DIGITALIZATION AND THE PROVISION OF CENTRAL BANK CURRENCY

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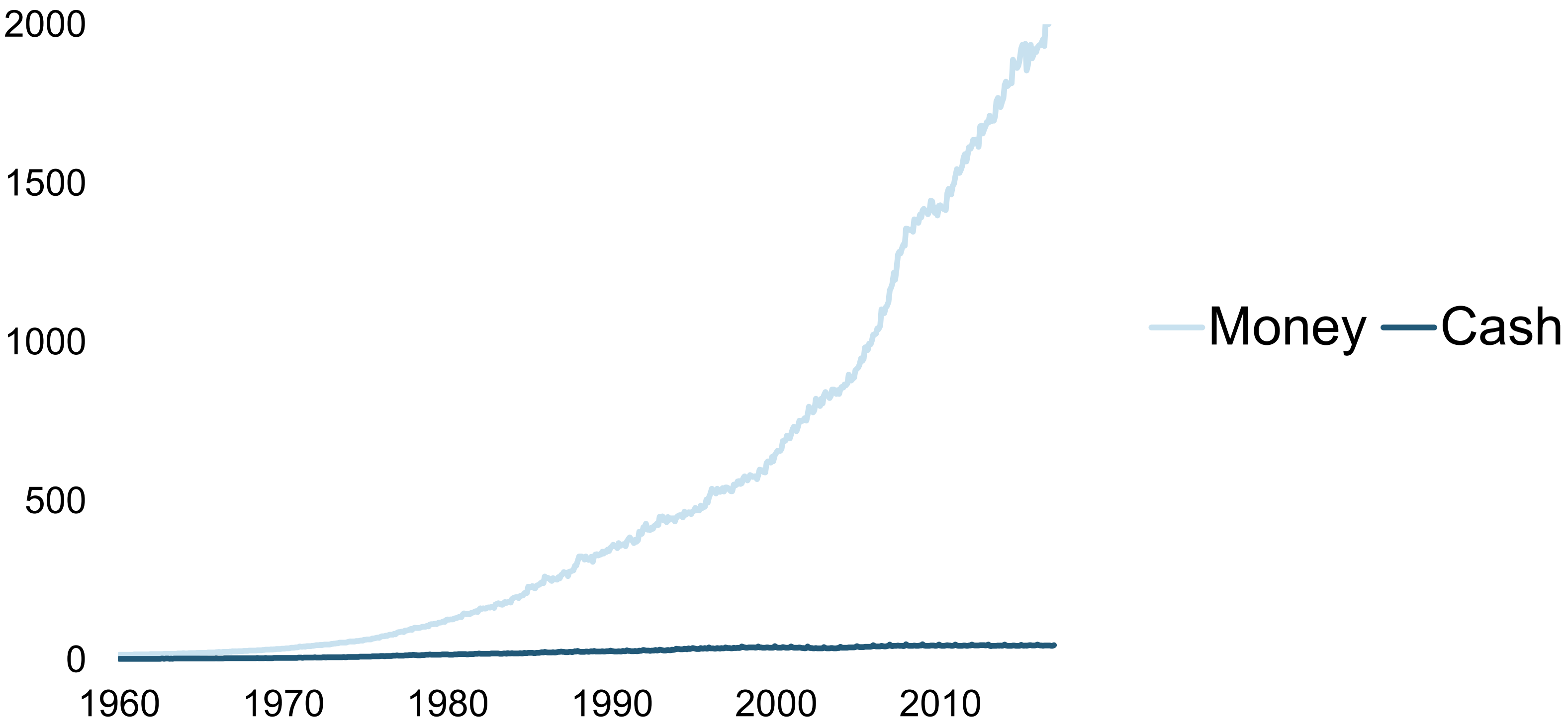
Norges Bank’s CBDC-project

- Falling cash use in digitalized financial system
- What is lost if cash becomes marginalized
- Central bank digital currency as an alternative
- Consequences for monetary policy and financial stability of CBDC
- What we don’t want
- Todays presentation is based on working group report (May18)

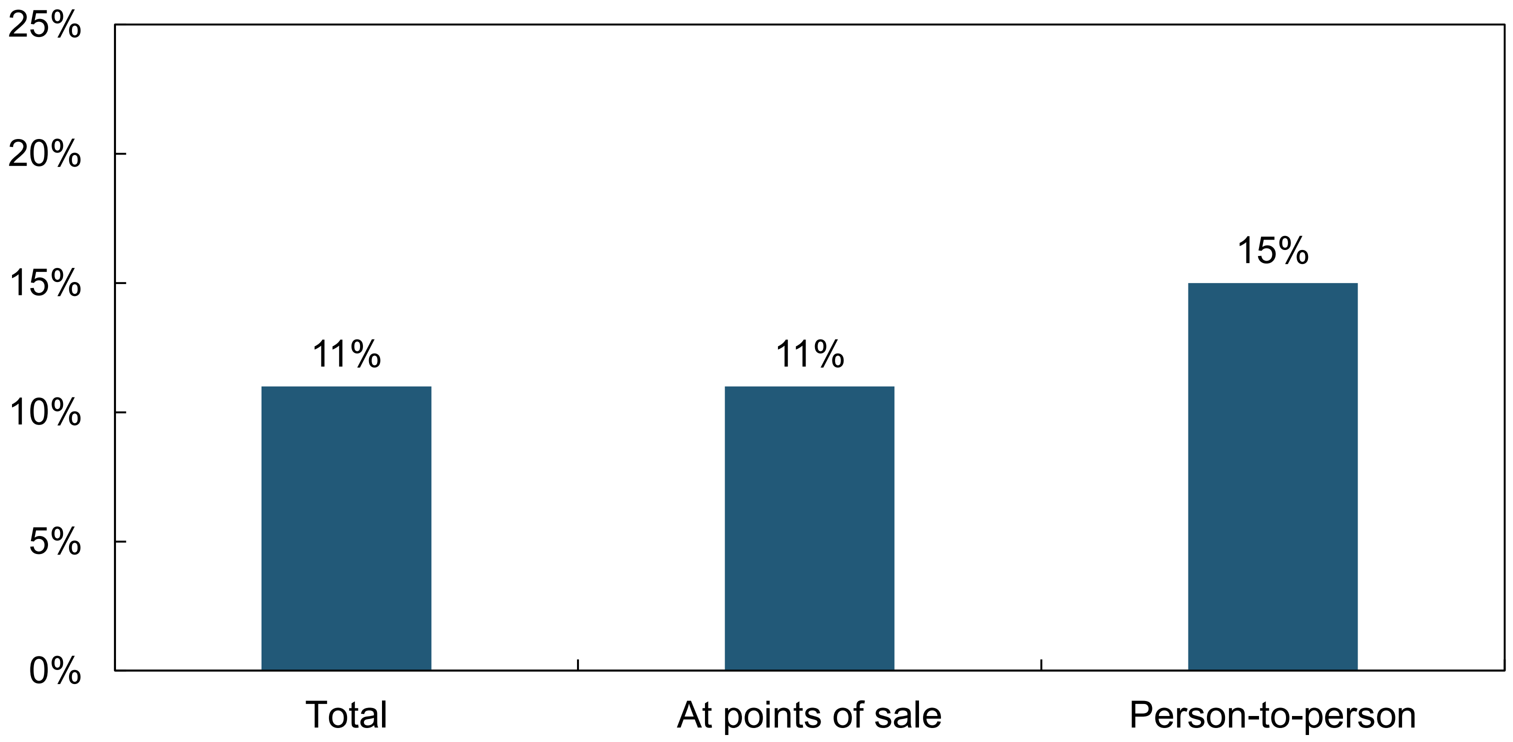
- Further work

Cash just above 2 % of M1, and declining



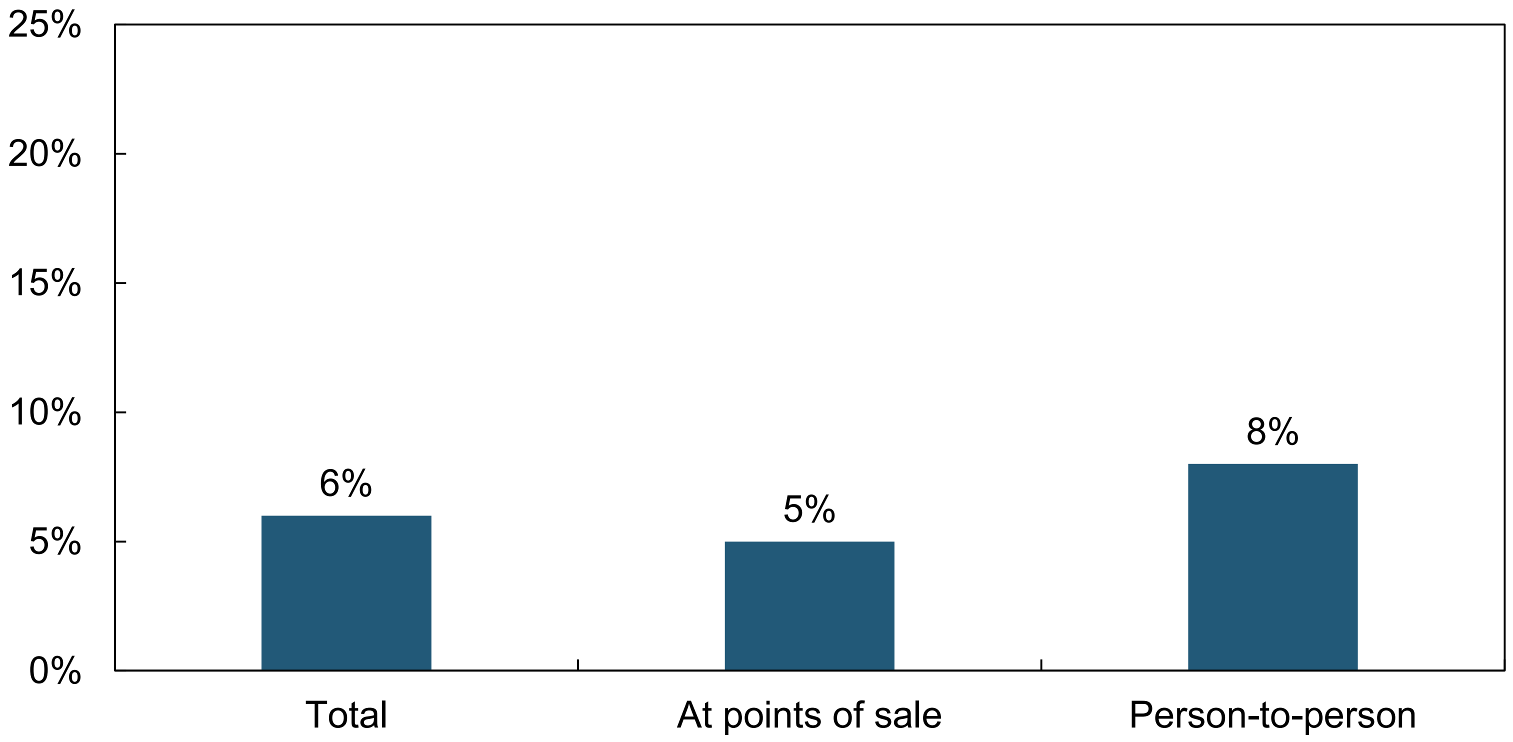
Stock of money in BN NOK

Number of cash payments as a percentage of the total number of payments. 2017–2018



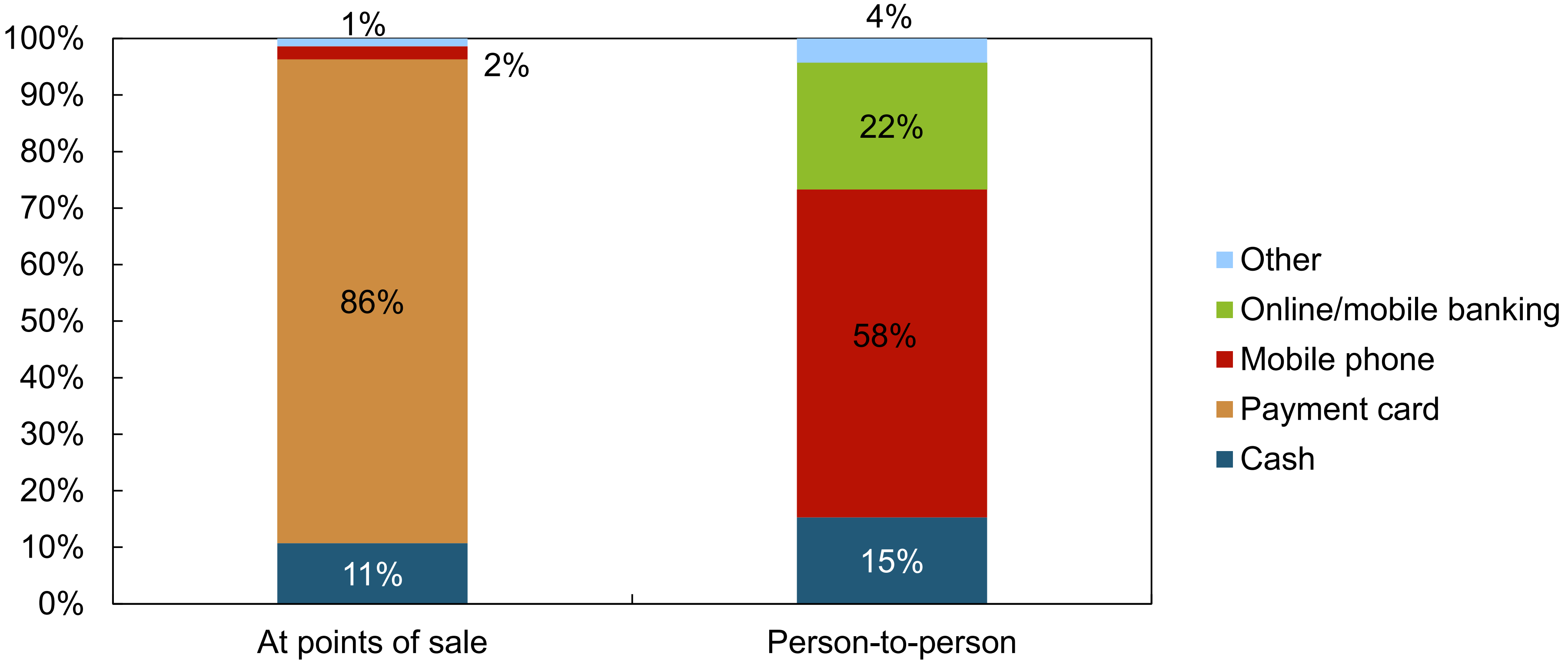
Source: Norges Bank

Value of cash payments as a percentage of total value. 2017–2018



Source: Norges Bank

Payment methods in different payment situations. 2017–2018



Source: Norges Bank

Some properties of cash

- It is a credit risk-free alternative to deposit money
- Independent back-up solution if electronic systems fail
- Legal tender
- Can be used by anyone
- Not traceable

What is CBDC?

- A central bank digital currency (CBDC) is a digital form of central bank money denominated in the official unit of account for general purpose users

- Creation of dedicated payment solutions that Norges Bank would have full or partial responsibility for, but would not necessarily operate and maintain

- For the general public in Norway: private individuals, associations, organisations, non-financial enterprises and government authorities

Designs

Account-based model:

- Adaptable
- Secure value storage
- Suited to payments of any size
- Dependent on contact with a central third party
- Close substitute to bank deposits

Token-based model:

- Local and independent on communication with a third party for making payments
- Not traced or recorded in a central database
- Money is lost if the payment instrument is lost or damaged.

Impact on banks' funding

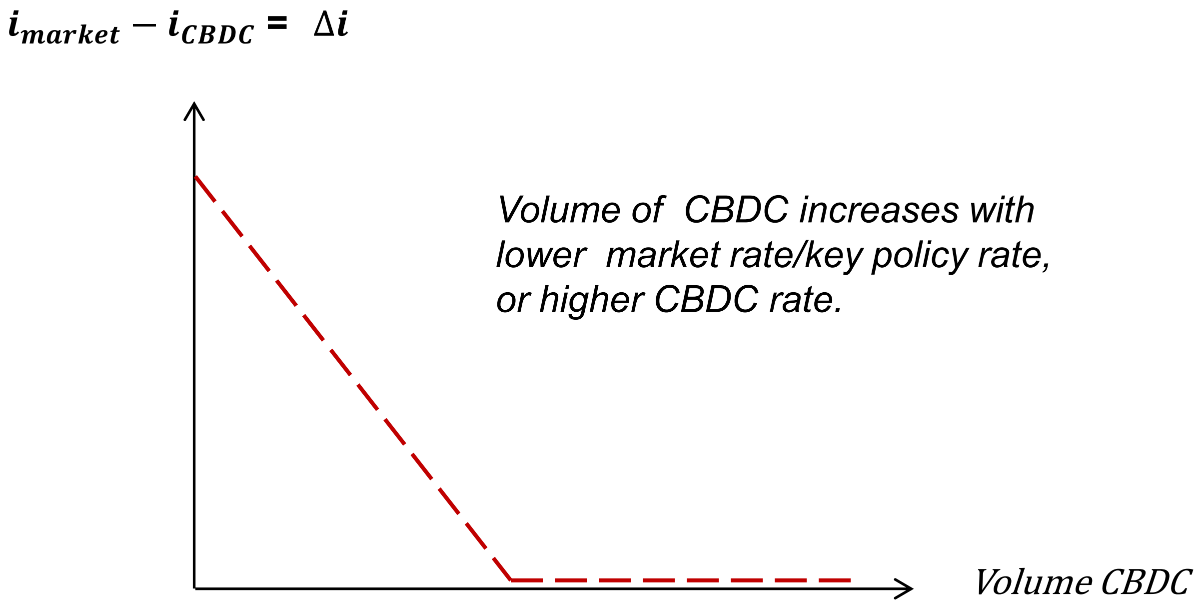
- Increased funding costs and higher volatility
  - Increase in banks interest rates
  - Increase in market funding
  - Potentially larger and quicker runs

- Depends partly on regulation, deposit insurance and perception

CBDC volume depends on

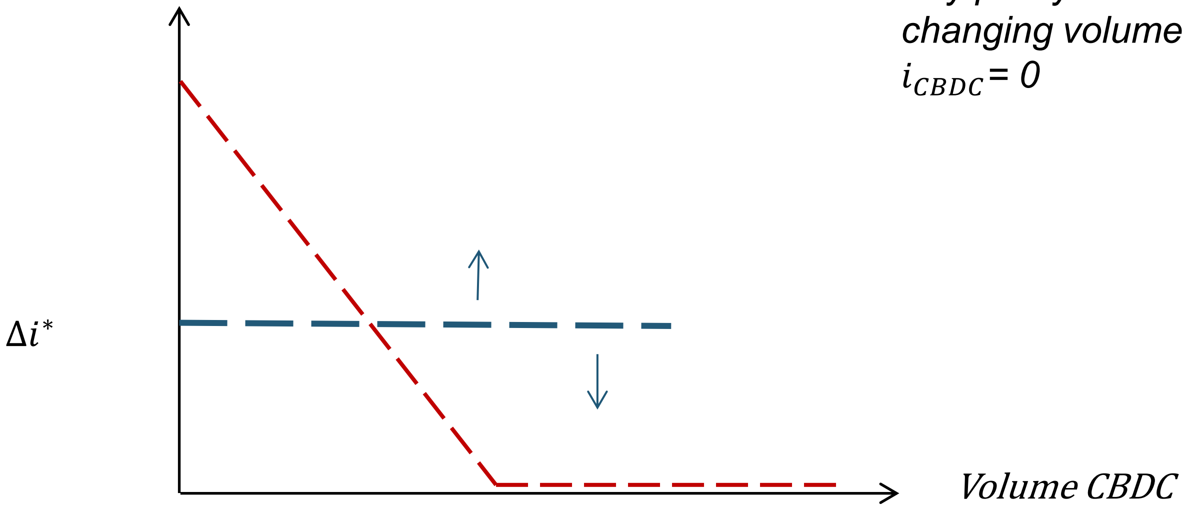
- Type of CBDC model
  - Potential impact bigger with account based than token
- Relative attractiveness to bank deposits
  - Difference in interest rates and service fees
  - Level of universal usage
  - User friendliness of payment instruments/solutions
- Any formal limits introduced
  - Volume caps or «frictions» in getting hold of CBDC

Demand for CBDC and interest rates



Demand for CBDC and interest rates

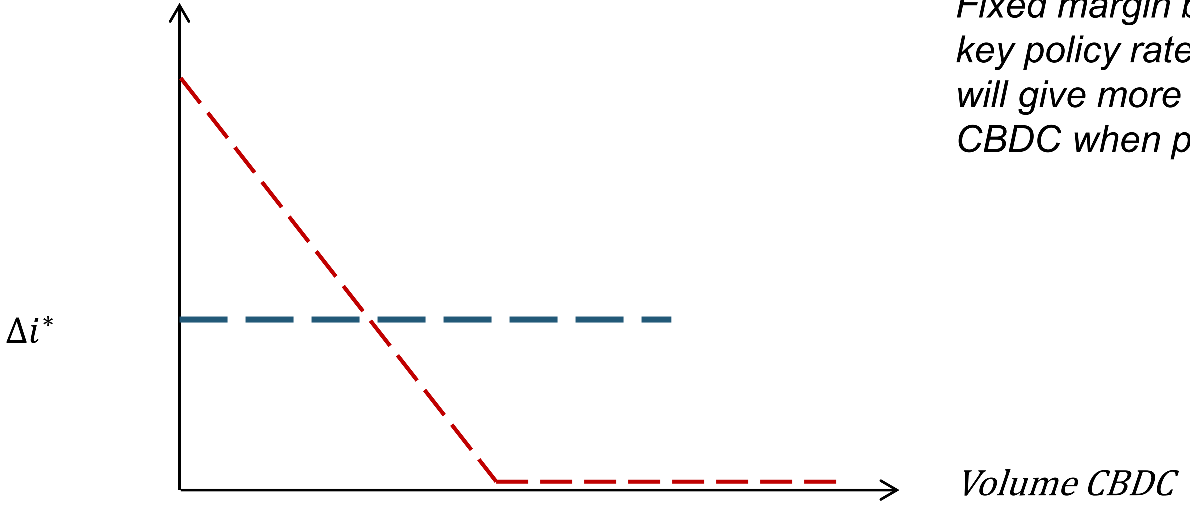
$i_{market} - \cancel{i_{CBDC}} = \Delta i$



Key policy rate changes will lead to changing volume of CBDC with i_{CBDC} *= 0*

Demand for CBDC and interest rates

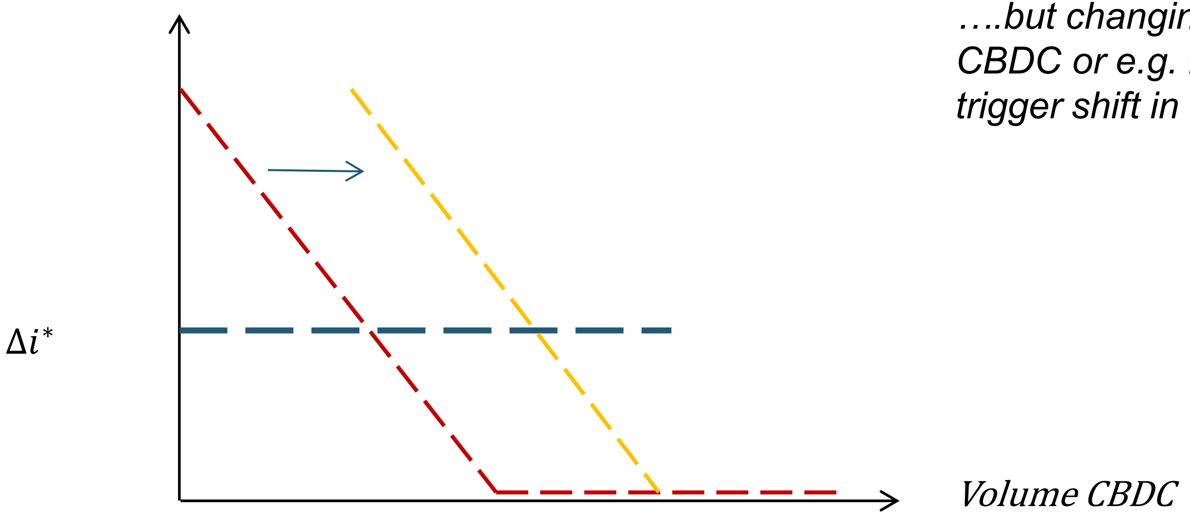
$i_{market} - i_{CBDC} = \Delta i$



Fixed margin between key policy rate and rate on CBDC will give more stable volume of CBDC when policy rate changes

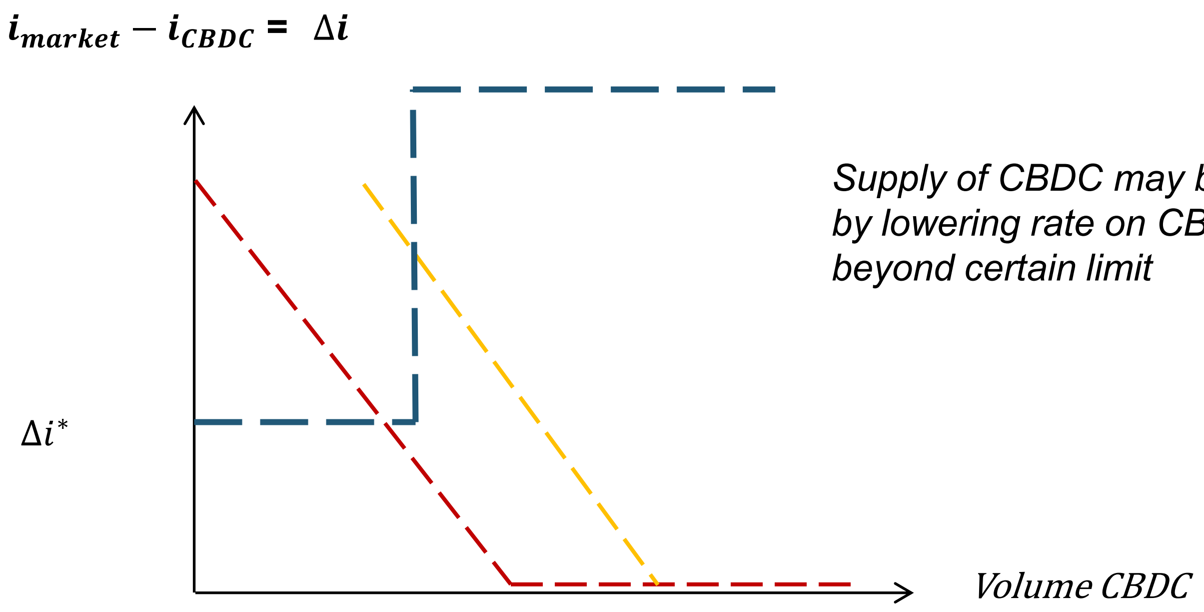
Demand for CBDC and interest rates

$\boldsymbol{i_{market} - i_{CBDC}}$ **=** $\boldsymbol{\Delta i}$



….but changing preference for CBDC or e.g. financial unrest may trigger shift in demand…

Demand for CBDC and interest rates



Supply of CBDC may be contained by lowering rate on CBDC holdings beyond certain limit

Effect on reserves in the banking system

Bank A

Asset	Liability
Loan/credit	Deposit ↓
Reserves ↓	

Central Bank

Asset	Liability
Loan to banks	Reserves ↓
	Cash/notes
	Households accounts (CBDC) ↑

- Deposits are transferred from a bank to the central bank
- Must be settled in reserves
- The bank’s amount of reserves declines

Effect with zero/insufficient reserves

Bank A

Asset	Liability
Loan/credit	Deposit ↓
Reserves	Loan from CB ↑

Central Bank

Asset	Liability
Loan to banks ↑	Reserves
	Cash/notes
	Households accounts (DGCBM) ↑

- The bank must borrow reserves from the CB
- CB funding has replaced deposit funding

Adding reserves for central bank digital currency

- Normal demand
  - Loans against collateral
  - Purchase securities

- Extreme demand
  - Too late for asset purchases
  - Loans
  - Liquid collateral with banks is encumbered

We know what we dont want

- Fund banks' lending
- Crowding out private sector credit
  - But banks may change, new agents may become more important
- Large volumes of CBDC
  - But large enough to be a functioning means of payment
  - Can be difficult to control during unrest
- Make cash disappear

Other arguments raised in international debate

- Lowering the effective lower bound
  - Requires cash to disappear, negative rates on CBDC
- Increasing efficiency of payment system
  - Nordic banking highly digitalized, provide services relatively efficiently
  - Potential loss from cash disappearing
- Currency substitution not likely due to efficiency and trust
- Reducing risk-taking in banking
  - Narrow banking
  - No new arguments for this approach vs banking regulation
- Seigniorage: Not an aim to increase seigniorage

Further work

- How strong are the pro-arguments?
  - Public access to a government issued means of payment
  - CBDC as a contingency measure (out of many)
  - Legal tender
- Design
  - Main focus on token-based, DLT not likely short/medium term
  - Avoid what we don't want
  - Attain what we identify as main arguments
- Long-term work – no decision taken

EXTRAS