

The Macroeconomics of CBDC

Presented by Michael Kumhof (BoE)

Discussed by Wilko Bolt (DNB, VU)

Fintech and Digital Currencies, BIS, Basel, 26-27 September 2019

(usual disclaimer applies)

Agenda

- Motivation: need to understand macro effects of CBDC
- Brief recap of the paper
- Comments:
 - Government debt and interest rates
 - Interpretation: CBDC or QE?
 - Private money vs public money
 - Seigniorage and cash
 - Other issues
- Concluding remarks

Motivation

- Ongoing debate on pros and cons of CBDC. May be triggered by ‘rise and fall’ of crypto’s. Facebook’s announcement of Libra adds to the debate. New technologies make it possible
- At same time, cash is disappearing in some countries (e.g. Nordics). First question: if cash is disappearing, why do you need CBDC..?
- Understanding and gauging macro effects of issuing CBDC is important
- This paper is a “must-read”: pioneering paper on CBDC
(funny anecdote!)

Brief recap

- Main question: what are the macro effects of issuing CBDC – defined as a universally, accessible and interest-bearing central bank liability
- Main approach: using a monetary-financial DSGE model, calibrated to match pre-crisis US economy, authors study efficiency gains and stabilization effects of CBDC. A challenge: no historic experience to draw on
- Main findings: authors find efficiency gains due to lower interest rates, higher seigniorage, and lower transaction costs. Also, CBDC acts as additional policy tool to stabilize inflation and business cycle. Lastly, depending on implementation and design financial stabilization risks may be reduced

In particular:

Long-run economic stimulus: ca 3% of GDP

- Lower real interest rates:
less government debt in hands of public dampens real rates
- Lower distortionary taxes:
cheaper CBDC (('seigniorage') and lower interest expenses
reduces tax rates
- Lower transaction costs ('liquidity tax'):
less monetary frictions imply cheaper liquidity

Comments: debt and interest rates

- In the model, issuing CBDC reduces government debt ratio (‘government debt in hands of private sector’) implying lower real interest rates:

change in real interest rate under CBDC: **0.02** x 30 = 60bps

- Coefficient **0.02** is based on an empirical relation for the US
- “old” debt ratio = “new” debt ratio + CBDC ratio = 80%

but also equal to debt in hands of private sector and bonds on CB balance sheet as a % of GDP!

- Question: does empirical relation also hold for government debt excluding bonds on CB balance? If so, (perhaps) show me..!

Comments: CBDC or QE?

- QE is mostly associated with asset purchasing programs (APP). Mr Draghi announced a new program 2 weeks ago
- Issuing CBDC in this model looks like an asset purchasing program. CB buys government bonds from the financial investors with CBDC. Financial investors exchange these with commercial banks
- The CB balance sheet increases with 30% of GDP
- So, can you interpret the results as a calibrated simulation of the effects of QE (associated with an APP) – if not, why not?

It has been a “struggle” to empirically show the macro impact of various APPs – permanent 3% GDP increase seems a lot

Comments: private vs public money

- In the model, CBDC is issued by CB. Technology drives the reduction of transaction costs
- What would change if not the CB but a licensed (private) payment service provider (PSP) issues CBDC against government bonds (or even against CB reserves if it would have access)?
- Facebook could apply for a PSP license, would Libra conceptually be different from CBDC..?
- In a broader scheme, what could the model say about potential benefits and costs of issuing digital currency by private parties? Ideally, this would entail a model with cash and CBDC and DC and bank deposits..!

Comments: seigniorage and cash

- In the model, issuing CBDC reduces interest expenses (increases seigniorage) by the government so that less taxes need to be raised
- This result need to be refined when cash is still in circulation ('dual system')
- When cash is substituted for CBDC the outcome may change, since cash is cheaper than CBDC. The net effect depends on interest rates, substitutability and money velocities
- As an aside: when cash is gone, who will actually use it for payments 'in normal times' – will it really compete with Apple-pay, contactless credit, and other fancy payment applications..? Will it be cost free for merchants? Legal tender issues..?

Other issues

- DLT: I don't see why a CBDC should be DLT based. If it is account based 'any' database management system will do – for tokens okay. Is it a privacy issue?
- Normal vs crisis times: what would actually happen in a crisis?
- Other recent (related) work:
CBDC, e.g.:
 - Andolfatto (2018)
 - Keister and Sanches (2019)
DC, e.g.:
 - Garratt and Wallace (Ec Inq, 2018)
 - (perhaps!) Bolt and Van Oordt (forthc. JMCB, 2019)

Other issues

- Paper structure: it is pioneering, but also difficult to read.

It is about 90 pages, incl 25 pages tables and figures with 357 IRPs. Many moving parts.

Perhaps: Focus on efficiency gains. Stabilization effects another paper...

Concluding remarks

- CBDC is a trending topic, and here to stay. Important to get a grip on the macro effects, This paper tries to fill that gap.
- This paper is a pioneering paper on CBDC – a must-read. But it is difficult to read. Many moving parts, perhaps narrowing down focus.
- Fits in a wider debate regarding an ‘old’ question about private money versus public money. If CB’s neglect CBDC, then probably private DC will enter the scene!

Danke schon!