

## FinTech, the future of society and regulation

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Good morning, everyone. Thank you for inviting me. The Financial Services Agency of Japan, JFSA, which I work for, is an integrated regulator of banks, insurance companies and capital markets. The JFSA is the Japanese counterpart to the CBIRC and the CSRC.



Since my younger days, I have been a big fan of the great Qing dynasty novel, *Dream of the Red Chamber*, *Hóng lóu mèng*. In chapter 56, princesses Jiǎ Tànchūn and Xuē Bǎochāi reform the economic system of the great Jiǎ household. They identify information asymmetries and agency costs one by one, set new rules, restructure incentives and make trust among members work again. The reform contributed to the benefits of housemaids and butlers as well as to the household budget and the culture of the family.

The 1993 Nobel Prize laureate Douglass North defined institutions as the rules of the game in a society, whose major role is to reduce uncertainty by establishing a stable structure to human interaction.<sup>1</sup> The formal and informal rules and the type and effectiveness of enforcement shape the whole character of the game. By examining the history of the United States and Europe, North demonstrated that institutions alter the costs of transacting, which consist of the costs of measuring the value of goods and services, the costs of protecting rights and the costs of policing and enforcing agreements. He showed that institutions dictate the differential performance of economies through time.

It may be said that the contemporary Japan is struggling to find new economic institutions which can replace the post-war institutions – the institutions which worked wonderfully in the 1960s but collapsed in November 1997 with the outbreak of the Japanese banking crisis. And the story of chapter 56 of *Dream of the Red Chamber* also tells us that institutions define performance, and that

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<sup>1</sup> Douglass North, *Institutions, Institutional Change and Economic Performance*, 1990

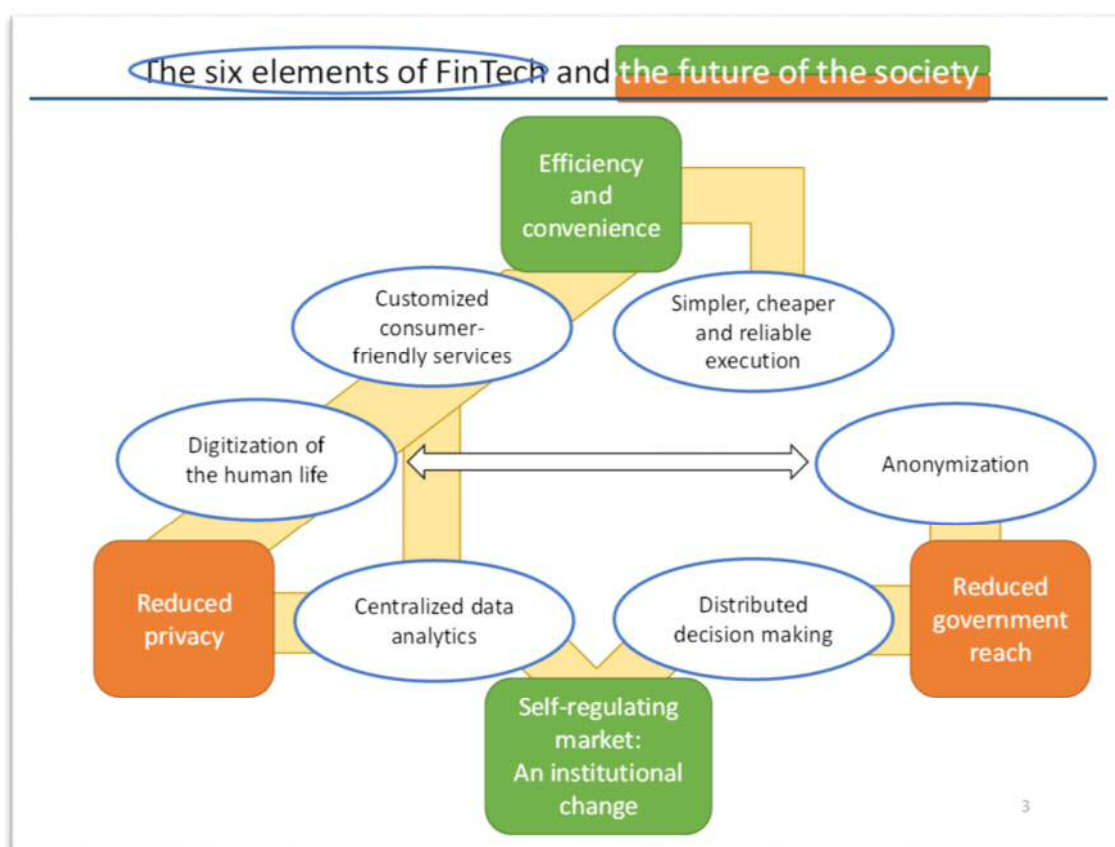
institutions based on customs and conventions can be altered by carefully examining the incentives given to players.

And we pay attention to FinTech because it may have the potential to replace institutions, or the rules of the game, by altering the way economic agents trust and transact with each other. FinTech is not just about a quicker and cheaper way to execute transactions, new profit opportunities, competition with new entrants or reduced roles for incumbents. FinTech might even alter the relative roles of states, large corporations, SMEs and individuals in forming the rules of the game.

And it is not just about financial services. Every transaction of goods or services is accompanied by payment. FinTech may therefore have the potential to change the rules of the game for all economic activities.

### Six elements of FinTech

Then which elements of FinTech have the potential to replace existing institutions? In my view, FinTech has six different key elements.



The most conspicuous element may be simpler, cheaper and more reliable execution of transactions. This element might transform incumbents' enormous

systems and networks into obsolete legacy assets. It may make new entry easier. If payment of a tiny amount of money is made easy and cheap, a new business model, which differs from existing free service models or charged service models, may start to flourish.

But a more fundamental element is the digitization of human life. A study says that about one-third of recent marriages in the U.S. have their origin in on-line meeting venues.<sup>2</sup> People spend many hours of the day in cyber space, and many of their activities in the real world are also digitally recorded. Thus enormous amounts of data on human life are generated every day. Financial institutions may generate data themselves by looking at financial transactions. They may also acquire data from non-financial businesses.

And we are acquiring the capability to utilize big data with the emergence of artificial intelligence and deep learning. Due to the economies of scale and scope in data gathering and analysis, the market may be dominated by a limited number of platforms. The combination of the digitization of human life and centralized data analytics is making it possible to provide customized, consumer friendly financial services to customers.

I have heard that, several weeks after you buy a pair of skinny jeans, you may receive an invitation to subscribe to a casualty insurance policy for your mobile phone. When you bought your skinny jeans, you did not know that you were destined to drop your mobile phone from the pocket of your new jeans, but the AI knew the increase in the probability of your dropping it.

Furthermore, the centralized analytics of digitized human life have the potential to change the way trust is formed in society. The emergence of the Sesame Credit scores has made transactions between unknown people much easier and perhaps it has been more effective than adding many policemen or judges. The Sesame Credit scores can be considered an element of new economic institutions as defined by Douglass North.

As a counteraction to the centralized use of big data, the demand for anonymization may also increase. Currently, the most convenient tool for anonymous transaction is central bank notes, and as society moves towards becoming cashless, the demand for alternative tools for anonymity may increase. Avoiding being captured by the central data base may have value to consumers, and technology can provide solutions to satisfy such demands.

In addition to all these, perhaps the element of FinTech which has the biggest potential to change institutions may be distributed decision making.

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<sup>2</sup> Cacioppo, Gonzaga, Ogburn, and VanderWeele, "Marital satisfaction and break-ups differ across on-line and off-line meeting venues," *Proceedings of the National Academy of Sciences*, Vol.110, no.25, June 18, 2013

The phenomena of distributed decision making are not limited to financial services. For example, there once was a time when the Encyclopedia Britannica, which was written by the most authoritative authors and compiled by the most respected editors, was considered one of the most reliable sources. But today most people would first look at Wikipedia or Bǎidù Bǎikē, which are written and compiled by anonymous people, and nowadays it cannot be said that the entries of the Encyclopedia Britannica are always more accurate than those of Wikipedia.

In the realm of financial services, Bitcoin is a representative case of distributed decision making. One to two hundred core developers write and update protocols, eleven thousand nodes disseminate and record data, and miners confirm transactions. They are largely anonymous and there is no common legal entity or governance structure. Anyone can join as a node or a miner and there is no prerequisite or authorization for doing so. But the system has continued to function for more than nine years.

Bitcoin is consuming large computing power and energy. It is often associated with speculation and illicit payments. It has not developed as was initially hoped. Nevertheless, this year's annual report of the Bank for International Settlements, the central bank of central banks, spent one full chapter to demonstrate how the central bank currencies are superior to crypto-assets. It seems that Bitcoin has at least succeeded in making central bankers feel the need to justify themselves.

### **The future of society**

How would society be transformed when we see the development of FinTech's six elements described above, i.e., i) simpler, cheaper and more reliable execution, ii) digitization of human life, iii) centralized data analytics, iv) customized, consumer-friendly financial services, v) anonymization and vi) distributed decision making?

One positive change will be the realization of a more efficient and convenient society. Perhaps, however, a more fundamental change could be the emergence of a mechanism designed by the private sector to create trust among economic agents, or the emergence of self-regulatory markets. This means the creation of new economic institutions.

Currently, trust among economic agents is supported by disclosure rules, judicial systems, monitoring and sanctions imposed by authorities and other governmental powers. Both the centralized analytics of digitized human life and distributed decision making may have the potential to replace the role of governmental power in making trust and transactions among economic agents possible. The Sesame Credit scores and Bitcoin seem to be already attaining this.

These two – efficient execution and new basis for trust – can be considered positive changes, but negative changes can also be envisioned. The realm of privacy may be diminished as a result of the digitization of human life and centralized data analytics. New types of financial exclusion may emerge on the basis of refusing to provide personal data or of the outcome of data analytics. On the other hand, the combination of anonymization and distributed decision making may reduce the scope of government reach.

Which will we get among the four potential changes; highly convenient society, efficient economic institutions, an Orwellian dystopia, or anarchy beyond the government's reach?

My hunch is that all of the four will emerge simultaneously, or perhaps all of them are already emerging. True, the European Union and others are strengthening personal data protection. Many try to contain activities beyond the government's reach. International cooperation is being strengthened to stop money laundering and terrorist financing. But for consumers, convenience is always an irresistible charm. Economic institutions which can reduce information asymmetry and agency costs are a great source of competitiveness. We will all try to facilitate positives and contain negatives, but I suppose it may be very difficult to have only positives and no negatives.

## **Regulation**

In navigating towards an efficient and convenient society while protecting privacy and government reach, how should financial regulators behave? In dealing with something new, regulators have four basic options: prohibit, regulate, monitor or ignore.

Options for regulatory authorities				
Option	Prohibit	Regulate	Monitor	Ignore
In the case of crypto assets...				
Example*	China, India, Indonesia, Russia	NY State (2015-) Japan (2017-) EU (2018-)	FSB (2018-)	Many?
Pros	No harm caused by regulated entities.	Better monitoring.	Can be on top of the development without taking regulatory responsibility.	Can avoid being interpreted as endorsement.
Cons	Cross-border and underground activities may not be contained. May stifle innovation.	May be misinterpreted as endorsement. Cannot avoid being criticized as either too much or too little.	Need to rely on informally gathered statistics. Cannot contain problems.	May not notice growing problems.
<small>* Prohibition, regulation and monitoring refer only to certain scope of businesses or activities related to crypto-assets. For more specific descriptions, please refer to FATF, "FATF Report to G20 Finance Ministers and Central Bank Governance," July 2018. 4</small>				

Let us look at the four options one by one taking the example of crypto-assets.

First, prohibition. I understand China, India, Indonesia and Russia have banned certain activities related to crypto-assets. This option has the great advantage that no harm will arise from regulated entities.

On the other hand, prohibition may foster cross-border transactions and make activities go underground. The current generation of crypto-assets may be accompanied with deficiencies, but prohibition may stifle innovation towards a better second generation.

The second option is regulation. The New York State authority has started issuing "Bit Licenses" since 2015. Japan imposed registration requirements on crypto currency exchanges last year. This year, the European Union amended its anti-money laundering directive to address crypto-assets.

Let me briefly touch upon Japan's experience. With the introduction of registration requirements, the JFSA's capability to monitor developments has significantly improved. When Mt. Gox, the world's largest Bitcoin exchange at that time, collapsed in Shibuya in 2014, we knew very little about the exchange. Today, we know the inflow and outflow of cash to and from each type of crypto-asset, the age group composition of customers, changes in buy-and-sell

spreads and governance, risk management and the cyber security of crypto exchanges.

On the other hand, regulation may entail the risk of being misinterpreted as a sign of endorsement by the authority. Some people have an interest in spreading such misunderstandings. Also, if an authority is to assume regulatory responsibility, it should be prepared to be criticized for overregulation by those who emphasize innovation and for being too lax by those who emphasize consumer protection.

The third option is monitoring. The Financial Stability Board launched this year a framework to monitor the impacts crypto-assets may have on financial stability. If monitoring is done without regulation, authorities will not be able to impose reporting requirements and thus may need to rely largely on information service websites which do not disclose fully how the statistics are prepared. If problems in financial stability, customer protection, market integrity or illicit payments are identified, actions will be needed in addition to monitoring.

The last option is ignoring. By ignoring, authorities can avoid being misinterpreted as having endorsed crypto-assets and taking regulatory responsibilities. As crypto-assets do not neatly fit into the existing regulatory framework, they are prone to causing negative turf battles among authorities who may then settle with this last option. This option will be accompanied with the risk of failing to notice growing problems.

As we have seen above, approaches differ across countries. Since the G20 ministers and governors declared in March in their communique, "We commit to implement the FATF standards as they apply to crypto-assets," I understand that monitoring only or ignoring is no longer an option, at least with regard to the prevention of money laundering and terrorist financing. But there has not yet emerged a clear international consensus on approaches to the other aspects of crypto-assets. Activities which exploit national differences and circumvent prohibitions or regulations seem to be growing, and cooperation and coordination between authorities, including those between authorities which adopt different approaches, will be crucially important.

More generally, as FinTech brings in other new products and services, regulators may need to go through similar exploratory processes.

The choices and approaches by national authorities will depend significantly on the nation's value judgment, or how much priority the nation will give to efficiency, convenience, privacy and government reach. And our choices will define the future of our economic institutions and society.

Thank you.