Central Bank Digital Currency and the Future of Monetary Policy

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The Classical View of Money

Olim enim non ita erat nummus....Sed quia non semper nec facile concurrebat, ut, cum tu haberes quod ego desiderarem, invicem haberem quod tu accipere velles, electa materia est, cuius publica ac perpetua aestimatio difficultatibus permutationum aequalitate quantitatis subveniret.....Sed an sine nummis venditio dici hodieque possit, dubitatur.

Julius Paulus Prudentissimus, circa CCXXX A.D.

(Digesta Iustiniani Augusti, Liber XVIII)

The Classical View of Money

For there was once a time when no such thing as money existed....But it did not always and so easily happen that when you had something which I wanted, I for my part, had something that you were willing to accept. So a material was selected which, being given a stable value by the state, avoided the problems of barter by providing a constant medium of exchange.

Julius Paulus Prudentissimus, about 230 C.E.

(translation by A. Watson, The Digest of Justinian: Volume 2)

Central Bank Digital Currency

- In contrast to digital currencies created by by private entities, the central bank can issue digital cash that has a fixed nominal value and serves as legal tender (like paper cash).
- Our analysis of digital cash draws on a long strand of literature in monetary economics.
- We focus on formulating broad design principles rather than logistical details.
- We conclude that digital cash can enhance all aspects of the monetary system.

Why Should The Central Bank Issue Digital Cash?

Principle #1: A stable unit of account is crucial for sustained, efficient & equitable growth.

- **The unit of account is a public good, similar to other units of measurement (e.g., cm., kg., ml.).**
- **In the absence of any official public currency, the unit of account may be indeterminate (cf. Fernandez-Villaverde & Sanches 2017)**
- **As discussed below, digital cash enables the central bank to foster true price stability (i.e., zero average inflation).**

Should the Central Bank Issue Digital Tokens?

Principle #2: Digital cash should serve as an efficient and secure medium of exchange.

- **Paper cash is very costly and inefficient (transportation, sorting, anticounterfeiting).**
- **Digital tokens would provide anonymity but might also facilitate criminal activity.**
- **Verification of a distributed ledger is relatively costly and non-instantaneous.**
- **Digital tokens pose severe risks of fraud that could undermine the payments system.**

What Form Should Digital Cash Have?

- **Principle #3: Digital cash should be provided to the public via accounts, not tokens.**
- **An account-based system can be practically instantaneous & costless, because the central bank simply debits the payer's digital cash account and credits the payee's account.**
- **The scope and scale of fraudulent transactions can be mitigated using two-step verification and other standard methods (just like for debit cards and credit cards).**

Who Should Provide Digital Cash to the Public?

Principle #4: Public-private partnerships can be effective in the provision of digital cash.

- **The central bank could provide accounts directly to the public, but such an approach might exacerbate bank runs during a crisis.**
- **By contrast, such accounts can be provided by commercial banks that are overseen by the central bank, thereby facilitating efficient payments and privacy as well as the stability of the financial system.**

What Characteristics Should Digital Cash Have?

Principle #5: Digital cash should serve as a store of value that yields the same rate of return as other safe assets (cf. Friedman 1960).

- **In the case of paper cash, Friedman's principle implies steady-state deflation (when $r^* > 0$) and hence is inconsistent with principle #1.**
- **Digital cash can be interest-bearing, with essentially the same rate of return as short-term government securities, thereby eliminating the conflict between price stability and efficiency.**

What about Alternative Designs?

- Digital cash could have the same basic properties as paper cash, i.e., **non-interest bearing with a constant nominal value**.
  - Such an approach would tighten the constraint on the central bank's ability to cut nominal interest rates below zero.
- Digital cash could be **indexed to inflation to maintain a constant real value**.
  - Such an approach would impose a lower bound on short-term real interest rates and severely constrain monetary policy.

What about the Future of Paper Cash?

- **Principle #6: Paper currency should not be abolished but will surely become obsolescent.**
- **The payments system exhibits huge network externalities.**
- **Retailers have strong incentives to curtail the use of paper cash and coins.**
- **Declining acceptance by retailers diminishes consumers' incentive to carry cash and coins.**
- **This feedback loop has been rapid in Sweden and will be increasingly evident elsewhere.**

What about Interactions between Digital Cash and Paper Cash?

Principle #7: The central bank should establish graduated fees for transfers between digital cash and paper cash.

- **Paper cash now imposes an effective lower bound (ELB) on nominal interest rates.**
- **The ELB can be eliminated by imposing fees for transfers between paper & digital cash.**
- **Such fees could be minimal for ordinary transfers but large enough to discourage arbitrage when interest rates are negative.**

How will Digital Cash Affect the Monetary Policy Framework?

- **Principle #8: The monetary policy framework should be systematic and transparent.**
- **When constrained by the ELB, the central bank may need to deploy balance sheet tools that are relatively opaque and discretionary.**
- **By eliminating the ELB, the interest rate on digital cash can serve as the primary tool of monetary policy, even for severe shocks.**
- **This framework will enable monetary policy to be more systematic, transparent, and effective.**

How will Digital Cash Affect the CB's Inflation Target?

- **Principle #9: The central bank should foster true price stability, i.e., zero average inflation.**
- **As noted above, a stable unit of account facilitates decisions of households & firms.**
- **By eliminating the ELB, there will no longer be a compelling rationale for targeting a positive inflation rate (i.e., inflation buffer).**
- **Therefore, the central bank can ensure that the unit of account remains stable over time in terms of a broad index of consumer prices.**

How will Digital Cash Affect the Central Bank's Balance Sheet?

- The central bank's balance sheet can be simple and transparent, with assets of short-term government securities that match its liabilities of digital cash.
- Monetary operations will simply adjust the supply of digital cash to meet demand at the pegged interest rate, with corresponding adjustments in the central bank's holdings of short-term government securities.
- The interest spread between digital cash and government securities will be miniscule.

How will Digital Cash Affect the CB's Operational Independence?

- **Principle #10: The monetary policy framework should help insulate the central bank from fiscal pressures and political interference.**
- **With the obsolescence of paper currency, the central bank will no longer generate seignorage revenue and will simply cover its own expenses thru miniscule transaction fees.**
- **The fiscal authorities will be responsible for determining the maturity composition of government debt held by the public.**

Will Digital Cash Affect the CB's Role as Lender of Last Resort?

- **Principle #11: The monetary policy framework needs to ensure that the central bank can fulfill its crucial role as lender of last resort.**
- **In a financial crisis, the central bank should be able to expand the supply of digital cash as needed to provide emergency liquidity to supervised financial institutions.**
- **Alternatively, under the appropriate legal safeguards, the central bank could provide such emergency liquidity to the financial regulatory agency or deposit insurance fund.**

What if the Central Bank Refrains from Issuing Digital Cash?

- **Instability** and price level indeterminacy could arise if all payments are made with private currencies (cf. Villaverde & Sanchez 2017).
- **Monetary control** could be impaired if the interest rate on reserves becomes delinked from financial markets and economic activity.
- **Systemic risks** could be exacerbated by the emergence of quasi-monopolistic payments.
- The central bank might be unable to mitigate **severe deflationary shocks**, resulting in a painful and protracted economic depression.

How Should Central Banks Proceed?

- **Principle #12: Adjustments to the monetary system should occur openly and deliberately.**
- **Central banking can be very inertial, but the payments system is now evolving very rapidly.**
- **Policymakers should be actively engaging with elected officials, private institutions, and the general public to determine whether/how to proceed with launching digital cash.**
- **The Riksbank is now serving as a role model for this approach, and other central banks should follow its example.**