CBDC and Banks
- The Need for General Equilibrium -

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Why worry about banks?

Lending & efficiency

- Intermediate savings and investment
- Elastic balance sheet
- Money-like liabilities

Transitional or structural concerns?

What to worry about?

Loss client relations

Distribution

Source of value added

Funding

Disintermediation:
Will the two sides of banks' balance sheets split?

Banks

Credit services

- Illiquid, long-term
- Essential for growth

→ Investment funds

Liquidity services

- Within and cross-network settlement
- Stable, low-cost funding
- Monopoly power (1)
- Government backing (2)

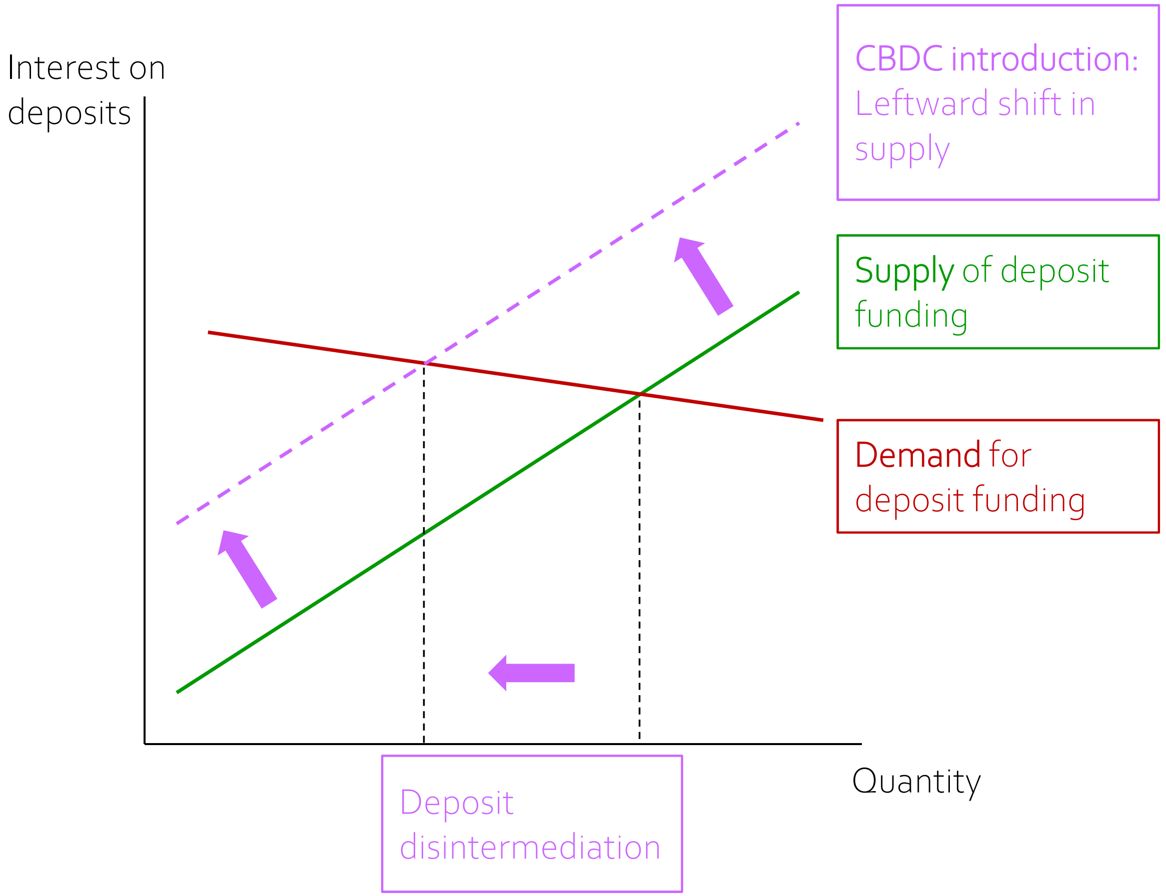
→ Stablecoins
CBDC
(other digital money)

Welfare implications?

- Moral hazard of fractional banking
  Summers (1975); Pennacchi (2012); Cochrane (2014)
- Disciplining effect of demandable deposits
  Calomiris & Kahn (1991)
- Liquidity creation and lending complementarities
  Diamond & Rajan (2001); Kashyap, Rajan & Stein (2002)
- Uninformed investors prefer opacity
  Gorton & Pennacchi (1990); Dang, Gorton, Holmstrom & Ordonez (2017)
- Social value of liquidity transformation?

(1) Drechsler, Savov, and Schnabl (2018)
(2) E.g. deposit insurance, LOLR, ELA, supervision

In simple static model, disintermediation can be large



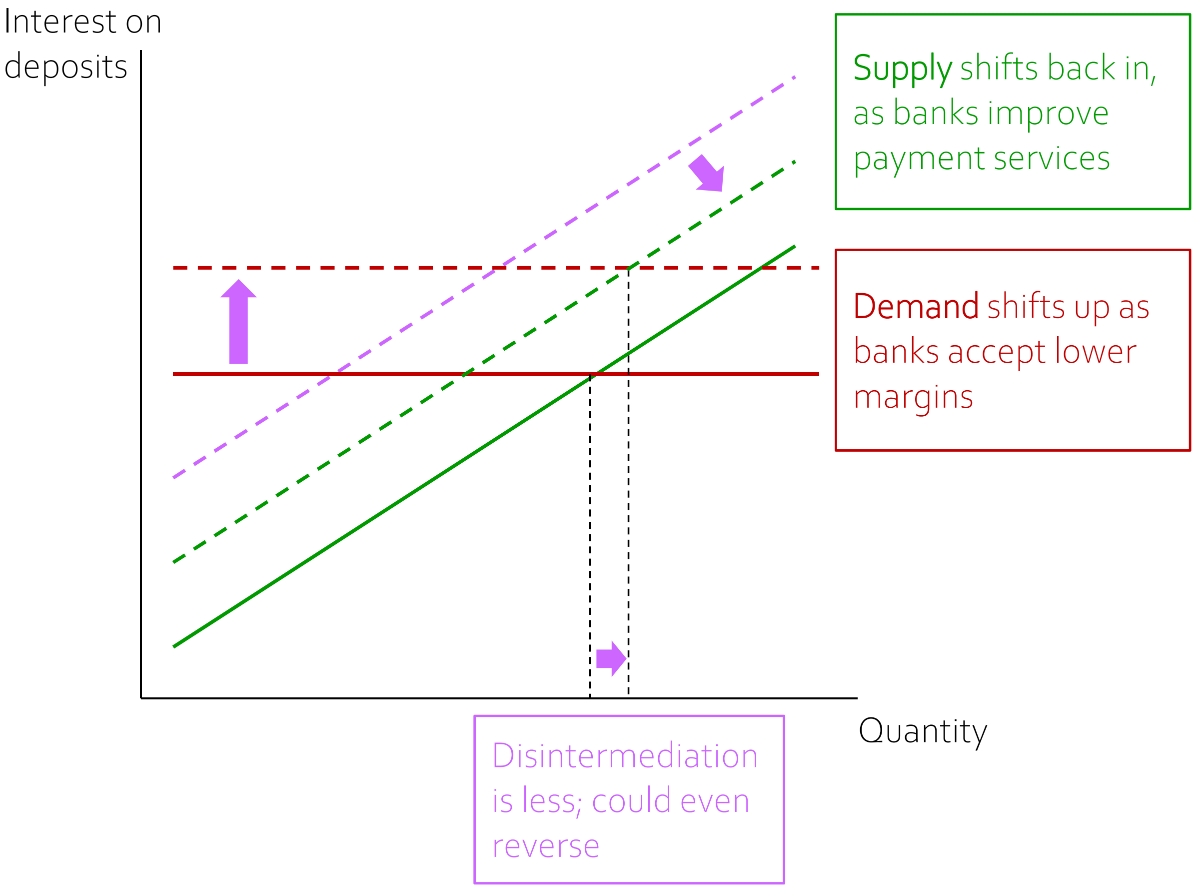
Baseline simulations*

	U.K.*	Portugal*
Change in deposit quantities	- 10%	- 0.1%
Change in deposit rates	+ 17 bps	+ 25 bps

- Effects larger if CBDC offers interest
- And if demand is flatter

(*) Simulations assume a liquidity value of (s)CBDC of 50 bps (possible lower bound to negative rates before deposits move to cash) and elasticity of deposit demand and supply to interest rate movements based on Chiu and Hill (2018) for the U.K., and Canhoto (2004) for Portugal. Elasticities may vary depending on the level of interest rates.

But in dynamic model, harder to get disintermediation



A general equilibrium model needed

Households

Firms

Banks

Central bank

The households' problem

Households

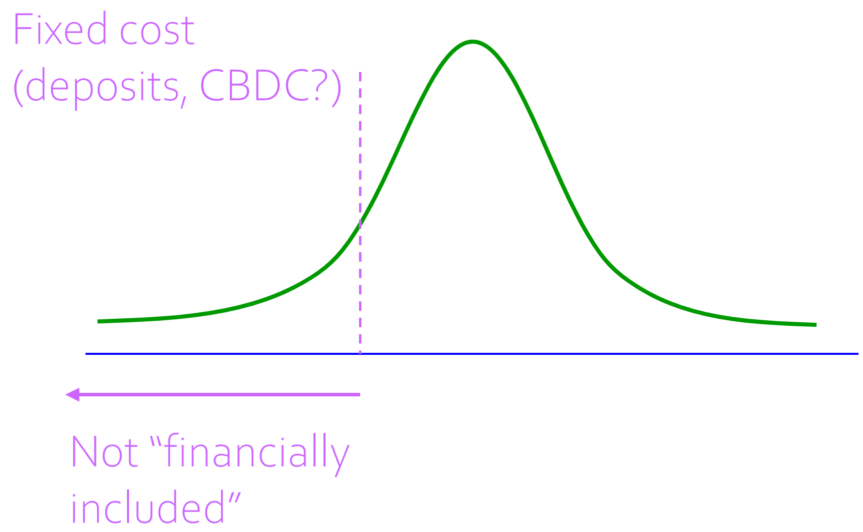
Portfolio allocation

Deposits	CBDC	Cash

Illiquid assets

- Remuneration
- Liquidity
- Access costs
- Other

Wealth distribution



The banks’ problem

Banks

Assets	Liabilities
Lending to firms	Deposits
	Wholesale funding
	Central bank funding

Regulatory constraints

Production function

Market for lending

Model can help answer key questions

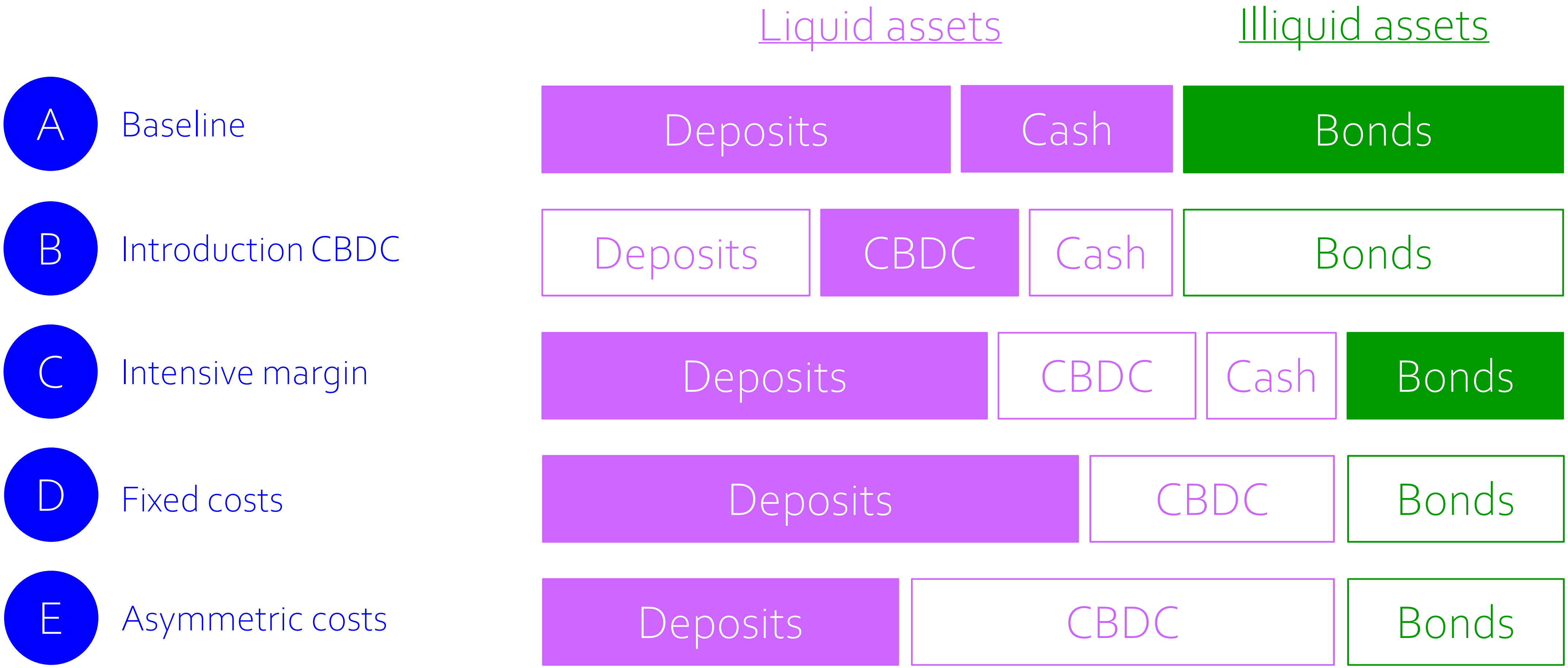
Bank margins

Deposits

Lending production function

Lending

Results change widely with household assumptions



Effects through banks must also be investigated

Deposits	Mechanical Amplification through regulatory constraints
Margins	Lending market Can monetary policy offset higher lending rates?
Production function	Access to data? Ability to compete on non-pecuniary dimensions?

Disintermediation can be attenuated

1. **Disintermediation may not be large (at least in short-medium run)**
   Banks can fight back: better services, higher deposit rates, partnerships
2. **Central bank can recycle funding to banks**
   But politically sensitive (viable during crisis, not extensively in normal times?)
3. **Price limits: CBDC bears (increasing) penalty rate beyond certain wallet size**
   See Bindseil (2020)
4. **Quantity limits: wallets capped, and surplus is swept into bank accounts**
   See Bahamas Sand Dollar Project

Urgent need for general equilibrium models