EUROPEAN CENTRAL BANK

EUROSYSTEM

# Discussion of "*Digital money as a unit of account and monetary policy in open economies*" by **Daisuke Ikeda**

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# What the paper does

## 3 research questions

- How does digital dollarization affect the effectiveness of monetary policy?
- Under what conditions does digital dollarization deepen?
- Can monetary policy block or facilitate digital dollarization?

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## Basic set up

- 2-country, cash-less NOEK model with nominal rigidities
- (Home and foreign) money as unit of account
- Digital money, denominated in and pegged to the Foreign currency
- Home agents can set prices and wages in units of the Foreign currency frictionlessly
- Invoice-currency choices matter for transmission of monetary policy and other shocks with nominal rigidities

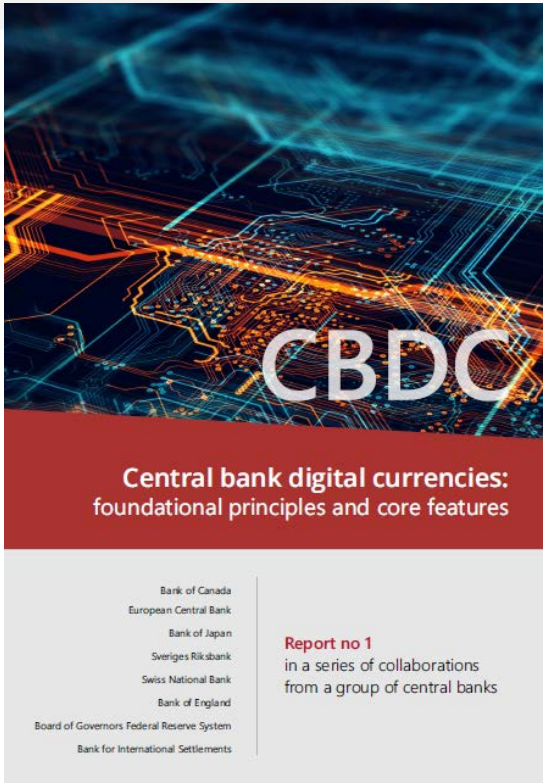
# What the paper finds

## 3 key results

- Home monetary policy becomes less effective as digital dollarization deepens. Ineffective with full dollarization
- Digital dollarization more likely to occur in smaller countries, open to trade, with larger tradable sectors and stronger input-output linkages
- Strong stance of home monetary policy on inflation stabilization can block digital dollarization

# Praise!

*"Significant adoption of money not denominated in the sovereign currency could limit the impact of monetary policy or the ability to support financial stability. A risk of stablecoins, so-called "cryptocurrencies" and foreign CBDCs is that domestic users adopt them in significant numbers and use of the domestic sovereign currency dwindles. In extremis, such a "**digital dollarisation" could see a national currency substituted by another with the domestic central bank gradually losing control over monetary matters."***



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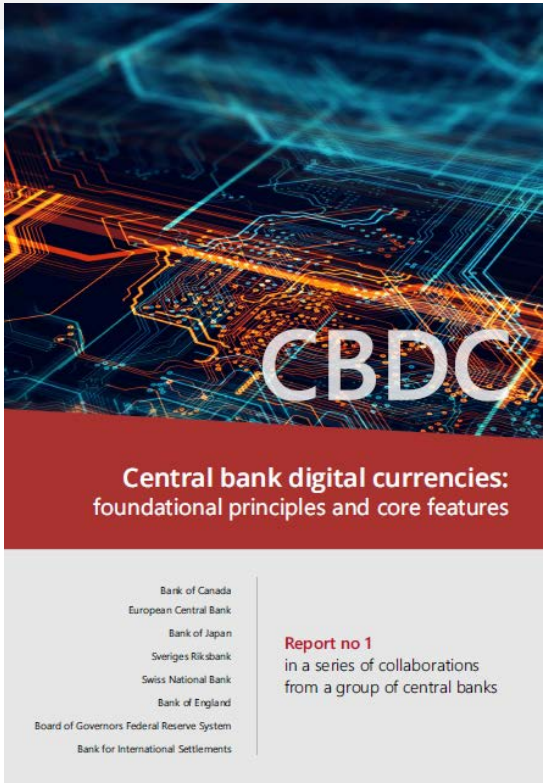


# Questions

- **What's specific about "digital" money in the model?**
  - Digital unit of account denominated in and pegged in Currency *F* available frictionlessly
  - More structure needed? (e.g. no physical storage costs, bundling with other appealing services, programmability, settlements via DLT, etc.)

- **What's new about the macro effects of dollarization?**
  - Old wine in new bottle? (Monetary policy ineffectiveness under dollarization, role of policy credibility identified in literature of the 1990s)
  - Paper arguably focusses on economies with stable inflation, independent central banks and no fiscal imbalances. But we never observe dollarization in these economies!

# Questions

- **How much do results depend on frictionless digital money?**
  - If Home price and wage setters incur some costs by using digital money as the invoice currency would effects be that strong?

- **How would technical design of the digital money matter?**
  - E.g. safety, remuneration, limits to non-resident holdings, settlement technology, offline/online availability, etc.
  - Hugely important questions in policy and payment system literature!

# Question (a bit nerdy)

- **Shouldn't there be other terms when solving for the invoicing currency problem à-la Mukhin (2018)?**
  - Aren't we missing general equilibrium effects?

Second order mean

"Pruned" volatility **of all states**

Volatility of **all** structural shocks

$$E\left[x_t^s\right] = (I - h_x)^{-1}\left(\frac{1}{2}H_{xx}\left[x_t^f \otimes x_t^f\right] + \frac{1}{2}h_{\sigma\sigma}\sigma^2\right)$$

First and second order derivatives **for all states**

Matrix of variance loadings

- Daisuke's equation à-la Mukhin is:

$$\Pi_{Ht}^{H}\left(p_{Ht}(i)\right) = \Pi_{Ht}\left(\tilde{p}_{Ht}(i)\right) + \Pi_{Ht}^{H\prime}\left(\tilde{p}_{Ht}(i)\right)\left(p_{Ht}(i) - \tilde{p}_{Ht}(i)\right) + \frac{1}{2}\Pi_{Ht}^{H\prime\prime}\left(\tilde{p}_{Ht}(i)\right)\left(p_{Ht}(i) - \tilde{p}_{Ht}(i)\right)^2 . \quad \underline{???}$$

Volatility of **all** structural shocks

Second order mean

First and second order derivatives **only for prices**

Non-"pruned" volatility **of prices**

# Possible extension: international spillovers in Ferrari, Mehl and Stracca (2020)

Arbitrage condition between foreign bonds and CBDC (FX-adjusted) remuneration

$$R_t^* = R_t^{DC} \frac{NER_t}{E_t(NER_{t+1})} \left[ 1 - \frac{1}{\lambda_t^*} \mu^{*,dc} \left( \frac{dc_t^*}{NER_t} \right)^{-\sigma^{*,dc}} \right]^{-1}$$

*CBDC remuneration* *CBDC liquidity mark-up*

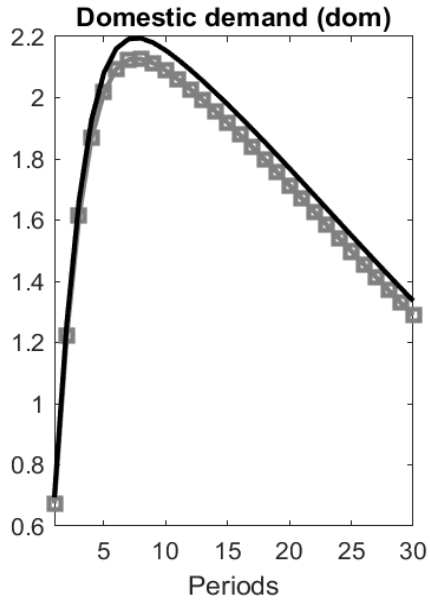
≠ Arbitrage condition between foreign and domestic bonds

$$R_t^* \approx R_t \frac{NER_t}{E_t(NER_{t+1})}$$

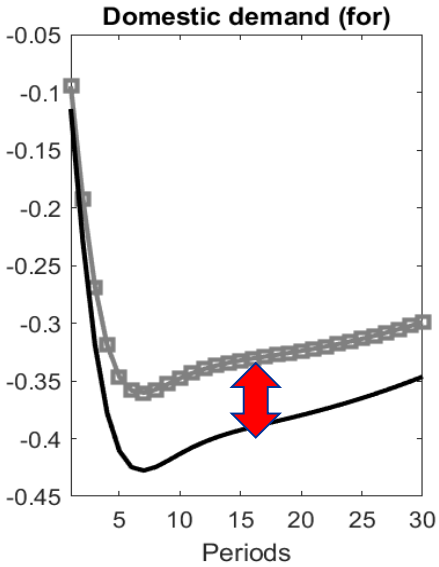
No role for storage costs, risk

# Effect of a positive domestic TFP shock in Ferrari, Mehl and Stracca (2020)

***Domestic economy (CBDC issuer)***




***Foreign economy (not issuing CBDC)***




**Notes**: Impulse responses of domestic demand to a one-standard deviation expansionary total factor productivity shock in the domestic economy. The responses are reported in deviations from the steady state. The grey dotted (black) line is the impulse response in the absence (presence) of a CBDC.

# Overall opinion

- Nice paper to read
- One of the few papers on the market on international aspects of digital money
- Very intuitive conclusions, great for policy!
- Opens up many exciting avenues to follow and do more research!!