

Hiroshi Nakaso: Central bank policy on financial market infrastructure

Remarks by Mr Hiroshi Nakaso, Deputy Governor of the Bank of Japan, at the Conference on Retail Payments, Tokyo, 12 May 2016.

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Introduction

It is a great pleasure to welcome you all today to this Conference on Retail Payments.

Today, I would like to say a few words on the Bank of Japan's views on policies related to financial market infrastructures (FMIs), including payment and settlement systems, in light of innovations in information technology that have brought about various innovations in payments.

For every central bank, payment and settlement are its primary functions. Many central banks, including the Bank, were established to stabilize payment and settlement systems as a single issuer of the currency. Compared to such history of central banks' deep involvement with payments and settlements, history of monetary policy for macro-management of aggregate demand is fairly new.

After the recent global financial crisis, various initiatives have been introduced at international forums over FMIs including payment and settlement systems. Moreover, in line with development of information technology and various financial innovations, which are often referred to as "FinTech", the frontier of the policies related to FMIs is rapidly expanding, and has become a major policy field that could be called "financial market infrastructure policy (FMI policy)" for central banks around the world.

In order to ensure the stability and enhance the efficiency of FMIs as a whole, it is important not only to ensure stability of individual players including financial institutions, but also to understand complicated interactions and market dynamics among these players as well as the impacts of technological innovations, and to fully mobilize available policy toolkits of the central bank. For central banks, FMI policy is deemed as "the oldest and the newest" policy field, which is also intellectually challenging.

I. Origin and evolution of central bank policy on FMIs

The role of money in the economy

"Money", like "language", is undoubtedly one of the greatest of human inventions. Language has enabled human beings to share knowledge among others and wisdom across generations and has played a critical role in developing civilizations. Similarly, money has enabled human beings to exchange goods and services "across space" and "over time", and has served as a foundation for the development of an economic society. The transmission mechanism of monetary policy, too, is ultimately dependent on the fact that money has enabled us to exchange expenditures over time.

The exchanges via money is build upon a "chain of trust" among human beings The reason why I can purchase goods with money is because the recipient believes that it can be used for its own payments and will be accepted by unknown others. As such, the fact that human beings were able to create a chain of trust among many others, including among those with no personal acquaintance, was the key to the development of an economic society. This shows how important "trust" is for the payment system and the economy.

Central banks and payments infrastructure

To put it in another way, one break in the chain of trust could have a catastrophic impact on the payment system and the overall economy. Indeed, many central banks, including the Bank, were founded with the aim of restoring and maintaining confidence in payment systems when people's trust in them were about to be lost or damaged, which also shows that payments and settlements are inherently the primary function of central banks. The central banks' other core functions – such as the lender of last resort and monetary policy – are also ultimately based on the ability of central banks to provide, without constraints, central bank money, which provides “finality” to payments and settlements in a sense that receivers of central bank money do not have to worry about payment unwinding or its credit risks any more. Such power also gives central banks the ability to influence real interest rates, which are regarded as the “rate of exchange” on expenditures exchanged over time, as a foundation of monetary policy.

Most central banks around the world, including the Bank, support economic activities by issuing banknotes and operating large-value payment and settlement systems, which constitute basic infrastructures of the economy. Following the emergence of money in the form of banknotes and coins, various types of payment instruments, including checks, bank transfers, credit cards, debit cards, and e-money, have emerged to meet people's evolving needs. At the same time, the role of central bank payment and settlement infrastructure is playing a more important role in light of economic developments and innovations in information technology, since the central bank is the only entity to be able to settle more diverse and complex transactions with finality.

Payment infrastructures intrinsically have the characteristics of a “network”. The value of participating in a network increases as more participants use it. At the same time, a single payment failure could spill over across the network, potentially leading to systemic crisis. Moreover, participation in the network by a high risk profile member could increase the risk for all others. Given such characteristics, central banks, including the Bank, determine the range of participants to be granted access to its payment infrastructures, ensure the soundness of those participants through on-site examinations and off-site monitoring, and, where necessary, serve as the lender of last resort to avoid negative spill-overs and systemic crisis.

Another important contribution to the economy by central banks is to enhance the safety and efficiency of the payment and settlement systems they operate. The Bank has made continuous efforts also in this regard. Indeed, a number of improvements have been made to the BOJ-NET over time, including the adoption of delivery-versus-payment (DVP) and real-time gross settlement (RTGS). Liquidity-saving features have also been introduced with the aim of enhancing efficiency while avoiding payment delays. Furthermore, in October 2015, the new BOJ-NET was fully launched, with its operating hours extended to 9 p.m. in February 2016.

II. Frontiers of FMI policy

The financial crisis and FMI policy – the importance of interactions and market dynamics

The global financial crisis, triggered by the Lehman Crisis in 2008, put payment and settlement systems under the spotlight of international debates, and frontiers of FMI policy have been expanding. The FMIs as a whole could be regarded as an “eco-system”, since they have similar interconnectedness, complexities and interactions as biological eco-system. Policymakers including central banks are increasingly asked to grasp those complicated interactions and market dynamics among various players as well as the impacts of technological innovation, and to maintain not only the soundness of individual players but

also the stability of whole FMIs as an eco-system, with making full use of all the available policy tools.

At the Pittsburgh Summit in 2009, G-20 leaders agreed that all standardized over-the-counter derivatives contracts should be centrally cleared at central counterparties (CCPs). This agreement was one example of the expanding frontier in that the policymakers took a step forward to consider the “structure” of post-trade processing of financial transactions, in addition to the risks in individual transactions or counterparties.

Stepping into unexplored policy areas raises a number of intellectually challenging issues. For example, central clearing might accompany the accumulation of risks in CCPs and make CCPs “too-big-to-fail.” There are also issues of “trade-off”, in a sense that a CCP’s call for its participants to provide additional capital or liquidity in times of market-wide stress could weaken the capital and liquidity positions of those participants. Similarly, terminating membership of a financially troubled participant would make the recovery of the participant difficult, while maintaining its membership could increase risks for other participants and the CCP itself. Moreover, a CCP’s efforts to enhance its stability by collecting an extra layer of margin could undermine the incentives of participants to make use of CCPs, possibly increasing aggregate risks in the overall market.

Adding on to such complex challenges is the perspective of globalization. Also on this front, there emerge many issues, such as what should be the appropriate framework for international oversight of CCPs operating across borders, how liquidity shortages at cross-border CCPs dealing with multiple currencies should be addressed, and how central banks should contribute to the resolution of those issues.

Various international forums also recognize the importance of good understanding of complex interactions and market dynamics by central banks and policymakers in enhancing stability and efficiency of FMIs as an eco-system. In 2012, the Committee on Payment and Settlement Systems (CPSS) – which is now the Committee on Payments and Market Infrastructures (CPMI) – of the Bank for International Settlements and the Technical Committee of the International Organization of Securities Commissions (IOSCO) published the “Principles for Financial Market Infrastructures (PFMIs).” Since then, effective framework has been developed for central banks and other authorities to ensure, through their oversight and international peer reviews, that FMIs including payment and settlement systems meet the PFMIs. The Bank is actively engaged in this initiative as an overseer of FMIs in Japan.

Innovations in information technology and FMI policy

Continuous efforts are being made to develop, enhance and sophisticate FMI policy. In recent years, in accordance with innovation in information technology and rapid popularization of internet, mobile phones and other digital outlets, wide-ranging financial innovations, which are often referred to as “FinTech”, have been taking place. In such an environment, central banks and other policymakers need to grasp the impacts of those technological innovations on financial architecture and FMIs, and to make full use of the benefits of those innovations while effectively addressing any new risks.

The safety and efficiency of FMIs including payment and settlement systems have always been closely linked to the information technology of the time. For example, many of the operational practices and security features of traditional financial instruments, such as banknotes, paper securities and ledgers, have been to a large extent based on paper-based and printing-related technologies. For example, the security of banknotes is reliant on paper-based anti-counterfeit features such as watermarks and holograms, and bill and check clearing houses were established to facilitate and reduce the burden of their physical delivery.

Given that the financial service industry has strong characteristics as an “information industry,” it is not surprising that innovations in information technology have a particularly large impact on financial services and infrastructures. FMIs including payment and

settlement systems have been all the more characterized as “information infrastructures” for recent developments in information technology. With “FinTech” developments, which combine finance and information technology, financial services are expanding their frontiers, while new players are venturing into the financial services market. Such dynamics are also evidenced by the rich variety of participants attending today’s conference.

Innovations in financial services and FinTech have significant potential to bring wide-ranging benefits to the overall economy by expanding also the frontier of economic activities, including e-commerce, sharing economies, big data processing, smart contracts and IoT (internet of things). At the same time, FinTech may also have the potential of drastically reshaping the forms of financial services and financial architecture.

Traditional financial infrastructure is built around “centralized ledgers,” where banks have managed ledgers of deposits and other financial products. On the other hand, “blockchain” and “distributed ledger” – technologies underpinning digital currencies such as “Bitcoin” – are considered as enabling to keep ledgers in a de-centralized manner without relying on a trusted third parties to manage ledgers. Owing to such characteristics, blockchain and distributed ledger have attracted considerable attention, since international forums are focusing on their potential to be applied to wide-ranging businesses and practices. The application of those technologies would also change the structure of the financial infrastructure that has been built around centralized ledgers managed by trusted third parties. Thus, central banks will and have to follow these issues closely and with great interest.

FinTech has also the potential to unbundle and reconstruct various financial services. For example, there may be payment-related services having substantial synergies with services provided by non-financial businesses such as e-commerce and big data processing. As a result of exploitation of “economies of scale” under technological innovations, new players may become the providers of new services that incorporate financial solutions.

Moreover, it could be considered that such changes in financial architecture may change the risk profiles of financial systems and infrastructures.

Commercial banks have long been the main provider of payment services. Commercial banks, based on their deposit-taking as the core of their services, have kept on providing both financial intermediations such as lending through maturity transformation and payments services. Various financial infrastructures were built around such structure of commercial banking. For example, access to the current account at central banks, including the Bank, have been provided primarily to commercial banks and other depository institutions. The risk of “bank-runs,” which stems from maturity transformation by commercial banks, has been considered as the main trigger of systemic crisis. Reflecting the above, central banks have traditionally been assumed to provide its “lender of last resort” function mainly to commercial banks and other depository institutions.

Since more and more non-financial institutions are providing payment services under “FinTech” developments and there seem to be structural changes in the supply-side of financial services, however, risk profiles might also change from those originally assumed. For example, it is hard to assume the risk of bank-runs in “crowd-funding”, which directly matches demand and supply of funds through the internet, and in remittance services that are fully covered by deposits. Deputy Governor Ben Broadbent of the Bank of England pointed out in his speech in March the possible shift towards a risk profile that traditional debates on “narrow banking” or “free banking” suggested due to the application of technological innovation to finance.¹ On the other hand, with the expansion of access points

¹ Ben Broadbent, “Central banks and digital currencies” (speech made at London School of Economics on March 2, 2016).

to financial services through the popularization of internet, mobile phones and other digital outlets, there are risks that would require higher attention, such as cyber attacks and hacking against vulnerabilities on information security.

III. Bank of Japan's FMI policy

Taking into account the above-mentioned technological innovation, the Bank has been actively enhancing the stability and the efficiency of Japan's FMIs by utilizing various policy tools. They include providing banknotes and BOJ-NET as basic infrastructures to the economy, conducting on-site examination and off-site monitoring of financial institutions, oversight against FMIs including payment and settlement systems, and playing a "catalyst" role to facilitate communication among wide-ranging players involved in FMIs.

Under globalization of the economy and technological innovations, more and more transactions and payments are being made across borders and time zones, and more diverse players are now providing payment-related services. One of the challenges for private-sector entities to provide payment services related to global cash management and e-commerce is how to deal with unsettled exposures that arise from time-zone differences and payment operations at night hours and on weekends. Central bank money is the solution that would ultimately erase these unsettled exposures through settlement with finality, but providing central bank infrastructure also involves costs. In taking both possible benefits and costs in account, the Bank will continue to consider the most appropriate way to provide its central bank accounts and BOJ-NET from both "time" (i.e. operation hours of the BOJ-NET) and "space" (i.e. eligibility criteria of the Bank's accounts), so as to contribute to the overall economy.

Besides, banknotes are payment instruments that all the people can use 24/7, and under the innovation in information technology, there emerges an issue about whether central banks themselves should provide, in the future, digitalized payment tools that would substitute paper-based banknotes. Indeed, some central banks have recently mentioned the possibility of central banks' issuing digital currencies, and there are arguments that central banks' digital currencies would be similar to the provision of central bank accounts not only to financial institutions but also to the general public.² The Bank does not have a specific plan to issue digital currencies at this stage, but will deepen its research and analytical activities so as to understand the impact of technological innovations, FinTech and distributed ledger on financial architectures and FMIs while keeping all options open, including the possibility of the Bank's utilizing such advanced technologies in its own operations in future.

Moreover, taking into account the importance of the people's "trust" towards financial services and FMIs, the fact that the Japanese financial system has maintained its stability during the recent global financial crisis could be a great advantage in developing innovative financial services in Japan. On the other hand, as access to financial services expands through internet and mobile devices, new types of threats to financial systems and infrastructures, such as hacking and cyber-attacks, are gaining prominence. In order to maintain people's trust towards financial infrastructures and innovative financial services, relevant entities are strongly encouraged to take effective countermeasures against these new risks also by utilizing new technologies such as digitalized encryption and biometrics authentication. Furthermore, it is important to establish business continuity plans (BCPs) for FMIs with sufficiently conservative stress scenarios such as natural disasters and acts of terrorism. The Bank will work to deal with these important tail risks on FMIs. At the recent

² As documents mentioning the possibility of central banks' issuing digital currencies, see, for example, Andrew Haldane, "How long can you go?" (speech given at the Portadown Chamber of Commerce on September 18, 2015 <http://www.bankofengland.co.uk/publications/Pages/speeches/2015/840.aspx>) and the document published by the People's Bank of China on January 20, 2016 <http://www.pbc.gov.cn/goutongjiaoliu/113456/113469/3008070/index.html>.

earthquake in Kumamoto, the Bank's Kumamoto Branch, other area branches and Tokyo Head Office took immediate and coordinated actions to firmly maintain the functions of financial infrastructures in the region through various efforts such as ensuring smooth supply of banknotes and funds settlement. The Bank will make use of those experiences so as to strengthen overall BCP strategy.

In addition, in order to ensure the stability and enhance the efficiency of FMIs as a whole, including those operated by the private sector, it is important to cooperate with the private sector and encourage their efforts. Through the oversight of private-sector payment and settlement systems, the Bank will conduct monitoring and dialogues with these infrastructures, and when necessary, will strongly urge them to take actions to ensure the stability and enhance the functionality of these infrastructures.

Furthermore, while more players with wider backgrounds have entered in the market of providing payment-related services, it has become important to facilitate interactive dialogue among wide-ranging entities beyond traditional financial industry, in order to make the expansion of the financial service frontiers under the technological innovations fruitful for the customers and the overall economy, and to enhance the stability and efficiency of FMIs. The Bank, as the nation's central bank, is firmly committed to being a "catalyst" in fostering such developments, and the establishment of the Bank's "FinTech Center" on April 1 is a part of such commitment.

The Bank is ready to mobilize all the policy tools available while paying attention to interactions among various players involved in FMIs, market dynamics and impacts of technological innovations, and make maximum efforts as a central bank to enhance the stability and the efficiency of Japan's financial infrastructure.

I would like to close my remarks by wishing that today's Conference on Retail Payments will generate fruitful discussions.

Thank you for your attention.