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# **Digitalisation and the future of financial services**

**Presentation to the Actuarial Association of Europe**

**Joint Insurance Committee / Pensions Committee / Risk Management  
Committee Meeting**

**By Malcolm Kemp**

**31 March 2022**

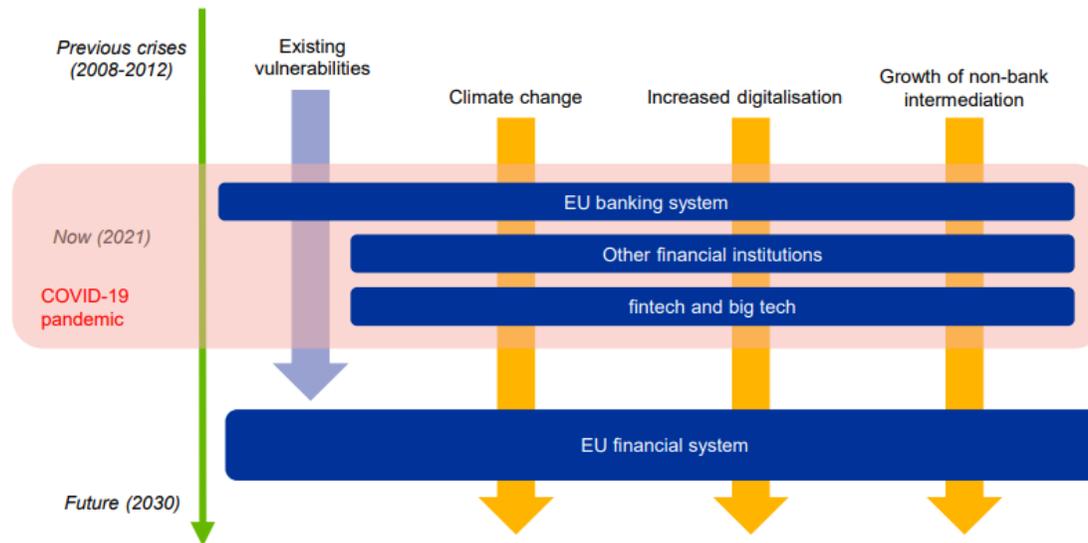
- Digitalisation and the future of banking
  - Slides based on ESRB ASC Report No 12: “[Will video kill the radio star? Digitalisation and the future of banking](#)”, by Thorsten Beck, Stephen Cecchetti, Magdalena Grothe, Malcolm Kemp, Loriana Pelizzon and Antonio Sánchez Serrano
- Impact of digitalisation on other financial sectors?
  - E.g. Joint ESA response to recent European Commission Call for Advice
  - Is there appetite to consider this from an AAE perspective?
  - What do we think will be impact of digitalisation on insurers, pension funds, ...?

- European Systemic Risk Board:
  - Part of European System of Financial Supervision alongside EBA, ESMA and EIOPA
  - Focuses on systemic risk, i.e. macroprudential concerns
  - Issues warnings, develops stress tests etc.
- ESRB Advisory Scientific Committee
  - Consists of independent experts (mostly academics) whose remit is to provide scientific underpinning to the work of the ESRB
  - Issues reports in its own right, e.g. No 4 “*Is Europe Overbanked?*”

# Issues facing EU banking system

- Digitalisation just one of several issues facing the EU banking system

**Schematic diagram of fundamental structural changes and challenges facing the EU banking system**



*Notes: Previous crises refer mainly to the global financial crisis and the European sovereign debt crisis. Schematic diagram for presentational purposes only and not intended to be exhaustive.*

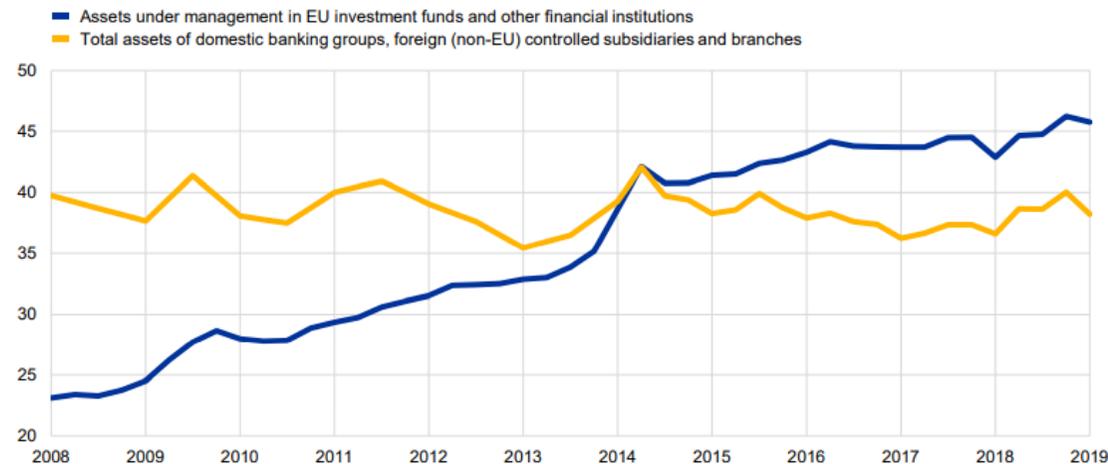
Source: ESRB ASC Report No 12 / January 2022: Will video kill the radio star? - Digitalisation and the future of banking

# ... Include competition from other sectors

- Non-bank financial sector growing relative to banking sector

## Assets under management of EU investment funds and total assets of EU banks

(EUR trillions)



Sources: European Systemic Risk Board (2020b), ECB and ESRB Secretariat calculations.

Notes: The blue line represents assets under management of EU investment funds and other financial institutions, as reported in the 2020 Non-Bank Financial Intermediation Risk Monitor. Data on the size of the banking system are taken from consolidated banking data, including from domestic banking groups, stand-alone banks and foreign (non-EU) controlled subsidiaries and branches, irrespective of their accounting framework. Consolidated banking data have been reported quarterly only since 2015, so linear extrapolation has been used for values before that year. Both time series end in 2019 to keep a constant sample of EU countries.

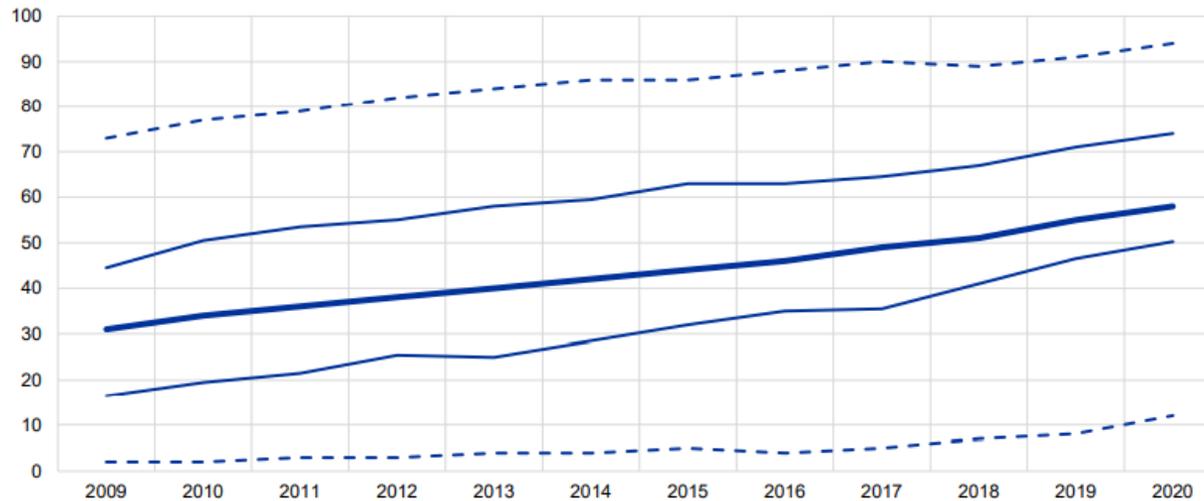
Source: ESRB ASC Report No 12 / January 2022: Will video kill the radio star? - Digitalisation and the future of banking

# ... And customer penetration of digital tools

- Digital access of bank accounts is increasing throughout the EU

Percentage of individuals using the internet for online banking across EU Member States

(percentages)



Sources: Eurostat and ESRB Secretariat calculations.

Notes: The thick blue line represents the average for the EU27 (excluding the United Kingdom), while the thinner blue lines represent the countries at the first and third quartiles. Maxima and minima are shown with dotted blue lines.

Source: ESRB ASC Report No 12 / January 2022: Will video kill the radio star? - Digitalisation and the future of banking

# Technological advances supporting the current wave of financial innovation

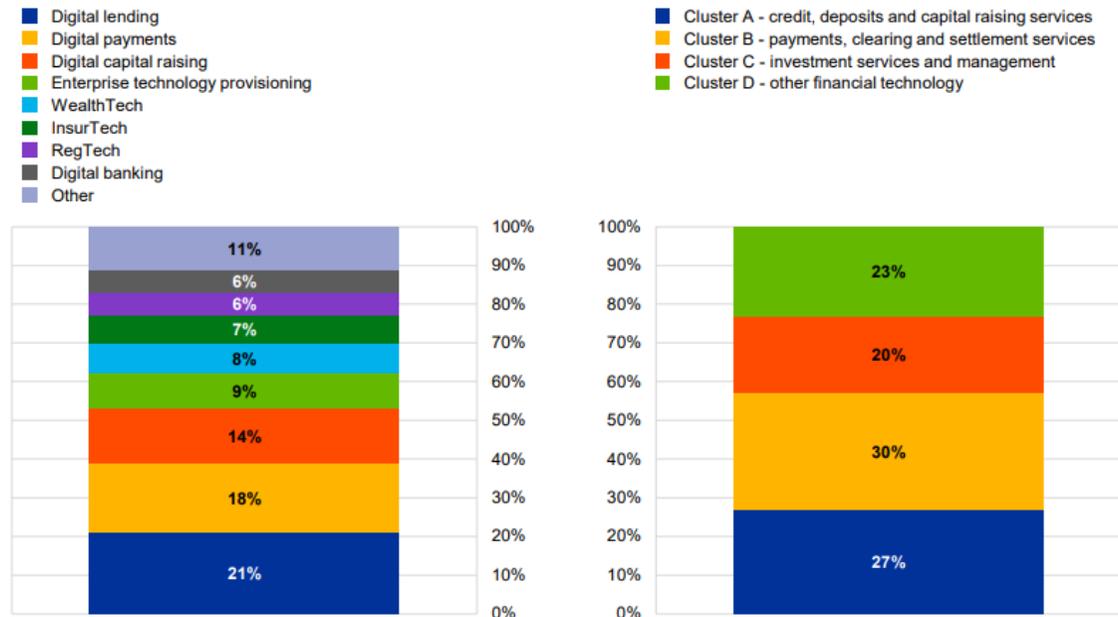
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- Smart phones, internet and application programming interfaces (API)
  - Quicker information exchange
  - New delivery channels
  - Better exploitation of economies of scale
- Artificial intelligence and big data technology
  - Use of artificial intelligence in credit scoring processes
  - Big data applications to financial risk measurement and management
  - Big data applications to insurance and investment advice
- Distributed Ledger Technology (DLT)
  - Keep and share records in a synchronised way
  - “Smart contracts”, based on decentralised consensus and hacking-proof algorithmic execution
  - Interesting venues for payment systems

# Current distribution of Fintech firms

Distribution of fintech firms globally (left-hand side) and in the euro area by cluster of activity (right-hand side)

(percentages)



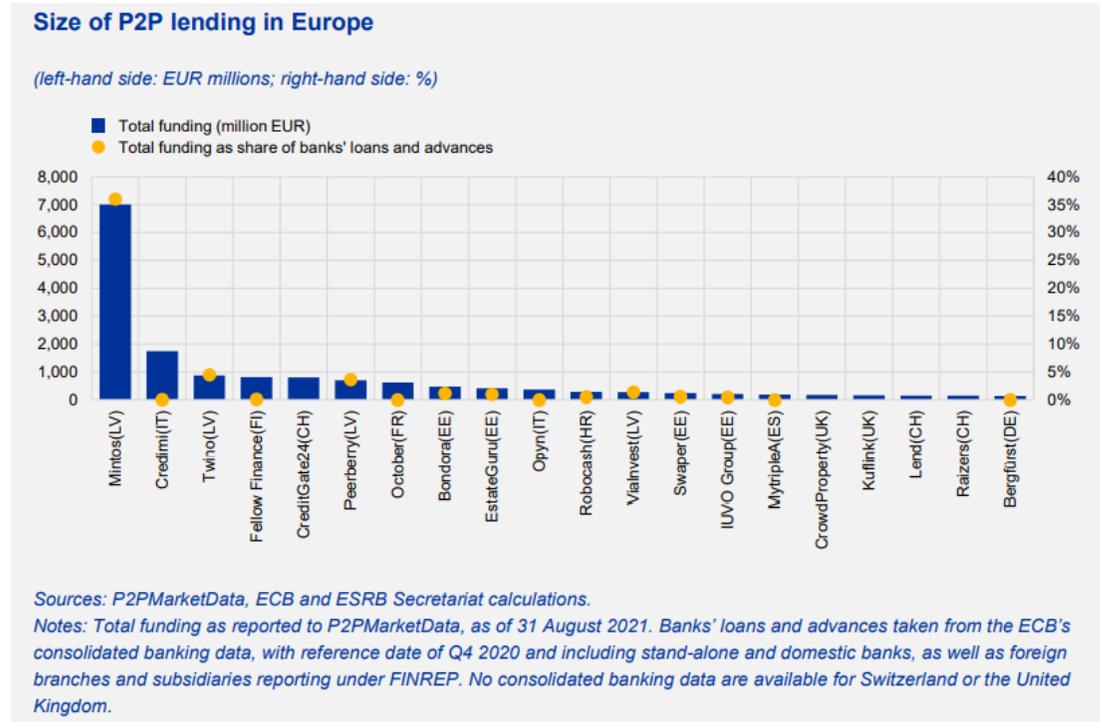
Sources: European Central Bank (2020) and Cambridge Centre for Alternative Finance, World Bank and World Economic Forum (2020).

Notes: On the left bar, "Other" includes alternative credit & data analytics, digital identity, digital asset exchange, digital savings, and digital custody. On the right bar, the data are based on an ECB experimental collection. Clusters of activities as in European Banking Authority (2017). One entity is allocated to one cluster only.

Source: ESRB ASC Report No 12 / January 2022: Will video kill the radio star? - Digitalisation and the future of banking

# Not easy to tell which services will digitalise the most

- E.g. Peer-to-Peer lending (P2P) over past decade (Box 1 of paper)
- Relatively small except in some Baltic States
- Challenge of adverse selection?

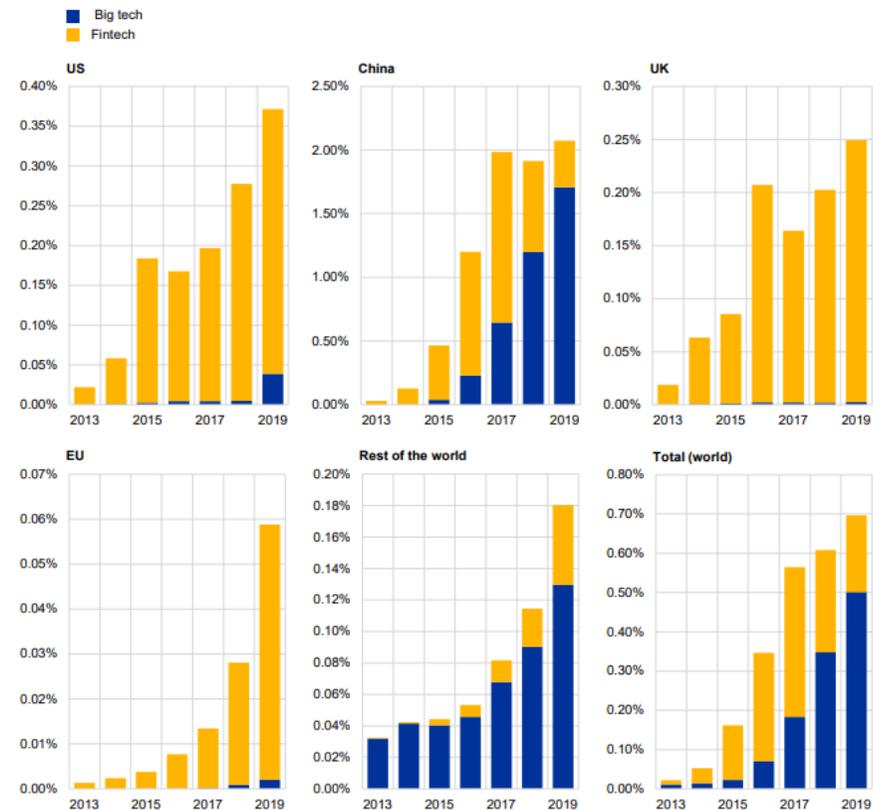


Source: ESRB ASC Report No 12 / January 2022: Will video kill the radio star? - Digitalisation and the future of banking

- Currently still only relatively modest inroads into Western financial systems
- But big tech firms have some potentially big advantages, e.g.:
  - Technical knowhow
  - Up-to-date systems
  - Scale (financial capacity, existing customers)

Share of fintech and big tech credit of total domestic lending by the financial sector

(percentages)



Sources: Cornelli et al. (2020) and own calculations.

Notes: Data on total lending by the financial sector are not available for 2019 in Cornelli et al. (2020), so the values for 2018 are used to compute the ratios for 2019.

Source: ESRB ASC Report No 12 / January 2022: Will video kill the radio star? - Digitalisation and the future of banking

- Old risks with a new skin, e.g.:
  - Maturity/liquidity transformation
  - Potentially untested business models
- Non-financial vulnerabilities, e.g.:
  1. Concentration in provision of basic services, such as cloud computing
  2. Extensive use of AI could unwittingly bolster inappropriate trends
  3. APIs allow different software applications to communicate with each other and hence facilitate service unbundling and reaching underserved niches. But if not deployed well may add to risks of operational failure, cyberattacks, ...
  4. Converting legacy to modern IT systems can eliminate latent vulnerabilities. But again if not deployed well may add to cyber risk exposures etc.
  5. Trust in management or in control of a process by a central authority might be replaced by trust in a leading technology. But that technology could itself become obsolete or untrustworthy

# Three hypothetical scenarios

## ■ Incumbent banks continue their dominance

- Banks maintain central role in money creation and financial intermediation
- Big tech companies offer payment services but not able to access central bank clearance and payment systems
- Banking system renews itself by incorporating new providers and products

## ■ Incumbent banks retrench

- Big tech offers financial services through regulated subsidiaries and captures hard data, transaction-based lending market
- Structural change, with traditional banks retrenching and fintech and big tech firms expanding, with consequential new sources of risks (including macroprudential risks)

## ■ Central bank digital currencies (CBDC) are widely issued

- Issuance of retail CBDC leads to a major reshaping of the financial system as they have massive scope to attract retail depositors
- Leads to scaled up central bank intermediation with incumbent players likely to need to follow higher risk strategies to have a future
- Additional systemic risks, e.g., cross-border risks and bank run risks?

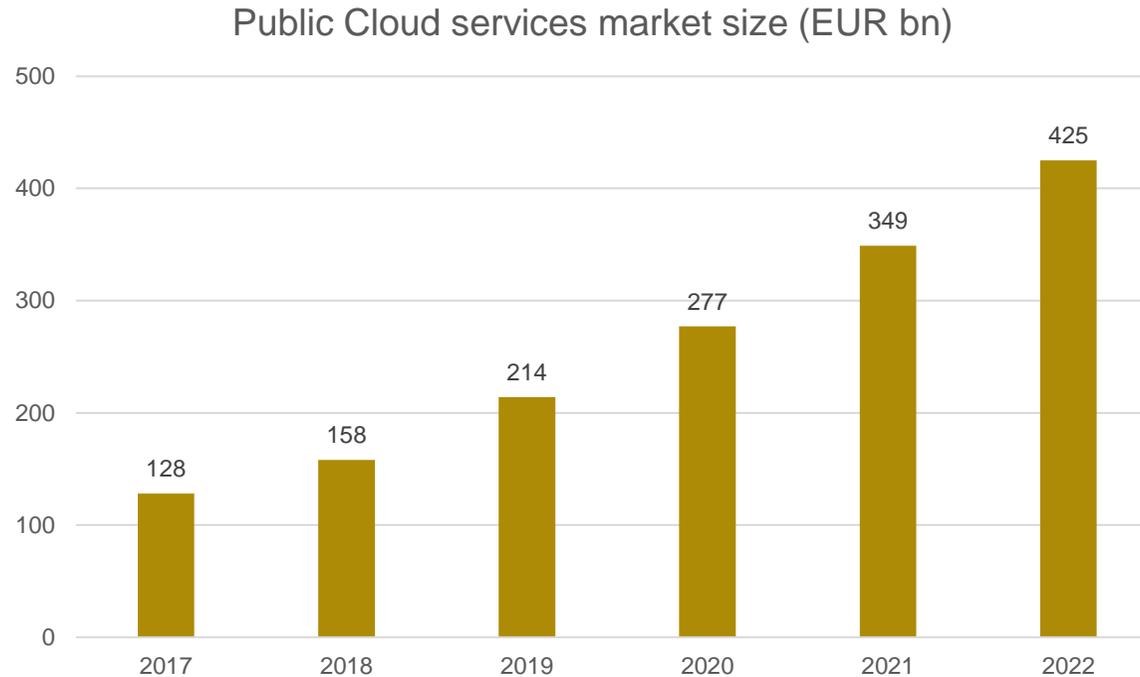


# Do other parts of the financial system face similar issues?

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- Possibly, according to Jan 2022 Joint European Supervisory Authority response to European Commission's Feb 2021 Call for Advice on digital finance and related issues, e.g.:
  - Increasing reliance on third parties, such as cloud computing providers
  - Need for holistic approach to regulation and supervision of fragmented value chains
  - Risk of harm to consumers with lower levels of financial / digital literacy
  - Borderless nature of digital financial services
  - Scope to create weaknesses in AML/CFT processes
  - Blurring between financial and non-financial activities
  - Need for closer cooperation between financial and other authorities, between home and host authorities and in coping with social media impacts on financial system
  - An insurance-specific recommendation on reinsurance: some stakeholders have argued that a restrictive interpretation of SII Article 18 could limit the ability of (re)insurance undertakings to experiment with new business models and technologies and develop platforms and ecosystems around them

# Booming public cloud services



Public cloud services end-user spending worldwide from 2017 to 2022

Source: Joint European Supervisory Authority response (31 Jan 2022) to European Commission's February 2021 Call for Advice on digital finance and related issues: regulation and supervision of more fragmented or non-integrated value chains, platforms and bundling of various financial services, and risks of groups combining different activities, itself sourced from: Statista, ESMA

# Is there appetite to consider this topic further within AAE?

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- Thoughts welcome!
- What do we think will be impact of digitalisation on insurers, pension funds, ...?
- N.B. EIOPA's website has a range of material in this area, see e.g., [https://www.eiopa.europa.eu/browse/digitalisation-and-financial-innovation\\_en](https://www.eiopa.europa.eu/browse/digitalisation-and-financial-innovation_en)