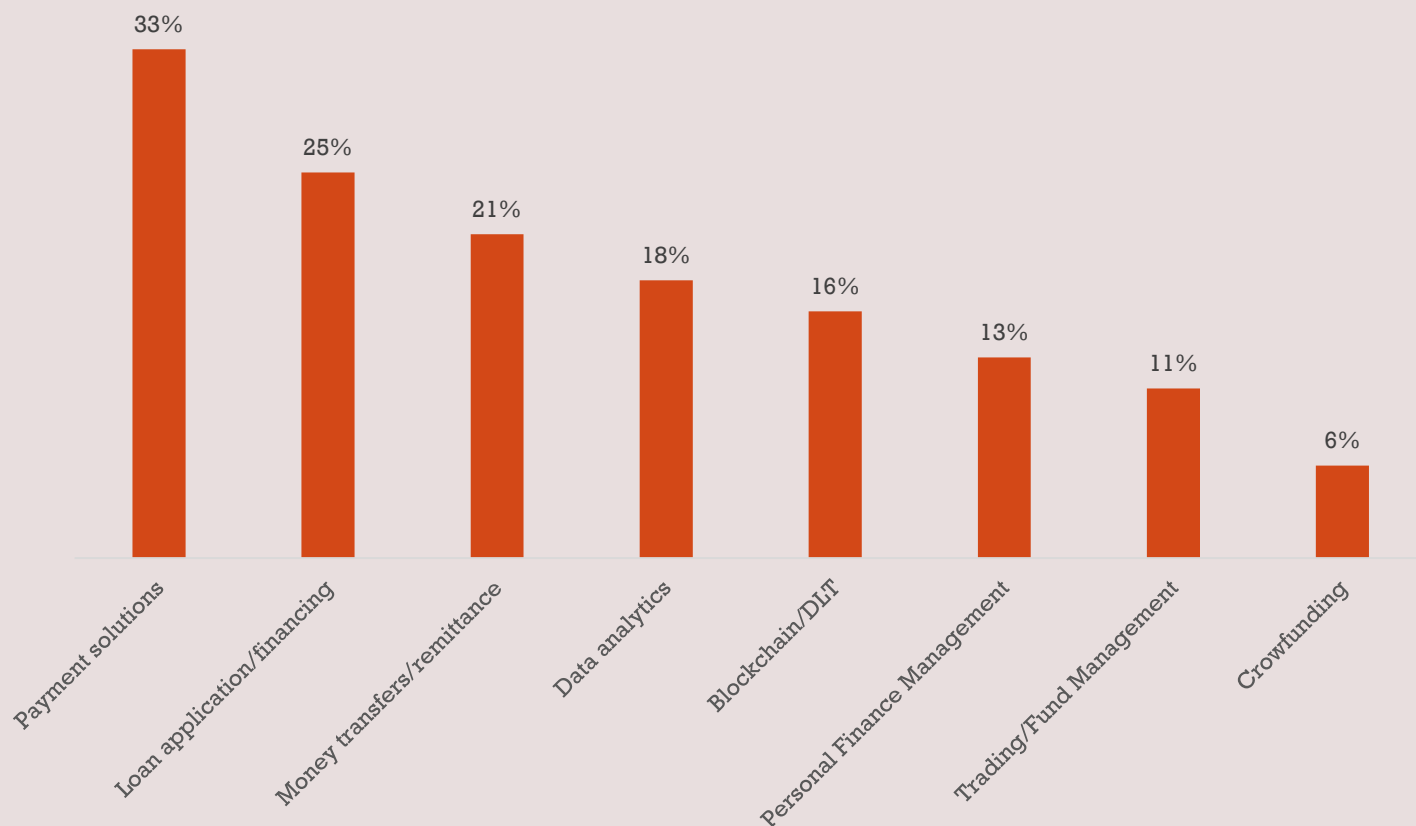
- Major categories of financial services offered by FinTech firms
 1. Payments and Transfers; (E-Commerce Payments; Mobile Banking, Mobile Wallets; P2P Payments and Transfers; Digital Currency; Cross-Border Transactions incl. Remittances & B2B Payments)
 2. Personal Finance (Robo-Advisors; Mobile Trading & Personal Financial Management)
 3. Alternative Financing (Crowdfunding, Alternative Lending, & Invoice and Supply-Chain Finance)

FINTECH IN ASEAN: A SNAPSHOT

	No of Fintechs	Investment (in 2017)	Key Sectors	Regulatory sandbox
Indonesia	262	USD 26M (370% yoy growth)	Mobile payment, Alternative lending	Yes
Malaysia	196	USD 75 (1500% yoy growth)	Payment, Consumer finance	Yes
Philippines	115	USD 78M (1300% yoy growth)	Payment (incl. remittances)	Yes
Singapore	490	USD 141M (68% yoy growth)	Wealth management, Alternative lending, payments)	Yes
Thailand	128	USD 12M (-40% yoy growth)	Payment	Yes
Vietnam	77	USD 3M	Payment	No

Source: EY & Young (2018) and UOB (2017)

TYPE OF FINTECH SERVICES

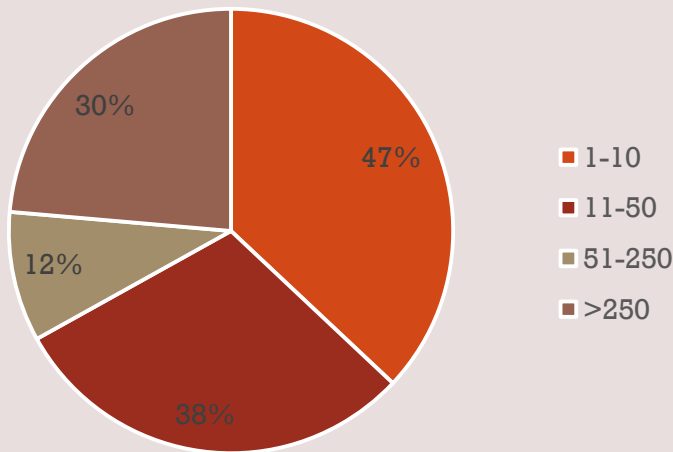


Payment and Mobile wallet lead fintech offerings in emerging ASEAN, followed by financial comparison services and retail investments.

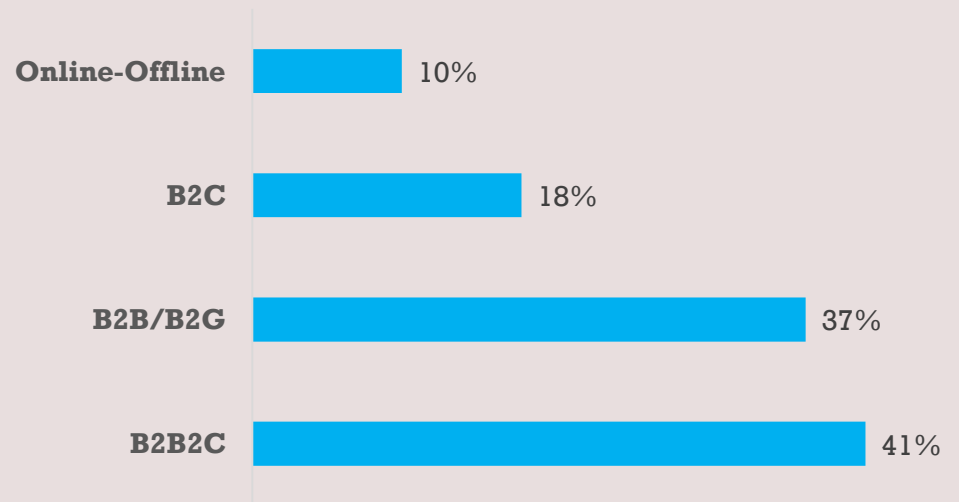
Source: Earn & Young (2018)

OTHER CHARACTERISTICS OF FINTECH FIRMS

Number of employees



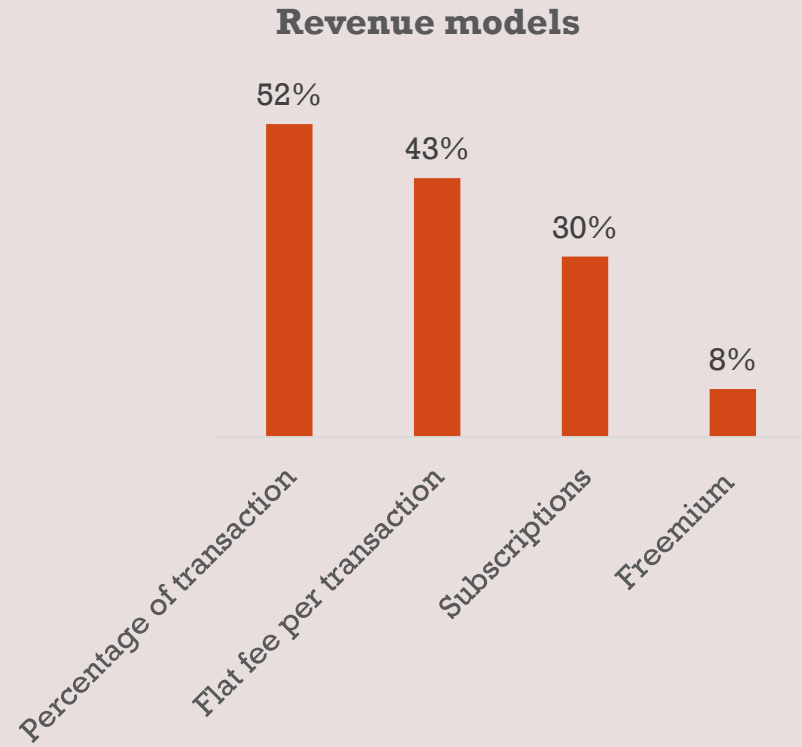
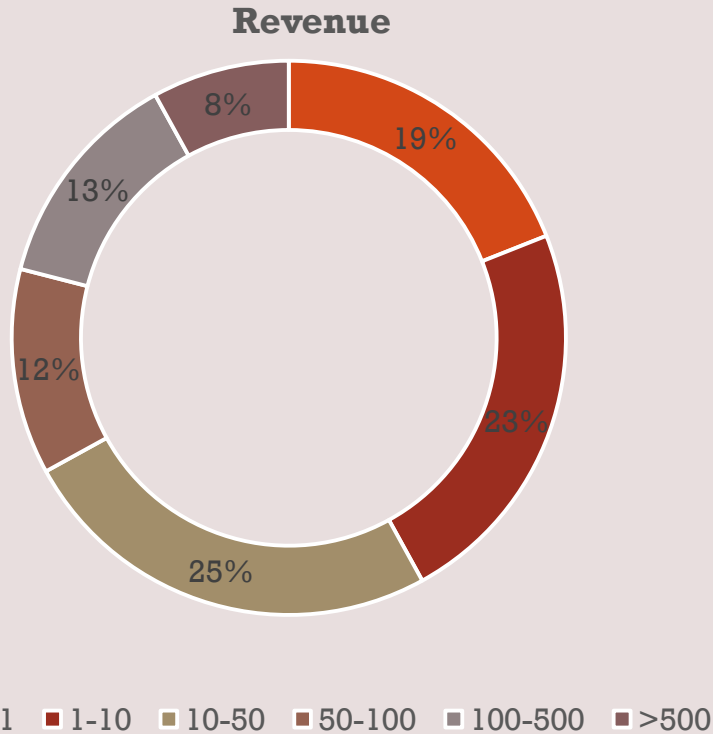
Business models



Source: EY & Young (2018)

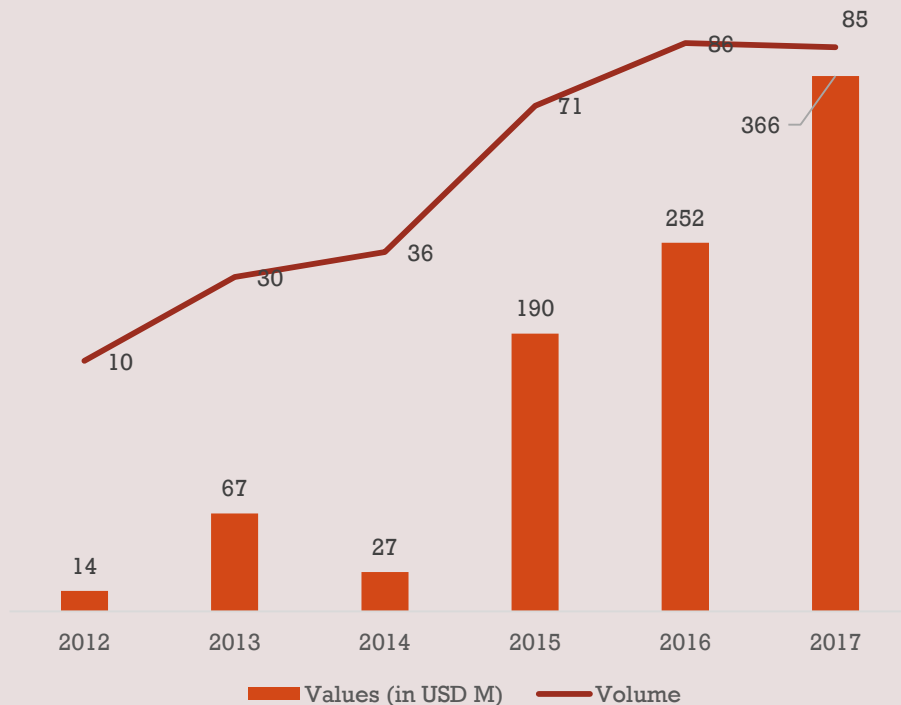
Major customers: Banks and financial institutions (51%); Retail customers (47%), SMEs/startups (45%); Corporations (35%); Government (20%)

OTHER CHARACTERISTICS OF FINTECH FIRMS



Source: Earn & Young (2018)

FINTECH FUNDING



Source: Earn & Young (2018)

- Only 44% of the FinTechs able to raise as much funds as needed (or more).
- Start-ups face credit crunch at the outset (traditional financial institutions are reluctant to lend to companies with less than three years)
- FinTech funding is easier in Singapore and Thailand.
- 77% FinTechs: Gov't funding schemes not easily accessible;

COMPETITIVE ENVIRONMENT

- FinTechs in Asean are quite upbeat about the outlook and their ability to compete with established players.
 - More than three- fourths (78%) of the companies feel that Asean FinTechs can compete globally.
 - 67% of FinTechs believe that they can win against other international players.
 - There are mixed views on quality of FinTechs 43% feel that there is lack of quality FinTechs in the region whereas 23% disagree
- Incumbents remain the biggest competitors to FinTechs
 - customers are still more comfortable with traditional institutions
 - propensity to move may still be low
- About 32% of FinTechs consider FinTechs in the region as key competitors.
- The entry of China's Fintech behemoth into ASEAN has posed a key challenge for fintech startups to adapt themselves quickly or perish.

FINTECH DEVELOPMENT IN ASEAN: SUMMARY

- Growth of emerging ASEAN, chiefly Indonesia & Philippines, is underpinned by improving demographic dividend and rapid urbanization.
- ASEAN banks benefit from adequate capital buffers and manageable asset quality concerns. ASEAN banks profitability trends are stabilizing post contraction over the past three years.
- ASEAN still in the nascent stage of evolution of digital banking.
- Our media digital sentiment index reveals ASEAN not a monolithic block, significant variations across devices, networks and applications in digital landscape.

FINTECH DEVELOPMENT IN ASEAN: SUMMARY

- Singapore based fintech companies continue to dominate the ASEAN fintech landscape, followed by Thailand and Indonesia.
- Fintech is still in its incipient stage in emerging ASEAN, but it is rapidly expanding with more companies securing funding from onshore and offshore sources.
- Limited number of fintech companies in the core technology space, such as Blockchain, Artificial Intelligence and Biometric, makes such fintech startups more attractive to investors.

FINTECH DEVELOPMENT POTENTIAL

- Smartphone penetration of around 35%, and growing rapidly.
- Consumers are ready for FinTech Solutions
- Banking penetration remains low for the majority of ASEAN countries
- Well-developed ICT cluster with a track record of innovation and investment in new technology
- Implementation of ASEAN Economic Community: high hope for further free movement of goods, services, investment, skilled labor, and free flow of capital
- Regulators are embracing change

FINTECH DEVELOPMENT POTENTIAL

- Robust economy generating GDP of \$2.5 trillion and growing at 6%.

	Population (2014, million)	Global rank (population)	GDP (nominal, 2014, trillion)	GDP growth (2015–2020)
ASEAN	620	3	\$2.5	8.9%
United States	319	5	\$17.4	4.3%
China	1,368	1	\$10.4	6.8%
India	1,260	2	\$2.0	11.3%
EU	505	4	\$18.5	4.4%
GCC¹	52	30	\$1.6	7.9%
NAFTA²	474	—	\$20.5	4.6%
MERCOSUR³	297	6	\$3.2	3.0%

Sources: IMF, EIU, World Bank, International Financial Statistics; A.T. Kearney analysis

- Literate population of more than 600 million people, with 40% under 30 years of age.

FINTECH DEVELOPMENT POTENTIAL

	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
Population (mn)	258	30.2	100.1	5.5	62.2	92.5
Online Population (mn)	93.4	21.4	42.0	4.1	21.1	44.7
% of Population Online	36%	70.9%	46.5%	74.5%	33.9%	48.3%
Broadband Subscriptions (per 100 inhabitants)	17.1	10	4.8	26.4	9.2	8.1
Bank Account Penetration	36%	81%	28%	96.3%	78%	30.8%
Credit Card Penetration	1.6%	20.2%	3.2%	35.4%	5.5%	1.9%
Smartphone Penetration	24.0%	35.0%	15.0%	85.0%	37.7%	36.0%
Paying Gamers in million	19.9	6.6	11	1.1	8.3	12..3

Source: IMF, BBVA Research (2017)

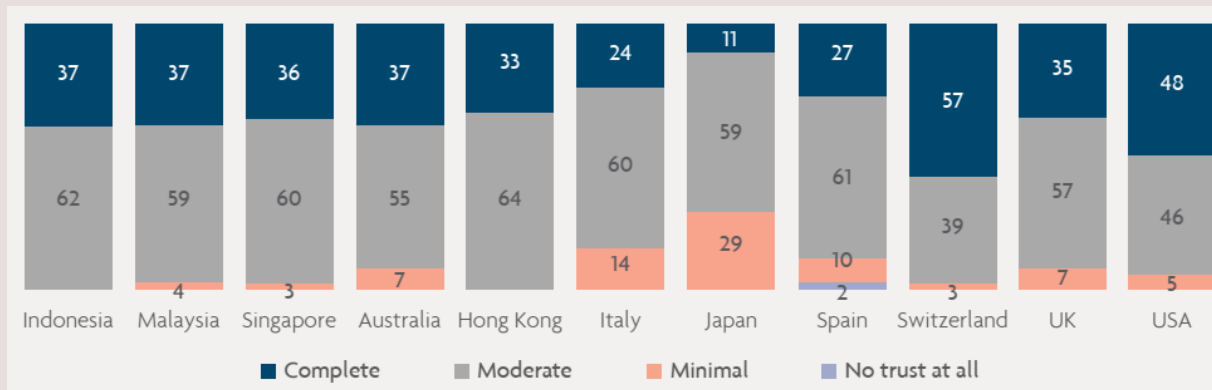
SCORING FOR FINTECH SUCCESS

	Singapore	Malaysia	Thailand	Vietnam	Indonesia	Philippines	Korea	Japan
Political environment	63	49	41	42	42	40	52	59
Funding potential	61	47	40	43	40	45	52	54
Financial attractiveness	53	48	45	48	44	36	46	42
Talent	63	49	41	41	45	40	48	45
Regulatory advancement	54	42	48	37	39	35	49	46
Customer & market constructs	58	48	44	40	39	39	52	57
Innovation ecosystem	53	40	40	42	44	42	54	54
Business environment	58	40	42	39	37	39	50	55
Overall score	58	45	43	41	41	39	52	52

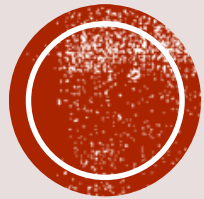
Source: Ceresus

THE ROADBLOCKS

- Weak business case for building out broadband
- Low digital literacy → Low consumer awareness and trust → hindering the uptake of digital services



- ASEAN as a single market: Currently no single digital market; only 3 countries with mature and comprehensive digital strategy (PHL; MYS & SIN); No common standard for digital services;
- Vulnerability to cyber attacks
- Limited supply of local content, primarily due to a weak local digital ecosystem (property right protection; lack of eco scales)

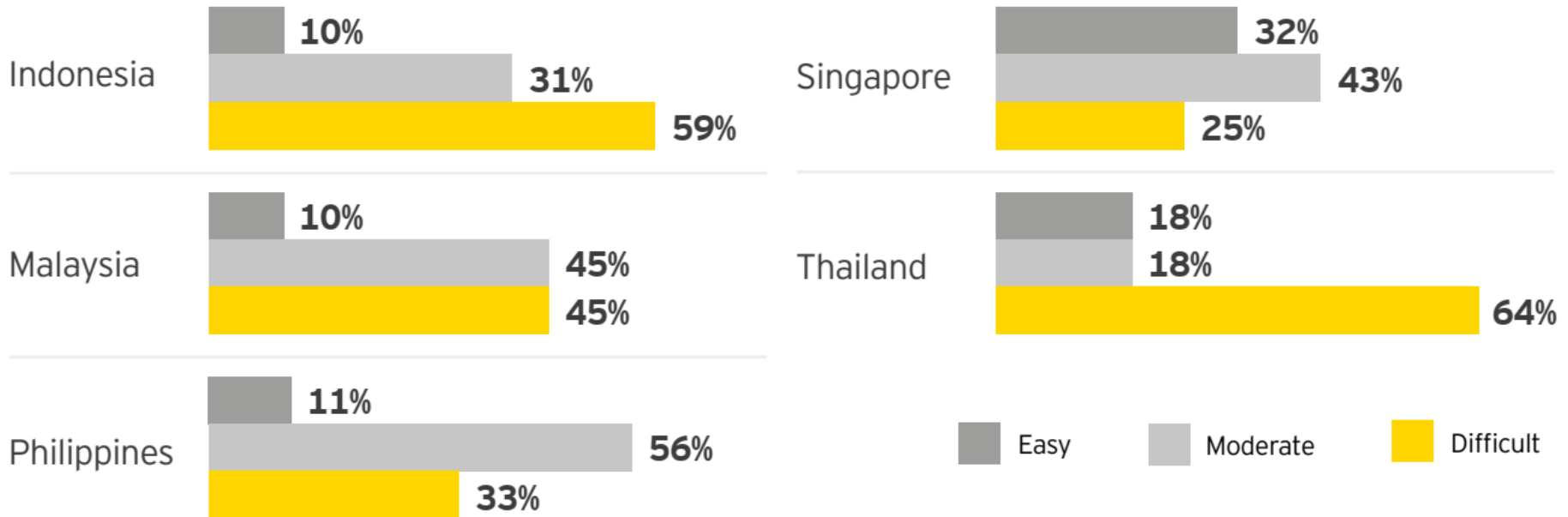


FINTECH REGULATION ISSUES & FINTECH REGULATION IN ASEAN

FINTECH REGULATIONS: OVERVIEW

- Difficult task for regulators.
- Three pillars: Facilitating FinTech development; Protect consumers and investors against fraud; Protect the integrity and stability of financial systems.
- This calls for a forward-looking regulatory framework, which in turns requires creativity, flexibility.

FINTECH REGULATIONS IN ASEAN (ACCORDING TO FINTECH FIRMS)



Source: EY & Young (2018)

Country	Dedicated Fintech Teams	FinTech industry enablers/utilities	FinTech regulations/standard	FinTech Regulatory sandbox
Singapore	<ul style="list-style-type: none"> FinTech and Innovation Group under the MAS 	<ul style="list-style-type: none"> National Know Your Customer (KYC) utility is a collaboration between Ministry of Finance and GovTech Successfully completed its blockchain inter-bank payments proof-of-concept project The Application Programming Interface (API) playbook recommends guidelines for developing financial services APIs. Industry-wide projects such as decentralized recordkeeping in trade finance supported by the Financial Sector Technology and Innovation scheme. Reducing financial requirements for crowdfunding platforms 	<ul style="list-style-type: none"> Consultation Paper on digital advice issued by MAS Regulation on P2P lending and equity crowdfunding Consultation Paper on payment roadmap issued by MAS 	<p>FinTech regulatory sandbox by MAS</p>
Malaysia	<ul style="list-style-type: none"> Financial Technology Enabler Group by Bank Negara Malaysia (BNM) The Securities Commission Malaysia (SC) 	<ul style="list-style-type: none"> Investigating the potential of centralized digital identity, open APIs, etc. Securities commission in Australia and Malaysia have entered into an innovation cooperation agreement to promote innovation in the financial services sector 	<ul style="list-style-type: none"> Regulation on P2P lending and equity crowdfunding SC has introduced the Digital Investment Management framework Plans to introduce regulation on cryptocurrencies 	<p>Financial Technology Regulatory Sandbox by BNM</p>
Indonesia	<ul style="list-style-type: none"> Financial Services Authority/Otoritas Jasa Keuangan (OJK) FinTech Office of Bank Indonesia (BI) 	<ul style="list-style-type: none"> Pundi X – Point-Of-Sales solution using cryptocurrency OJK initiated Indonesia FinTech Festival and Conference FinTech Office serves as a forum for assessment, risk mitigation and evaluation of FinTech business models 	<ul style="list-style-type: none"> Regulation on P2P lending Regulation on minimum capital requisite for FinTech New national payment gateway regulation published 	<p>Regulatory sandboxes by the OJK and BI respectively</p>

Country	Dedicated Fintech Teams	FinTech industry enablers/utilities	FinTech regulations/standard	FinTech Regulatory sandbox
Thailand	<ul style="list-style-type: none"> Securities and Exchange Commission (SEC) Bank of Thailand (BOT) 	<ul style="list-style-type: none"> Standardization of QR codes between card networks Investment promotion for FinTech Digital Economy Plan National e-Payment Master Plan Planning to relax licensing requirements for digital advisory Five-year corporate income tax exemption for new start-ups Plan to create online authentication system SET to launch a new blockchain-based platform for trading in start-up firms 	<ul style="list-style-type: none"> Regulation on equity crowdfunding and P2P lending Guidelines on simplified advice to relax fiduciary duties for independent investment advisors The new Payment Systems Act by end of 2017 	<ul style="list-style-type: none"> BOT regulatory sandbox (excluding crowdfunding) SEC regulatory sandbox Office of Insurance Commission sandbox
Philippines	<ul style="list-style-type: none"> The Bangko Sentral ng Pilipinas (BSP) 	<ul style="list-style-type: none"> QBO Innovation Hub by Dept of Trade and Industry and IdeaSpace BSP working with RegTech for Regulators Accelerator to develop cutting-edge digital supervision tools and techniques BSP considering adopting an automated complaint handling portal for customers and an API system for automated reporting for regulated entities 	<ul style="list-style-type: none"> Regulations on operations and reporting obligations of non-bank entities (remittance, money changing or forex dealings) Regulations on operations and reporting obligations of virtual currency 	
Vietnam	<ul style="list-style-type: none"> State Bank of Vietnam Steering Committee on FinTech 	<ul style="list-style-type: none"> Full legalization of digital assets and cryptocurrencies Expect to publish frameworks to aid and accelerate FinTech start-ups Policy to implement National Payment Network by 2020 		

POLICIES TO ENABLE FINTECH DEV.

- Most ASEAN countries identified FinTech as a major growth area
- Made some initial steps to nurture a supportive environment for FinTechs to prosper but regulations inhibiting innovation in mobile financial services and e-commerce
- The policy enablers for a digital economy have not kept pace with those in the EU/Adv. Eco.. Two facets of policy enablers
 - For each country, having right regulations in place to support the digital economy. This entails ensuring that critical enablers, such as sustainable market structures, supportive spectrum policies, privacy laws, digital signature laws, data protection, and incentives are in place to support universal broadband access, mobile financial services, e-commerce, and other key areas of the digital economy.
 - These policies need to be extended and harmonized across ASEAN MSs to create a single digital market
- **3 distinct groups of nations:**
 - Malaysia and Singapore: match the performance of developed countries but still lag in spectrum availability, innovation environment, regulatory environment, and digital literacy
 - Thailand, Indonesia, and Philippines: display significant gaps in market competitiveness, spectrum availability per operator, and regulatory environment
 - Other ASEAN MSs underperform its ASEAN peers in all categories except regulatory environment
- Mandates to work with regulators or banks, limits ASEAN Fintech firms in scaling up and expanding outside their home countries.

KEY CONSUMER RISKS

- Consumers also perceive or encounter common problems that can open them up to risks including financial loss:
 1. Inability to transact due to network/service downtime (including (i) Risky customer behaviors; (ii) Interrupted and incomplete transactions; (iii) Inaccessible funds and (iv) Lack of confirmation messages)
 2. Insufficient agent liquidity or float, which also affects ability to transact (including Information privacy and security)
 3. Poor customer recourse (Unclear, costly, and time-consuming procedures; Limited agent capacity and concerns for G2P recipients)
 4. Nontransparent fees and other terms (Opaque or inadequate disclosure of fees and other terms; (ii) Suspicions of overcharging)
 5. Fraud that targets customers
 6. Inadequate data privacy and protection (Compromised safety of digital data; Poor understanding of new uses of personal data; Unforeseen outcomes, such as identity theft or money laundering)

KEY FINANCIAL RISKS

- Systemic risk generally refers to the probability that economic shocks in one part of a financial system can lead to shocks in other parts of that system.
- Four factors stand out as primary contributors to systemic risk in the FinTech area (Magnuson, 2018)
 1. Extent to which individual actors are vulnerable to rapid, adverse shocks;
 2. Existence of multiple pathways for adverse shocks to spread from a single institution to others;
 3. Level of asymmetric information in the market; and
 4. Overall size of the market.

CHALLENGES FOR FINANCIAL REGULATORS

- First, FinTech has led to the proliferation of small, disaggregated actors that may be more susceptible to external shocks than traditional financial institutions.
- Second, the operations of fintech firms are significantly more opaque than those of traditional, large financial institutions, rendering it difficult if not impossible for regulators to effectively monitor their behavior.
- Third, fintech firms, because of their small size and dispersed nature, are less restricted by reputational constraints than large financial institutions.

→ Fintech poses unique and potentially more worrisome concerns than the traditional financial firms (focus of regulatory attention in recent years)

POLICY IMPLICATIONS

- Gaps in the policy enablers required to support devices, networks, and applications means that most ASEAN countries lag other nations in “sunrise sectors” associated with the digital economy, such as mobile financial services, e-commerce, and cloud services (e-commerce still accounts for a very small percentage of overall retail sales)
- ASEAN needs a comprehensive overhaul of both in-country and cross-border (regional) regulations, addressing both supply-side and demand-side objectives
 - On the supply side, countries within ASEAN should strive to strengthen the business case for investment in digital infrastructure, revisit regulations for key sectors (such as financial services), and boost the local digital ecosystem
 - On the demand side, ASEAN countries should create a single digital market and take steps to aggressively expand access to broadband
- ASEAN countries are establishing their own national regulatory sandbox, which enables regulators to monitor and foster the development of Fintech industry in their respective countries.

POLICY IMPLICATIONS

10 GUIDING PRINCIPLES

1. Support fintech transformation.
 - Gov'ts act as early adopter
 - Funding R&D, esp. to underlying tech challenge such as cybersecurity
2. Work to ensure that regulations encourage innovation in financial services
 - Cooperate with FinTech Firms
3. Remove duplicative regulations in financial services.
4. Regulate fintech at the national level.
5. Use regulatory enforcement actions to incentivize fintech companies to protect consumers.
6. Create tech-neutral rules for fintech.
 - Neither favor nor disfavor any particular Fintech applications
7. Create a level playing field between incumbents and new entrants.
 - Incumbents' effort to use FinTech vs. FinTech Startup
 - Similar Fintech product should follow similar sets of rules
8. Promote fintech cybersecurity
9. Support standards development and financial data interoperability.
10. Promote international harmonization of laws affecting the financial services sector.

THANK YOU FOR YOUR ATTENTION!
ALL COMMENTS ARE WELCOME!

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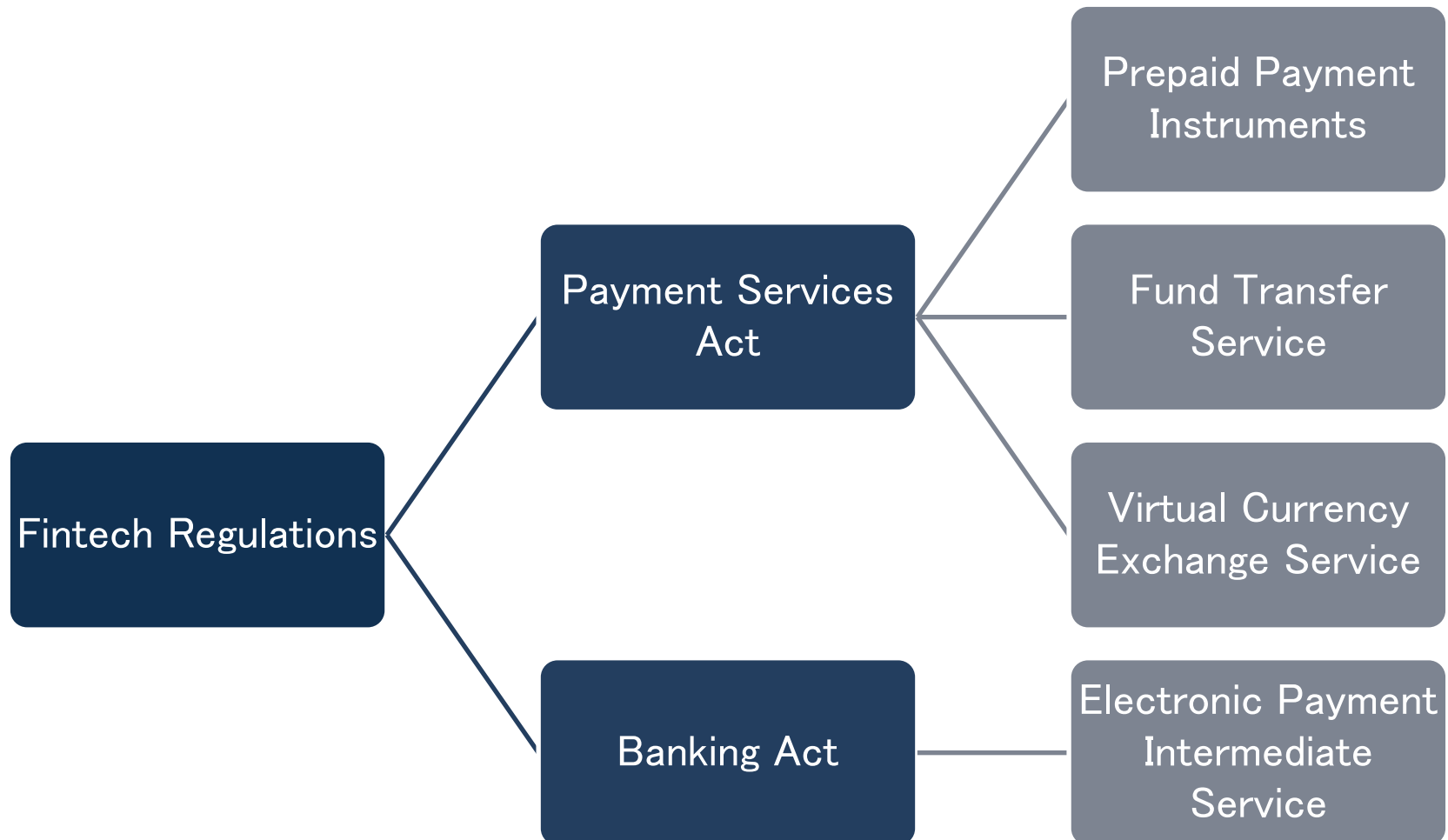
IAFICO 2018

Development of Fintech Regulations in Japan

Ken Kawai | Partner
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July, 2018

This presentation material is intended only as a general discussion of these issues.
It should not be regarded as legal advice.

Outlook: Major Fintech Regulations In Japan



Outlook: Major Fintech Regulations in Japan

	License / Registration	Protection of users' money / assets	AML/KYC
Prepaid Payment Instruments for Own Business	Reporting only	Security deposits to the official depository of the money equivalent of the half of unused balance, or bank guarantee	No requirement
Prepaid Payment Instruments for 3rd Party Business	Registration		No requirement
Fund Transfer Service	Registration	Security deposits to the official depository of the money equivalent of the outstanding transfer obligation, or bank guarantee	Required
Virtual Currency Exchange Service	Registration	Segregation of users' assets	Required

Virtual Currency Regulations Enacted

- On, April 1, 2017, the revised Payment Services Act (the “PSA”) and the revised Act on Prevention of Transfer of Criminal Proceeds took effect

- Key points of the revised act:
 - Definition of “Virtual Currency”
 - Registration with the FSA is required to provide Virtual Currency Exchange Services
 - Regulations on the business of Virtual Currency Exchange Services Providers, including Protection of Users
 - AML/KYC requirements

Virtual Currency Exchange Services

- Definition of “**Virtual Currency Exchange Services**”
 - Any of the following acts carried out as a business:
 - i. Sale/purchase of Virtual Currency or exchange for other Virtual Currency;**
 - ii. Intermediary, agency or delegation for the acts listed in (i) above; or**
 - iii. Management of users’ money or Virtual Currency in connection with its acts listed in (i) and (ii)**

Registration of Virtual Currency Exchange Services

- Registration Requirement
 - In order to engage in Virtual Currency Exchange Services, a company must be **registered as a “Virtual Currency Exchange Services Provider” with the Financial Services Agency (the “FSA”)**.
 - Penalty for performing Virtual Currency Exchange Services without registration:
Imprisonment with required labor for not more than three years or a fine of not more than three million yen, or both

Major Requirements

■ Company structure

- It must be formed as a Kabushiki Kaisha (KK).
- Minimal capital amount is JPY 10 million, but more than JPY 100 million is recommended.
- It is recommended to have at least 3 directors, board of directors, internal auditor.
- **It must have external certified auditor.**
- It must have **compliance officers.**

■ Office

- **A physical office is required.**

Major Requirements

■ Segregation of users' assets

- Users' virtual currencies must be segregated from the company's own virtual currency by using different wallets.
- Users' cash must be segregated from the company's own cash by using different bank accounts or trust scheme.

■ KYC/AML

- The company must conduct AML/KYC procedures.

Major Requirements

■ Other Major requirements

- Ensuring the safe management of information
- Provision of sufficient information to users
- Ensuring **system security** to protect users' assets
- Preparation of the books and documents relating to Virtual Currency Exchange Services
- Submission of annual reports on its Virtual Currency Exchange Services to the FSA
- Dispute resolution method: **Financial ADR**

Recent Development

- After Coincheck hacking incident, **the FSA made on-site inspections** on numbers of virtual currency and issued business improvement orders.
- The FSA's main focus is on system security, prevention of market manipulation and insider trading, AML/KYC
- Newly-established Virtual Currency Exchange Association of Japan is aiming to be the FSA admitted **self-regulatory organization**.
- the FSA established the "**Study Group of Regulating Virtual Currency Exchange Services**" to study appropriate legal system to tackle with issues related to virtual currency exchange services, including virtual currency derivatives and ICOs.

Japanese Regulations on ICOs

■ Overall regulatory stance

- Currently there is no specific rule to regulate ICOs.
- The existing securities regulations and/or virtual currency regulations would be applicable to token sales.

■ The JFSA's announcement on October 27, 2017

- The JFSA published its warning against ICOs on October 27, 2017.
- It states that ICO tokens may fall under the definition of securities or virtual currency.



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