



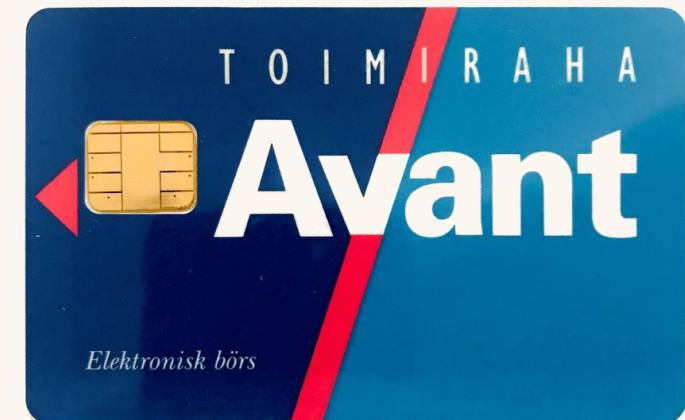
CBDC – history repeating?

Cash Talks Episode 2

Aleksi Grym
Maksujärjestelmät-osasto, Suomen Pankki

Bank of Finland launched world's first CBDC ... in 1993

- Retail CBDC (available to anyone)
- Token-based (transactions are anonymous)
- Ideal for small-value payments (micro-payments)
- Accepted at 20,000 merchant locations
- Can also be used for on-line payments



The story of Avant

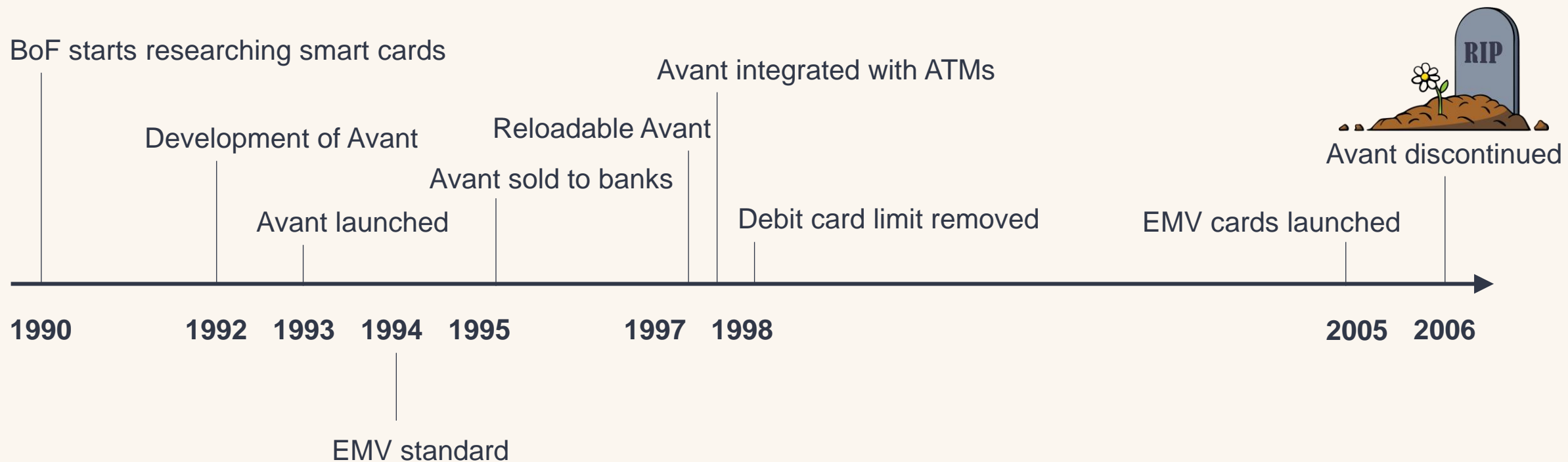
- The concept of electronic money, and the idea of payment smart cards, started appearing during the 1980's
- In 1990, the BoF set up small unit to investigate payment smart cards
- During 1991, discussions with commercial banks, mixed sentiments:
 - Some banks liked the idea, because it could reduce the cost of handling cash
 - Others were sceptical, because they saw it as a potential competitor
- Soon afterwards, other similar projects started to emerge in many countries (e.g. Mondex, Geldkarte, etc.), but Avant was the only one initiated by a central bank

Smart card technology

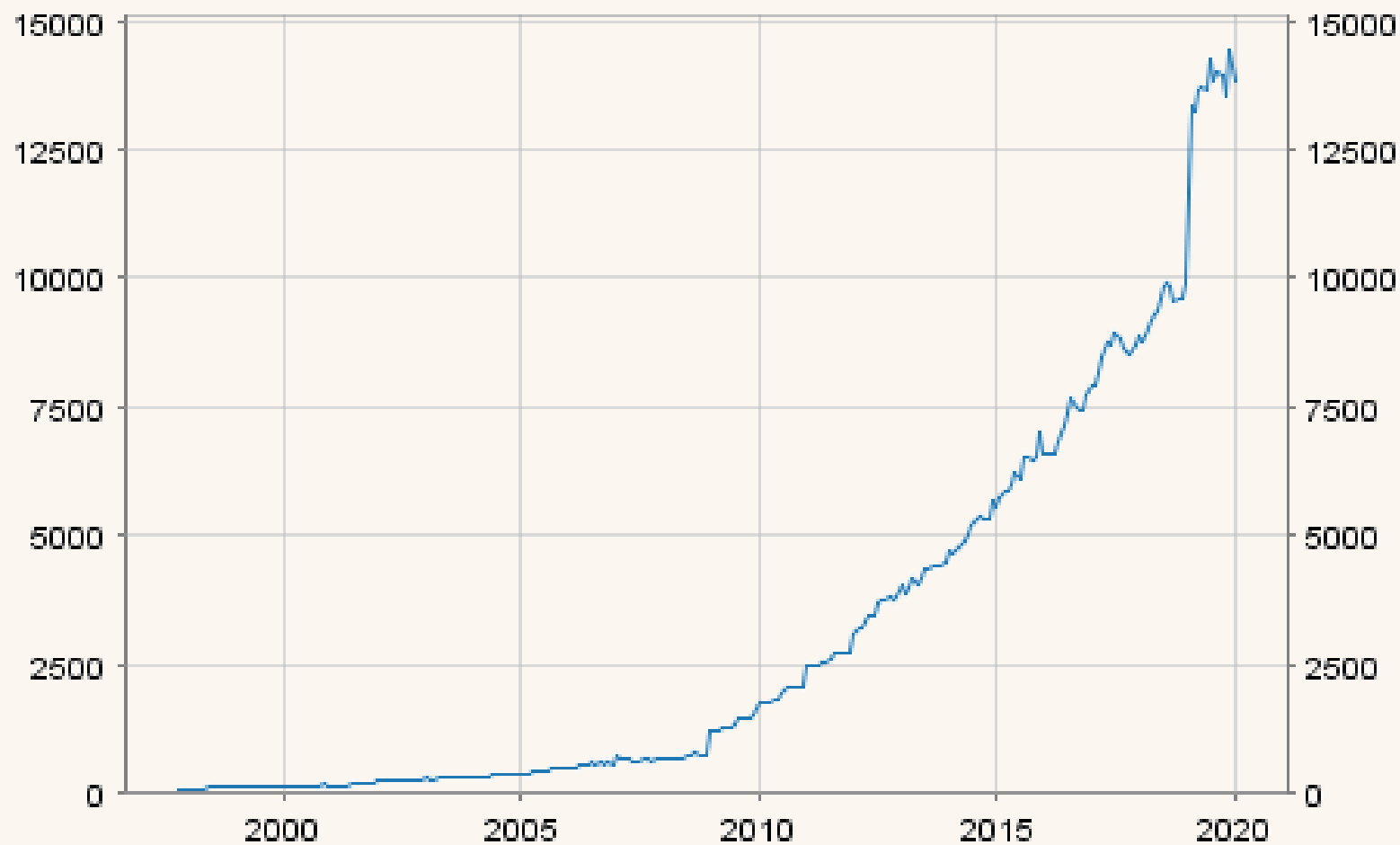
- Chip card with processor and memory (initially 4 kB)
- Data encryption (initially DES algorithm)
- Initially no PIN
- Later more memory, more processing power, better encryption
- Later payment smart cards developed into EMV standard



Timeline of Avant



E-money in eurozone (outstanding amounts € millions)



The digital euro as a new form of central bank money



BANKNOTES

Physical money, **for everyone**

+

CENTRAL BANK DEPOSITS

Digital money, for financial institutions



DIGITAL EURO

Digital money, for everyone

CBDC vs. e-money

- The concepts of CBDC and e-money are largely, but not fully, overlapping
- E-money according to EU E-money Directive:
“electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions, and which is accepted by a natural or legal person other than the electronic money issuer”
- E-money describes a claim which is distinct from a bank account but does not specify who the issuer is
- CBDC is specific regarding who the issuer is, but does not specify the nature of the claim

Two possible models for CBDC

ACCOUNT-BASED

- Similar to present-day payment services
- Digital euro would be based on TIPS settlement system
- Continuously online

VALUE-BASED

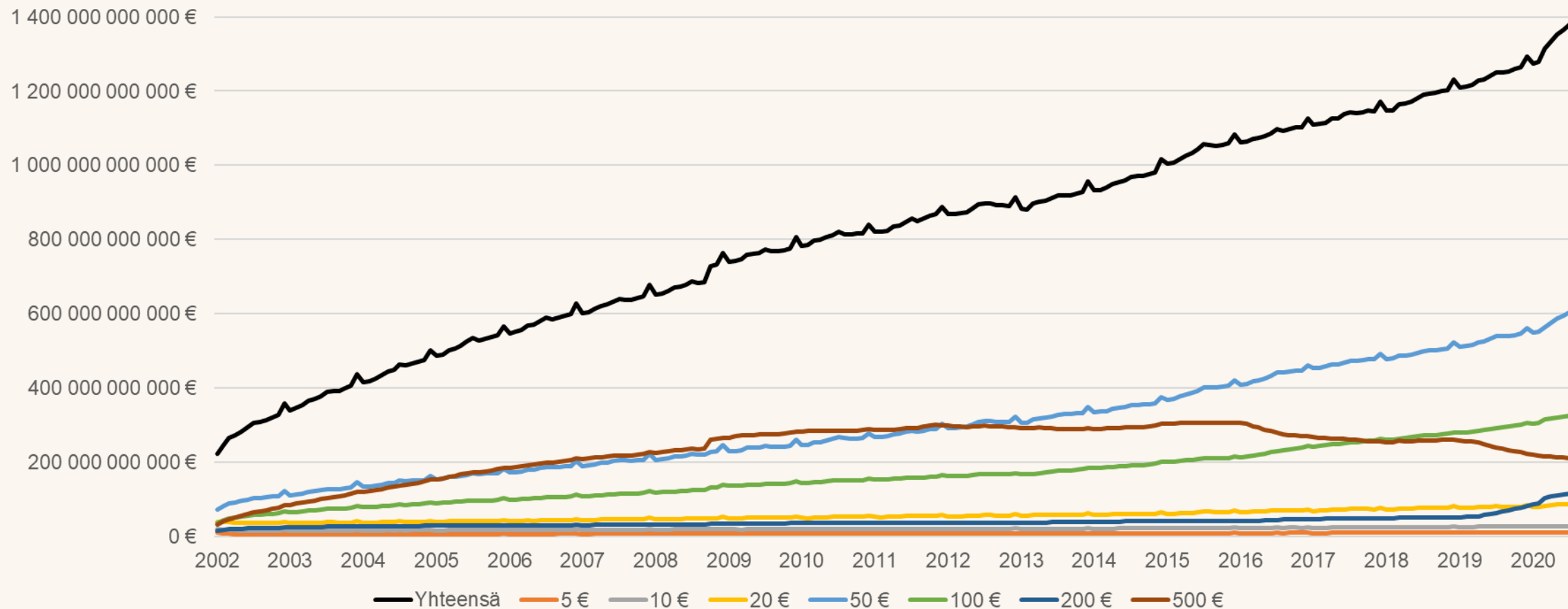
- Monetary value stored on local device
- Bearer instrument
- Higher degree of privacy
- Not continuously online

Digital euro in day-to-day payments

- Should work in most common payment situations
 - Point-of-sale / card payments
 - Person-to-person
 - Account-to-account transfers
- Will require interoperability with existing payment rails
- **On the other hand, should provide cash-like user experience**
 - High degree of privacy
 - Free-of-charge for the end-user
- **Contradiction?**

Euro banknotes in circulation

Source: ECB



Concluding thoughts

- CBDC similar to e-money 25 years ago
- Difference between e-money and CBDC:
 - E-money is specific regarding the nature of the claim, but does not specify the issuer
 - CBDC is specific regarding the issuer, but does not specify the nature of the claim
- E-money led to emergence of fintech (PayPal, Revolut, AliPay, etc.)
- Avant initially had superior card technology, but debit cards caught up
- **Privacy** and **asset safety** weren't compelling features before, why would they be now?