

Central Bank Digital Currencies and Monetary System

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1986 LL.B, Faculty of Laws, University of Tokyo

1990 LL.M, University of California at Berkeley, School of Laws

Attorney at Law in New York State

-2010 Alternate Executive Director for Japan in IMF

-2013 Member of the Basel Committee

**-2015 Director-General of Markets Department, Bank of Japan
Member of the Markets Committee, BIS**

**-2018 Director-General of Payment and Settlement Systems Department, Bank of Japan
Member of the Committee on Payments and Market Infrastructures, BIS**

(Articles published in English)

“Managing the Exit: Lessons from Japan’s Reversal of Unconventional Monetary Policy”, IMF (2010)

“The Legal Framework for Central Banking in a Crisis: Japan’s Experiences”, IMF (2013)

“The Future of Central Banking”, Accounting, Economics, and Law (2019)

**“Digital Innovation, Data Revolution and Central Bank Digital Currency” BoJ Working Paper (2019)
(Co-authored with Noriyuki Yanagawa)**

“Digital Currencies and the Future of Money” (2022)

Modern Monetary System

- Established in the 19th century when modern nation states were almost completed.
- Each country has a central bank as a single issuer of sovereign currencies.
- Two-tiered system with a central bank and commercial banks.
 - The central bank issues (i) banknotes to general public and (ii) central bank deposits (reserves) mainly to banks.
 - Commercial banks issue deposits (= commercial bank money) to general public.

Establishment of Modern Central Banks

Year	Nation	Events
1844	U.K.	Bank Charter Act 1844 (Peel Banking Act of 1844) (Bank of England became the single issuer of banknotes.)
1848	France	Banque de France became the single issuer of banknotes.
1874	Spain	Banco de España became the single issuer of banknotes.
1876	Germany	Reichsbank was established.
1882	Japan	Bank of Japan was established.
1893	Italy	Banca d'Italia was established.
1897	Sweden	Riksbank became the single issuer of banknotes.
1913	U.S.	Federal Reserve was established.

Advantages of Modern Monetary System

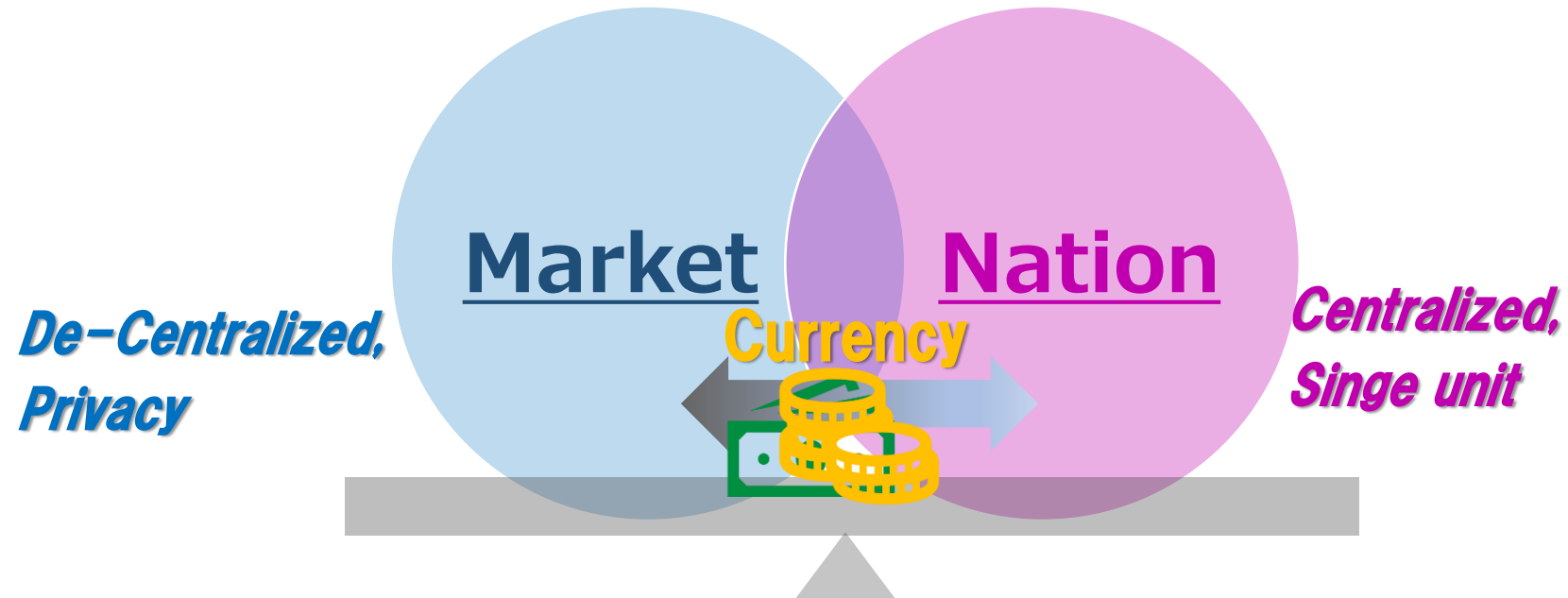
- **Singleness of Money**: CB money and commercial bank money is exchangeable at parity.
 - The credibility of bank deposits are supported by banking regulation, deposit insurance and LLR.
- **Financial Intermediation**: Banks can raise funds from general public through deposit-taking for making loans and investments.
 - Banks can perform financial intermediation functions and contribute to efficient resource allocation.

- **Innovation**: Innovations in payments and settlements are driven by market-based initiatives.
 - Many innovative services such as ATMs, debit cards and mobile payments have been developed by private entities.

- **Information and Data**: CB does not monopolize information and data attached to payments.
 - Banknotes carry only the information of value. The issuer central bank does not know each holder of them.
 - The central bank does not access directly to the information and data about people's daily transactions with cash.

Modern Monetary System

- On the Balance of the Nation and the Market -



- Currency, issued by the nation, has been the driving force of the market economy.
- The stability and the credibility of the currency are supported by institutional framework of the nation state.
- The authorities and the central bank refrain from intervening in the contents of people's daily transactions.

Issues in CBDC

■ Impact on deposits and financial intermediation?

- Will CBDCs replace not only cash but also bank deposits?
- Why are bank regulation and deposit insurance needed?

■ Digital bank-run?

- Will CBDCs accelerate liquidity crisis in a market stress?

■ Impact on market-based innovation?

■ Impact on data and privacy?

Moreover, in Japan

- Financial inclusion is not a problem.
- People are very sensitive to privacy.
- Interest rate is very low.

Digital Innovation, Data Revolution and Central Bank Digital Currency*

Noriyuki Yanagawa[†], Hiromi Yamaoka[‡]

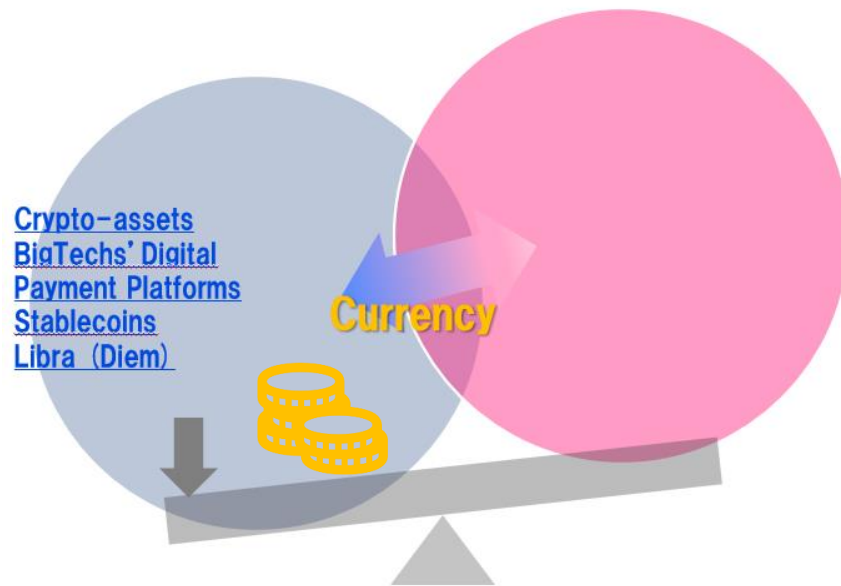
February 2019

Abstract

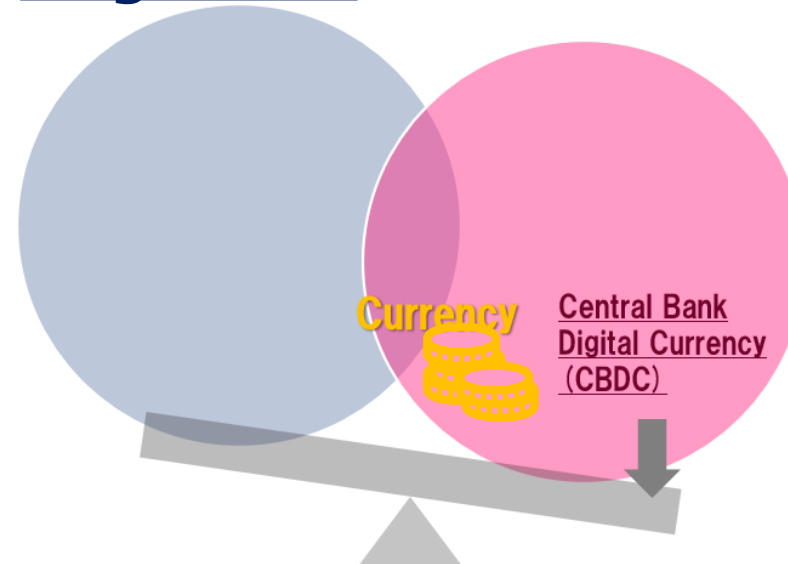
Under the developments of digital innovation, global expansion of cashless payments and the emergence of crypto-assets, some argue that central banks should issue digital currencies that can be used by ordinary people instead of paper-based banknotes. The debates on central bank digital currencies are now gathering great attention from worldwide. Although many of major central banks, including the Bank of Japan, do not have an immediate plan to issue digital currencies that can replace banknotes, some central banks are seriously considering whether they should issue digital currencies in the near future or

Impacts of Digitization on Monetary System

- Crypto-assets, BigTechs' entry in payments and stablecoins may affect the "balance" of the monetary system and change the two-tiered structure.



- Central Bank Digital Currency can be regarded as the authorities' efforts to maintain their controllability of monetary system.
- But CBDC may also change the two-tiered structure into the single-tier and the "balance".



Monetary Policy Issues

– Should CBDC bear interests or not? –

➤ Positive interest rates on CBDC will accelerate fund shift from bank deposits to CBDC.

• Since the CB is not good at making loans directly to firms and individuals, efficient resource allocation will be affected.

➤ Negative interest rates on CBDC will make people prefer cash rather than CBDC.

• As long as banknotes remain, ZLB will continue to exist.

• Negative rate on CBDC will reduce its usage.

• It is not certain whether negative rate on CBDC (=reduction in nominal value of CBDC) will stimulate or discourage spendings.

⇒ *CBDC is not expected to be a new monetary policy tool.*

Financial Stability Issues

- For maintaining financial stability, bank deposits should be as safe as CBDC in order to maintain the **“singleness of money”**.
 - We have **banking regulation, deposits insurance** and **LLR** to make bank deposits safe and financial system stable.
 - If the authorities emphasize the safety of CBDC, **“digital bank-run”** will be accelerated in stressed situations.
- **“Indirect”** issuance of CBDC might put commercial banks in a difficult situation.
 - In case banks offer both (1) **their own liabilities** (deposit) and (2) **CBDC**, they will not argue that their own liabilities are riskier than CBDC.)
 - Then, what would be the benefits of issuing CBDC especially where bank deposits are widely used for payments and settlements?

Issues on Quantitative limits on CBDC

– for the volume of amount outstanding and/or each transaction –

➤ **Central bank deposits, which are CB liabilities, are used especially for large-value settlements.**

- In Japan, the interbank-settlements of below 100mil. JPY are processed through netting in ZENGIN, while the settlements of 100mil. JPY or above are processed directly through BOJ RTGS.

- On the other hand, in small-value payments the credit risk of payment instruments are more manageable, and private entities are competing with each other to promote innovation (e.g. credit cards, mobile payment).

➤ **Any quantitative limit on digital currencies will reduce their utility.**

- Also, quantitative limit on CBDC will increase the administrative burden for monitoring the activities of CBDC users and accounts.

Possible Benefits of Bank Deposit–based Digital Currency

– such as “Tokenized Deposits” –

- Denominated by sovereign currency units (USD, EYR, JPY, etc.)
- Stable value and creditworthiness
 - Deposit-based digital currency may have the same credibility as that of deposits.
- Market-based financial intermediation and resource allocation
- Avoiding digital bank run
- Innovation driven by market-bases initiatives
- Data utilization by private entities
- Maintaining the benefits of modern monetary system

Issues to be considered

- *Future of Banks and Banking System*
- *Ideal Financial Intermediation and Resource Allocation*
- *Roles of Banking Regulation and Deposit Insurance*
- *Roles of CB Money and private money in the Economy*
- *Ideal Balance between Data Utilization and Privacy*
- *Ideal Balance between Nation and Market*
- *Future of Central Banking and Monetary System*