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Bank of Japan

Innovation and the Future of Finance

Remarks at the Paris EUROPLACE Financial Forum in Tokyo

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I. Paris International Expositions in the 19th Century -- Exploring the Future through New Technologies --

It is a great honor to have the opportunity to give a speech at the Paris Europlace Financial Forum today.

Nowadays, rapid innovation in information technology is significantly changing financial services, and even the economy and society as a whole. It seems that people are thrilled to watch, with hope and a little anxiety, how such innovation will change the world landscape and affect the role of human beings.

Similarly, there was a time in the past when people had strong interest in how new technologies would change the future. Particularly in the late 19th century, with the development of heavy industry, the popularization of electricity, and mass production of new materials such as iron and glass, people wondered how such technological progress would change the economy and society. During that period, Paris hosted international expos as many as five times. These expos presented prospects of the 20th century that new technologies could open up, and brought these technologies closer to ordinary people.

Indeed, many major structures using new materials and construction methods were built at the time of these expos, namely, la tour Eiffel, la Gare d'Orsay, le Pont Alexandre III, and le Grand Palais. They continue to be symbolic landmarks of Paris today. Moreover, very interestingly, Bordeaux wine classification was also introduced at the 1855 Paris Expo, and it seems that creating such a "database" has helped French wines become the world's leading brand.

The Paris Metro was also opened during the 1900 Paris Expo. The subway has played a major role in urban transportation systems since the early 20th century. I am particularly attracted by the Art Nouveau decorations at the entrances of the Paris Metro. Art Nouveau widely adopted new materials such as iron and glass, combined with the delicate artistic sense of human beings, and created a path for the future of fine art and architecture.

II. Innovation in Information Technology and FinTech

Undoubtedly, the Paris Expos in the late 19th century presented "visions" and "prospects" of how science and technology could lead to economic and social development and improve people's daily life in a wide range of fields, such as urban architecture, transportation, and fine art. They thereby contributed to the broad application of science and technology in the 20th century.

I believe we can also make use of such historical analogies for maximizing the value of on-going rapid innovation in information technologies. If many people could share the visions and prospects as to how these new technologies could contribute to making the world better and what they could bring to our daily life, the benefits would be substantial. Namely, we can intimately feel the benefits of new information technologies and cope with the associated anxiety through sharing these visions and prospects. If so, it would become easier to facilitate collaboration among various entities in applying these new technologies to improve financial services and develop the economy.

In this regard, application of new information technology toward financial innovation, called "FinTech," will present the following visions or prospects that will open up the frontiers of financial services. I would like to encourage wide-ranging stakeholders to make efforts to realize them.

First, FinTech will facilitate the delivery of financial services customized to suit individual users around the world. More specifically, in emerging and developing economies, where financial infrastructure such as bank branches and ATMs are underdeveloped, the Internet and smartphones are spreading very rapidly. In these countries, FinTech enables the provision of financial services by using the Internet and smartphones as new access tools. Therefore, emerging and developing economies are eager to promote FinTech in order to accelerate "financial inclusion." Moreover, big data and artificial intelligence (AI) makes it possible to customize financial services in accordance with the needs of individual users.

Second, FinTech will contribute to increasing the efficiency of financial operations and services and raising productivity through the application of information technology.

FinTech also has the potential to create new networks between financial services and wide-ranging industries, such as the Internet of things (IoT), e-commerce, and the sharing economy. By fostering the development of new sources of growth, FinTech could contribute to boosting growth potential through enhancing productivity, which is now a common policy challenge to developed countries.

Furthermore, FinTech will improve our daily life and address various social challenges from the financial aspect. For example, as population is aging in Japan and many other developed countries, it is becoming increasingly important to make financial transactions easier and safer for the elderly and to protect them from fraud. In this regard, biometrics and AI could be effective tools. In addition, new technologies such as AI and big data analysis may enable rapid credit assessment and low-cost remittance services. They could facilitate easier access to lending and remittance services for financially vulnerable people. Moreover, robot advisers utilizing AI may provide easy-to-access asset management services with lower costs, and thereby promote "the shift from savings to investment," which is a long-standing policy challenge in Japan.

In this way, FinTech could contribute to raising growth potential and addressing social challenges, not only in emerging and developing economies but also in developed countries. On this basis, major cities such as Paris and Tokyo consider FinTech as one of the major driving forces in the efforts of promoting financial services and industries. In November 2016, the Metropolitan Government of Tokyo established the "Advisory Panel for Global Financial City Tokyo," in which a senior official of the Bank of Japan participated. In the discussion there, FinTech, as well as fostering asset management services, were considered core drivers for promoting financial activities in Tokyo.

III. Initiatives at the Bank of Japan and the Central Bank's Perspective

The Bank of Japan is actively promoting FinTech from the standpoint of a central bank. In April 2016, the Bank established the FinTech Center within its Payment and Settlement Systems Department. The Bank has also built up a Bank-wide "FinTech Network" to share information and expertise related to FinTech.

Also, the Bank has held four FinTech Forums so far. In these Forums, we have focused on topics of high interest, such as information security, open innovation, distributed ledger technology (DLT), and big data. In November 2016, the University of Tokyo and the Bank of Japan held a joint conference focusing on the future of money. Moreover, in April this year, the Bank organized a conference on AI.

Furthermore, in order to gain deep understanding on new information technologies and their impact, the Bank has been conducting various research activities, including the joint research with the European Central Bank on DLT. In parallel with these activities, senior officials of the Bank, including myself, have been delivering speeches focusing more on IT innovation and FinTech as well as their impact on finance and the economy, in order to convey the Bank's views on these issues.

When we try to examine the impact of FinTech on finance and the economy from a central bank's perspective, I think the following four points are important.

First, entities which provide financial services are becoming widespread. One of the major characteristics of FinTech is that various new players such as IT companies and start-ups, which are different from traditional financial institutions, are entering financial service businesses. It would be informative to examine how these new players could influence the structure of financial service provision, financial markets, and risk-sharing among various entities. From a central bank viewpoint, we need to closely monitor the impact of these new entrants so that new technologies will enhance the efficiency of payments, settlements, and financial services, while ensuring their safety and stability.

Second, new styles of systemic importance may emerge under the development of FinTech. Since the global financial crisis, efforts have been made to classify big banks as systemically important financial institutions, or SIFIs, based on factors such as the size of the balance sheet. Based on these efforts, various financial regulatory measures have been taken so that their systemic importance would not threaten financial stability. Recently, however, entities that provide global IT platforms to many entities and accumulate huge volumes of big data have become increasingly powerful and influential in wide-ranging

businesses including financial services. In addition, high-speed, high-frequency transactions in financial markets are expanding, and if many market participants come to use similar algorithms in conducting such transactions, this might involve the risk of amplifying one-way market developments. Based on these changes in environment, rather than the size of balance sheets of banks, factors such as global IT platforms, the huge volumes of big data, and widely used algorithms might become more systemically important from the viewpoint of financial stability.

Third, as the utilization of big data is becoming more important in the provision of financial services, data security, privacy, and the consensus of stakeholders on data utilization will become even more critical. Thus, financial service providers and stakeholders are required to pay due attention to data protection and privacy, in order to maintain public confidence in innovative financial services utilizing new technologies.

Finally, as application of AI to financial operations is becoming widespread, ensuring governance in AI's decision-making and accountability to customers using AI-related services may also become critically important. If customers are concerned that AI's decision-making might turn into a "black box" and poses risks to them, such customers' anxieties would hinder the application of AI to create innovative financial services. In this regard, efforts to ensure the governance and accountability of AI are meaningful to "wipe out" people's concern about new technologies.

IV. Closing Remarks

In promoting FinTech, France and Japan seem to have common challenges as developed countries.

In the case of emerging and developing countries, basic financial services are underdeveloped, and market growth can be expected to a certain extent, simply by introducing and promoting these basic services. On the other hand, both in France and Japan, basic financial services are already embedded in people's daily life. Thus, in order to make FinTech bloom in these countries, it is strongly needed to create innovative financial services with high added-value beyond already-available services. In addition, financial

institutions are required to take forward-looking measures to reform their own structures in order to make effective use of FinTech. Without such efforts, the countries where traditional financial services already prevail might lag behind in the field of FinTech.

In this regard, let me introduce another important aspect of the Paris Expos in the late 19th century. At that period, Japan was in the middle of a big transition phase, from the Edo period to the Meiji era. Nonetheless, Japan very actively participated in the Paris Expos. It seems to me that Japanese people, who were in the midst of a big historical turning point, were driven by their strong motivation to learn as much as possible from European countries, which were already the most industrially-advanced countries in the world. I feel that Japanese people really wanted to obtain prospects for the future and to gain clues for reform. At the same time, many *ukiyo-e* prints were brought to France from Japan. The interaction between Western and Oriental arts and the consequent "chemical reactions" led to the creation of new fine arts, namely, Japonisme and Impressionism, which remarkably incorporate both Western and Oriental cultural backgrounds.

These histories vividly illustrate that interactive dialogue, which is sometimes carried out across borders, and chemical reactions brought by cross-cultural exchange play critical roles in innovative creation. Needless to say, both France and Japan have their own history and culture, and are now playing leading roles in science and technology. I firmly believe that it is extremely beneficial for these two countries to strengthen dialogue also in the areas of financial innovation and FinTech.

The Bank of Japan would like to further deepen exchanges with the Banque de France on financial innovation and FinTech.

Thank you for your attention.