



The future of money and payments

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Content



- International monetary infrastructure
- Changes in payment behaviour
- Bitcoin
- Central bank digital currency

International monetary infrastructure

Money is highly political. Monetary authorities are here to stay.



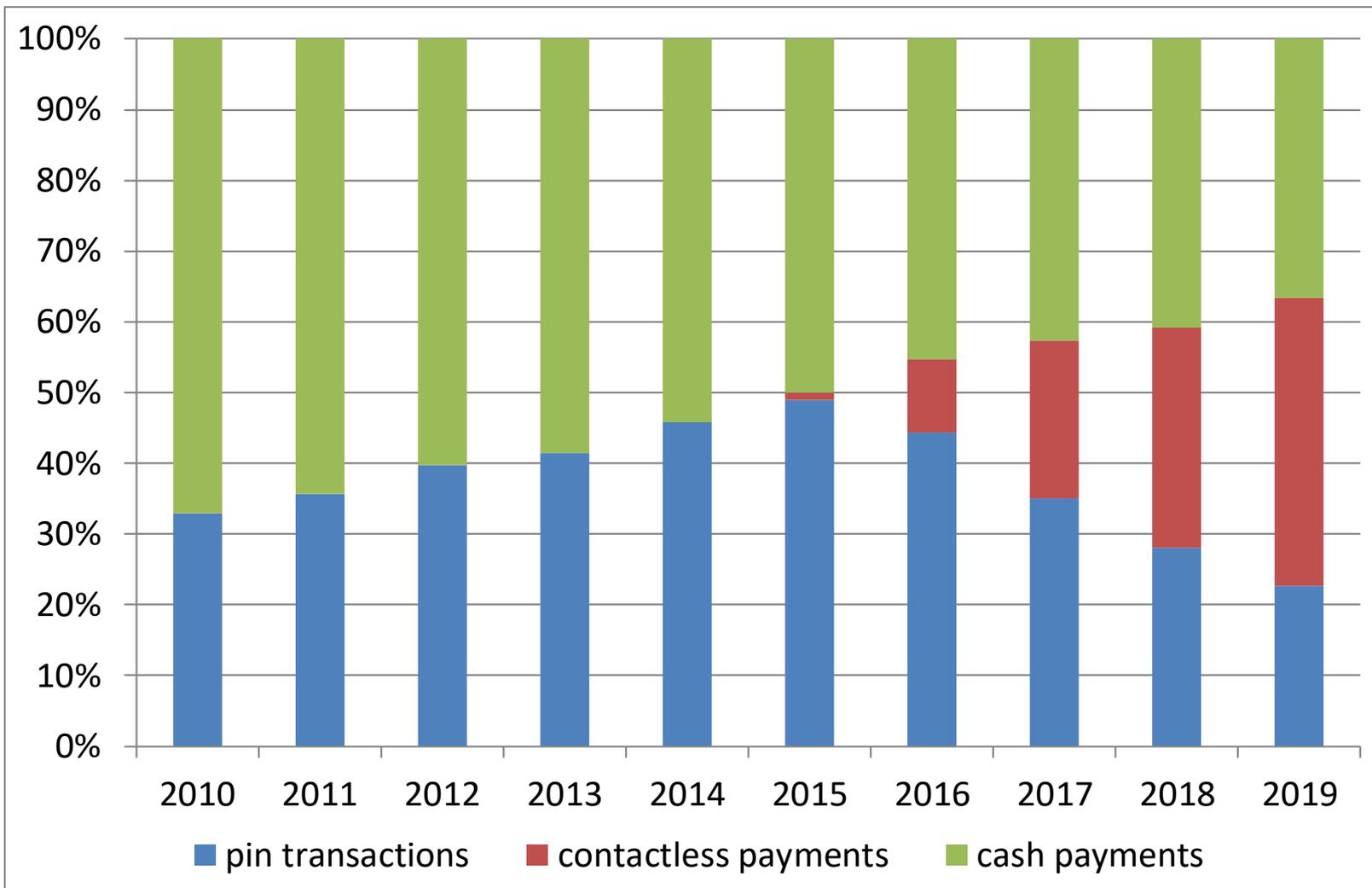
- Economic policy has two pillars, viz. Fiscal policy and monetary policy
 - Fiscal policy: spending, tax and debt policies
 - Monetary policy: steering policy rates and other monetary conditions (money supply, bond prices, long-term interest rates)
- In most countries, it is unthinkable that policy makers give up monetary policy in favour of a complete private monetary system. Failing/failed states may be the exception, although they often adopt a foreign currency (usually the dollar, sometimes the euro) as national currency.
- Bitcoin (or any other crypto) will not be the money of the future. But monetary authorities will develop a new kind of central bank money: central bank digital currency or CBDC.

Changes in payment behaviour

The contactless payment is a killer application



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Rise of contactless payment will continue, but the instruments will change



Will cash disappear?



- Probably not.
- Larger denomination banknotes may disappear, as authorities will gradually push them out of the system as part of their crime fighting. However, this is a long-term process.
- Moreover: cash is the ultimate back-up. A cash transaction is completely independent from ICT systems.
- Privacy considerations are also important, however, so I expect that cash will remain in circulation, but in smaller denominations and ultimately maybe only in the form of coins.
- So banknotes may in the long run disappear, but cash will most likely not
- However:
- Eliminate cash and you can remove the Effective Lower Bound (ELB). So never say never.....

Bitcoin: is it money?

How does Bitcoin fit into the definition of money?



- General acceptance (within a certain community)
- Nope. Bitcoin is accepted by the Bitcoin-adepts (like stamps, or pokémon cards). But in the general economy you can not pay with it. There is no general acceptance of Bitcoin.
- Medium of exchange (we use it to buy stuff and services)
- Nope. Even the few companies who advertise that they accept Bitcoin express their prices in Euro, dollar, Sterling, etc. And you can't pay taxes in Bitcoin in Switzerland....
- Unit of account (we use it to calculate relative values)
- Maybe. We can't know. There is no information about the stuff that is traded in the Bitcoin world and their relative prices
- Store of value (we can accumulate wealth in it)
- Yes. You can store your wealth in Bitcoin, although it is a highly volatile asset
- Can you borrow in Bitcoin? Maybe, but you need very strong nerves.

Ponzi Scheme



The problem

- The price of BTC can rise, but the system does not generate additional euro or dollars
- The BTC is not generally accepted in the regular economy
- Therefore, if you want to benefit from your increase in (BTC) wealth, you have to sell your BTC
- So you need a new inflow of regular money
- Conclusion: BTC has strong characteristics of a Ponzi Scheme

What will the future have in store for the BTC?



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- I don't think Bitcoin will be the money of the future. I am rather sure about this
- It will certainly not develop into a 'world-currency'.
- Central banks will gradually increase pressure. Three reasons:
 - They don't want to lose monetary autonomy
 - They don't like illicit transactions, tax evasion and capital flight
 - They don't want something that they can't control to become systemic relevant
- Bitcoin may have a future as a high risk asset category.
- Price outlook: somewhere between zero and a million? This is not an official forecast and certainly not an investment advise.
- Blockchain technology (but not by definition BTC) will find a place in banking. In wholesale products (cross-border payments, Trade Finance) and maybe, if faster versions are developed also in retail systems.
- Will BTC bring the end of banking? I've heard this all before. Remember Egg bank?

As long as finance is needed there will be banking and institutions that people will call banks. Of course, banks will change and some will not survive. But I expect that banking will.

The future: CBDC

The role of the central bank in the payments system



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- Central banks issue two types of money and provide infrastructure to support a third
 - Ad 1: Central banks issue cash. Which is the oldest form of money which is in circulation today. Cash is part of both M_1 and M_0 .
 - Ad 2: Central banks create bank reserves (M_0 , not included in M_1 et.)
 - Ad 3: Central bank support the payment systems of the banking sector (deposit money, current accounts, bank accounts) in various ways:
 - (i) allowing commercial banks to settle interbank payments using central bank money;
 - (ii) enabling convertibility between commercial and central bank money through banknote provision; and
 - (iii) offering contingent liquidity through the lender of last resort function.
- Note: base money (M_0 , see ad 1 and 2) is brought into circulation by central banks. Deposit money is 'created' by the commercial banking system. See lecture on money creation (February 17/24)

What is CBDC?



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- CBDC is “a digital form of central bank money that is different from balances in traditional reserve or settlement accounts” (BIS, 2018)
- A CBDC is a digital payment instrument, denominated in the national unit of account. Finland did it already in the 1990s.
- CBDC is a liability of the central bank (just like bank notes, bank reserves...). It is denominated in the national currency (CBDC is not a world currency), so there will be euro-CBDC, dollar CBDC, Sterling CBDC etc.
- Central banks see CBDC as a **complement** to the current system, they do not intend to replace cash or deposit money by CBDC → meaning that as far as central banks are concerned the payment system in the future will more or less have the same layout as today: a two tiered system, consisting of the central bank and private entities, such as private banks and payment providers
- CBDC is not a crypto. CBDC is covered by a central bank’s assets and have the status of legal tender. A crypto is ultimately not covered by anything at all.

Focusing the discussion: The most important arguments pro CBDC



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- The government needs to play a substantial role in the payment systems. This is a non-economic, more principal point of view. Given the importance of 100% access to financial services, this is an important point.
- Cash is the ultimate back-up in case the payment systems breaks down. ==> but will CBDC be the solution? What happens when the CB has a breakdown? Moreover, most breakdowns are caused by failing telecom networks. Is the central bank immune?
- Financial inclusion: some people are excluded from the banking system. This argument may be important in parts of Africa or in Peru, but not really in more advanced economies. Financial exclusion there is often related to digital exclusion. CBDC is not the answer to that problem.
- Remove cash (and give CBDC the option of remuneration) ==> open the door for deep negative policy rates. This is the monetary policy argument. But what will people do when they have to pay, say, 5% on their balance with central bank?
- And finally: central banks don't like cryptos and so-called stablecoins such as the Libra/Diem. The fear loss of monetary autonomy.

The business case for CBDC is not overwhelming (at least not in the NL)



- CBDC does not bring any new payment functionalities when compared to the current Dutch payments system
- However, in some countries CBDC may be seen as safer than a regular bank account. In times of unrest, however, this may also be the case in the NL
- A CBDC account with the central bank is by definition not a full alternative for cash, due to lack of anonymity
- A value-based CBDC (a 'token') with the possibility to conduct peer-to-peer transactions will be very attractive for criminals (just like high-denomination banknotes). This of course may be limited by reducing the amount on such a token.

CBDC design: questions to be answered:



- Retail or wholesale? → we focus on retail, as this is the most heatedly discussed topic.
 - Wholesale CBDC is less controversial
- Domestic, cross-border or both? → we focus on domestic
 - But cross-border (read: cross-currency) issues have to be resolved
- Technology: DLT or traditional? → So far, DLT is too slow for mass retail.
 - In the future, this may change. But today, a bitcoin transaction takes several minutes. Mass retail systems conduct thousands of transactions in a split second.
- Interest bearing or not? → central banks evade this point
 - Important for monetary transmission. But monetary policy considerations are not decisive.

CBDC design: questions to be answered:



- Full equivalent of cash or not? → 'tokens based with peer-to-peer functionality', but only for limited amounts.
 - Privacy considerations are important
 - But unlimited anonymity is an open invitation for abuse by criminals (like cash today)
- Additional to the existing system or replacing bank accounts? → additional
 - Central banks emphasize that CBDC will neither replace cash nor bank accounts
- Unlimited or restricted access to CBDC? → this point is key for stability issues
 - Unlimited access to CBDC is a strong danger for financial stability (see below)
 - This is a major concern for central banks and other supervisors

Three possible models of CBDC



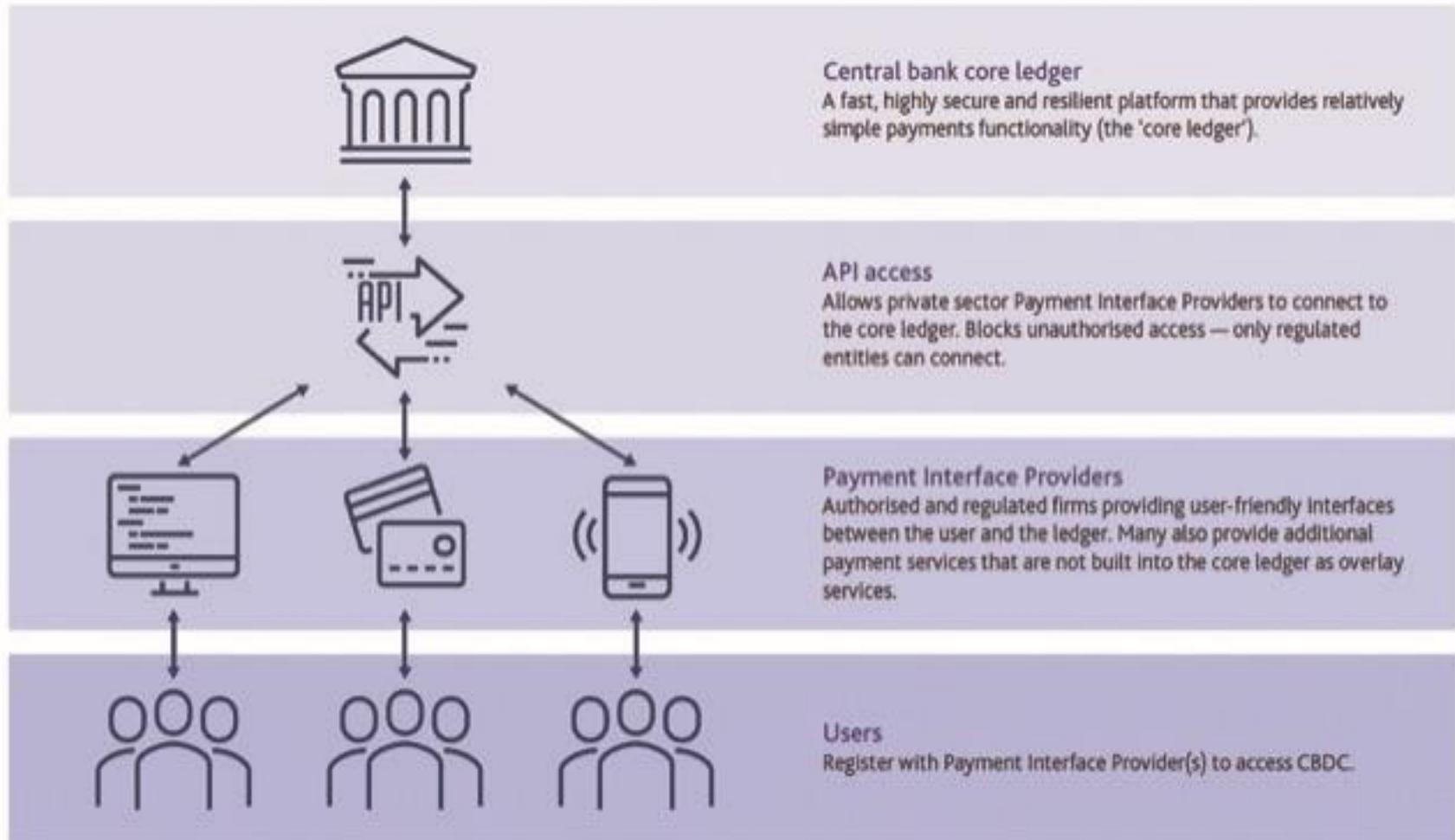
- **Direct CBDC:** people have **direct access** to a payments account (or bearer wallet) in CBDC, issued by the central bank. This is the model that many activists prefer.
- **Indirect CBDC:** people have **indirect access** to a payments account (or bearer wallet) in CBDC, issued by the central bank. Indirect means, that there is an extra layer of private entities between the central bank and the owners of CBDC accounts. Central banks have a preference for this model, as it solves many problems for them.
- **Synthetic CBDC:** people have a CBDC account with a bank (not being the central bank), which is covered by 100% liquidity reserves at the central bank. Western central banks don't consider this a 'real' CBDC. In the Dutch context, this more or less reflects the model of a so-called 'deposit bank'. This seems to be the model that China is implementing.

The most probable design

(according to central banks)



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CBDC brings disadvantages as well



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- When additional to current system and potentially unlimited amount of CBDC: danger for financial stability (see next slides)
- Fundamental change in position of central bank
 - Payments systems are expensive to run and protect==> if the central bank should pay the bill, it becomes loss-making and dependent on government financing (politically dependent as well?)
 - CB should invest in compliance and client departments (if it would conduct transactions)
 - CB should be fully compliant with AML and CDD ==> who will supervise the CB?
 - CB becomes a direct competitor of commercial banks ==> not very logical that CB supervises its direct competitors
 - CB becomes most systemic relevant bank of a country
 - If CBDC replaces current system ==> CB becomes single point of failure
- Again: It all depends on the design of CBDC

Thank you

Any questions?

Read our stuff on: <https://economie.rabobank.com>



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