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Bank of Japan

Digital Money and Payments: Transitioning Toward a New Paradigm

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Introduction

Good morning. It is my great pleasure to join you today. I would like to thank the IMF for inviting me to deliver this keynote speech. The theme of this seminar is "Digital Money and Payments: Transitioning Toward a New Paradigm."

We are witnessing a period of profound transformation in money and payments. For decades, innovation in finance focused mainly on how transactions could be processed in a more efficient and less risky manner. Today, however, distributed ledger technology, or DLT, and tokenization are beginning to change something more fundamental: the forms in which money and financial assets exist, and the ways in which their transactions are initiated and settled. New forms of digital money, including stablecoins and tokenized deposits, are emerging, while central banks and financial institutions are exploring new infrastructures to support the settlement of tokenized money and assets. These developments have the potential to reshape the architecture of the financial system.

This transformation raises a fundamental question: How can we harness the benefits of new technologies while preserving the trust that has underpinned our monetary and financial systems for generations? Today, I will address this question from three perspectives: the global landscape of tokenized money and central bank initiatives; the opportunities and challenges of tokenization; and the Bank of Japan's initiatives.

My central message is that technological innovation offers significant opportunities to improve money and payments, but innovation must go hand in hand with trust. Central bank money will continue to play a fundamental role as the anchor of trust in the monetary system. It underpins what the Bank for International Settlements (BIS) has described as the singleness of money, a principle we share: every form of money in a currency should be converted at face value, with finality.

I. The Global Landscape of Tokenized Money

Tokenization is no longer confined to conceptual discussions or small-scale experiments. Financial institutions, market infrastructures, and public authorities are increasingly moving toward real-world applications, bringing questions of institutional design and governance to

the fore.

Two forms of digital money are attracting particular attention. Most stablecoins are designed to maintain a stable value relative to a reference fiat currency, primarily the U.S. dollar. They are being used, or are being considered for use, in payments, money transfers, and the settlement of digital asset transactions. Tokenized deposits, in contrast, are commercial bank deposits in tokenized form. They aim to combine the established characteristics of bank deposits with the benefits of DLT, such as programmability and more integrated transaction processing.

At the same time, financial institutions are exploring the tokenization of securities and investment funds. This raises an important question: How can settlement in central bank money, the trusted settlement asset for financial institutions, be linked to transactions involving tokenized assets?

Central banks are exploring various approaches. In the euro area, the Eurosystem launched Pontes this September, which connects DLT-based market platforms to its settlement infrastructure, so that the cash leg of tokenized transactions can be settled in central bank money. The Bank of England has been working on a synchronization mechanism to link payments in central bank money on its recently renewed RTGS system with the settlement of tokenized assets on third-party DLT platforms.

These initiatives take different approaches. Some connect existing payment systems with new platforms, while others consider making central bank money itself available in tokenized form. Despite these differences, they share a common objective: to enable innovation in financial markets while maintaining access to central bank money as a trusted settlement asset. The future of money and payments will not necessarily be defined by a single form of money or a single technology. Different forms of digital money, issued by different entities and based on different technologies, are likely to coexist and interact.

The challenge is to ensure that this diversity leads to a more efficient financial system without creating unnecessary fragmentation or undermining financial stability. In this context, the

singleness of money should not be taken for granted. Central bank money supports it primarily by serving as the settlement asset for commercial bank money. For other forms of money, such as stablecoins, appropriate regulation of reserves and arrangements, together with well-designed links to central bank money, will also be important.

II. Opportunities and Challenges of Tokenization

Let me now turn to the opportunities and challenges of tokenization.

Two features of DLT are particularly relevant to financial transactions: the potential to support around-the-clock trading and settlement, and programmability through smart contracts, which can automatically execute predefined actions when specified conditions are met.

Looking ahead, the combination of these features with artificial intelligence could further transform how transactions are initiated and executed. Agentic AIs may increasingly act on behalf of households, firms, and financial institutions, while programmable money could enable transactions to be executed automatically. This makes it all the more important that digital money and payment infrastructures remain trustworthy, secure, and interoperable.

At the same time, the growing use of AI could introduce incremental risks, particularly in cybersecurity, as I will discuss later.

Opportunities

Let me illustrate the potential benefits with an example: a cross-border securities transaction. Today, the transfer of securities, the movement of funds, compliance checks, and related messaging are often handled by separate systems and multiple intermediaries. Tokenization and DLT could bring these processes closer together. For example, smart contracts could link the transfer of a security with the corresponding payment, so that either both take place or neither does. This is known as atomic settlement. Such arrangements could reduce manual intervention and reconciliation, shorten settlement times, and potentially mitigate settlement risks. Combined with the around-the-clock availability of DLT platforms, these benefits could be particularly significant for cross-border transactions, which often involve multiple intermediaries and different operating hours.

Challenges

While these opportunities are significant, tokenization also raises five important challenges.

First, financial stability. Tokenization may create new channels of interconnectedness across institutions and markets. Automated margin calls and collateral liquidation through smart contracts, for example, could amplify market movements during periods of stress. While tokenization may also mitigate certain risks, we need to assess these potential channels of stress transmission carefully.

Second, liquidity management and fragmentation. Market participants need funds and collateral at the right time and in the right place. If tokenized transactions operate around the clock while existing payment systems follow different schedules, institutions may need to hold additional liquidity. Moreover, if liquidity is divided across platforms that are not fully interoperable, institutions may be unable to mobilize funds where they are needed. Faster settlement does not automatically mean more efficient liquidity management.

Third, migration costs, interoperability, and governance. The transition will require significant investment. Without interoperability, platforms could become fragmented, limiting the transfer of assets and liquidity across networks. This requires converging technical standards and developing a governance framework that establishes harmonized operational rules, including a clear allocation of responsibilities among participants, platform operators, and third-party providers when situations such as failures or fraud occur.

Fourth, cybersecurity and operational resilience. Smart contracts, key management, and reliance on third-party providers can introduce new vulnerabilities, while interconnected platforms may allow incidents to spread quickly. The growing ability of AI to discover and exploit vulnerabilities raises the stakes further. Authorities and financial institutions need to strengthen their defenses, and new platforms should be designed with security and resilience in mind from the outset.

Finally, legal certainty. We need clarity on whether the transfer of a token constitutes an

effective transfer of legal rights in the underlying asset, and whether those rights are enforceable against both counterparties and third parties. For tokenized central bank reserves in particular, legal finality, meaning that transactions become final and irrevocable, is crucial, because technical finality on a DLT platform is not necessarily the same as legal finality.

Taken together, these challenges show that the benefits of tokenization depend not on technology alone, but also on sound institutional arrangements, clear legal frameworks, and public-private cooperation.

III. Initiatives at the Bank of Japan

Let me now turn to the Bank of Japan's initiatives.

In Japan, existing payment infrastructure, including large-value settlement through the BOJ-NET and highly developed private-sector payment arrangements, already provides a high level of convenience, safety, and reliability. Any new technology should therefore be assessed not against a hypothetical benchmark, but against infrastructures that are already functioning well. We believe the right approach is to keep improving existing infrastructure while exploring new infrastructure in parallel, rather than moving to new systems all at once. This should be pursued through practical experimentation, dialogue with market participants, and international cooperation.

Our objective is not to promote a particular technology, but to identify the most effective ways to meet the evolving needs of market participants while preserving the safety, efficiency, and resilience of the monetary and financial system.

DLT Sandbox Project

The Bank of Japan has launched a DLT Sandbox Project to examine the implications of DLT and tokenization for money and financial market infrastructures, including the possibility of providing central bank money in tokenized form. We are building a sandbox environment together with holders of current accounts at the Bank, focusing on use cases based on business needs and addressing practical and technical issues. The use cases we are focusing on include improving cross-border payments, strengthening domestic interbank settlement, and the

funds settlement of tokenized Japanese government bonds.

The point is not simply to demonstrate that transactions can be executed on a blockchain. We need to assess whether the technology can reduce existing frictions, improve business processes, connect effectively with existing infrastructures, and meet the needs of market participants. Tokenizing central bank money is one option; linking existing infrastructure with new platforms is another. We will examine what is most appropriate based on market needs.

This work is part of broader public-private efforts in Japan. The government has set out a policy to promote what is called "on-chain finance," that is, bringing money and assets onto DLT platforms, and the Financial Services Agency is leading public-private discussions on a corresponding roadmap. The Bank is working closely with the FSA and other authorities in this regard.

The Bank also continues its work on retail central bank digital currency, including a pilot program with private-sector participants, although no decision has yet been made to issue one. Our wholesale and retail initiatives are not mutually exclusive, and they share technical and operational insights.

Project Agorá

In addition, the Bank is participating in Project Agorá, a project of the BIS Innovation Hub involving several central banks, including the Bank of Japan, and more than 40 private financial institutions, with the Institute of International Finance coordinating private-sector participation.

The project explores a common programmable platform for wholesale cross-border payments among banks. More specifically, it examines how tokenized commercial bank deposits and tokenized central bank money could be brought together on a shared platform to address some of the complexities of cross-border payments and improve their efficiency.

International cooperation will become increasingly important, as domestic infrastructures cannot be considered in isolation while cross-border financial transactions increase.

Closing Remarks

Let me conclude.

As we have seen, tokenization offers significant potential to make financial transactions faster, more integrated, and more efficient. At the same time, it raises important questions regarding financial stability, liquidity management, interoperability, cybersecurity, and legal certainty.

Ultimately, the question is not whether tokenization will continue to advance. In many respects, it already has. The more important question is how we can shape this transformation: How can we harness technological innovation while preserving the trust that underpins our monetary and financial system?

Our task is to ensure that new technologies are incorporated into the financial system in ways that preserve its fundamental strengths and reinforce its resilience. Central bank money has long underpinned that trust. By serving as a trusted settlement asset, it supports the singleness of money and sustains confidence in the monetary system. As new forms of digital money and tokenized assets emerge, this fundamental role will remain essential. The Bank of Japan's DLT Sandbox Project and our participation in Project Agorá reflect our commitment to exploring how money and financial market infrastructures can evolve while preserving these principles.

Throughout history, the technologies surrounding money have evolved, and they will continue to do so. What must remain constant is confidence that money is safe and reliable, can always be converted at face value, and is settled with finality. Central bank money will continue to provide the foundation for these qualities.

Thank you very much for your attention.