IESE Business School
University of Navarra
Banking Initiative

Panel on Technological Innovation and Systemic Risk

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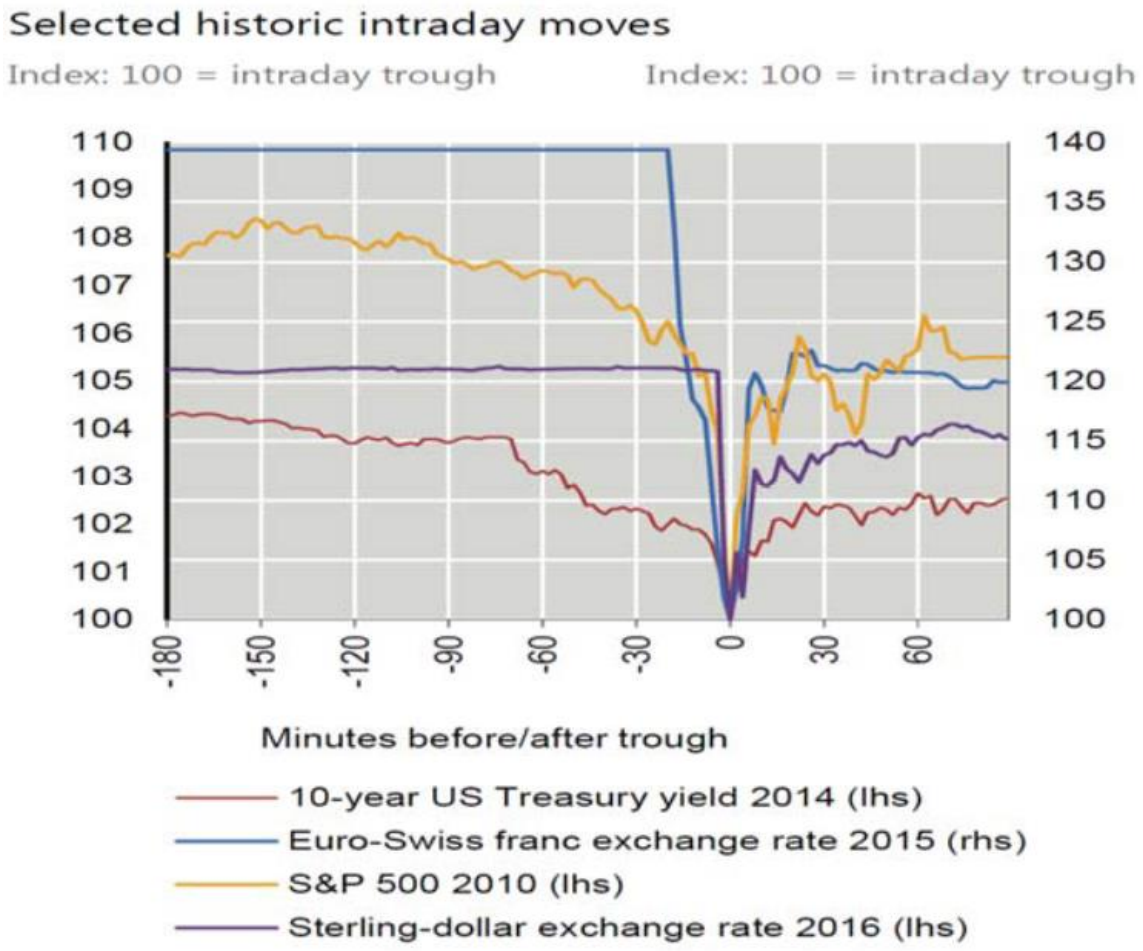
Electronification, market structural change, and the drivers of market fragility

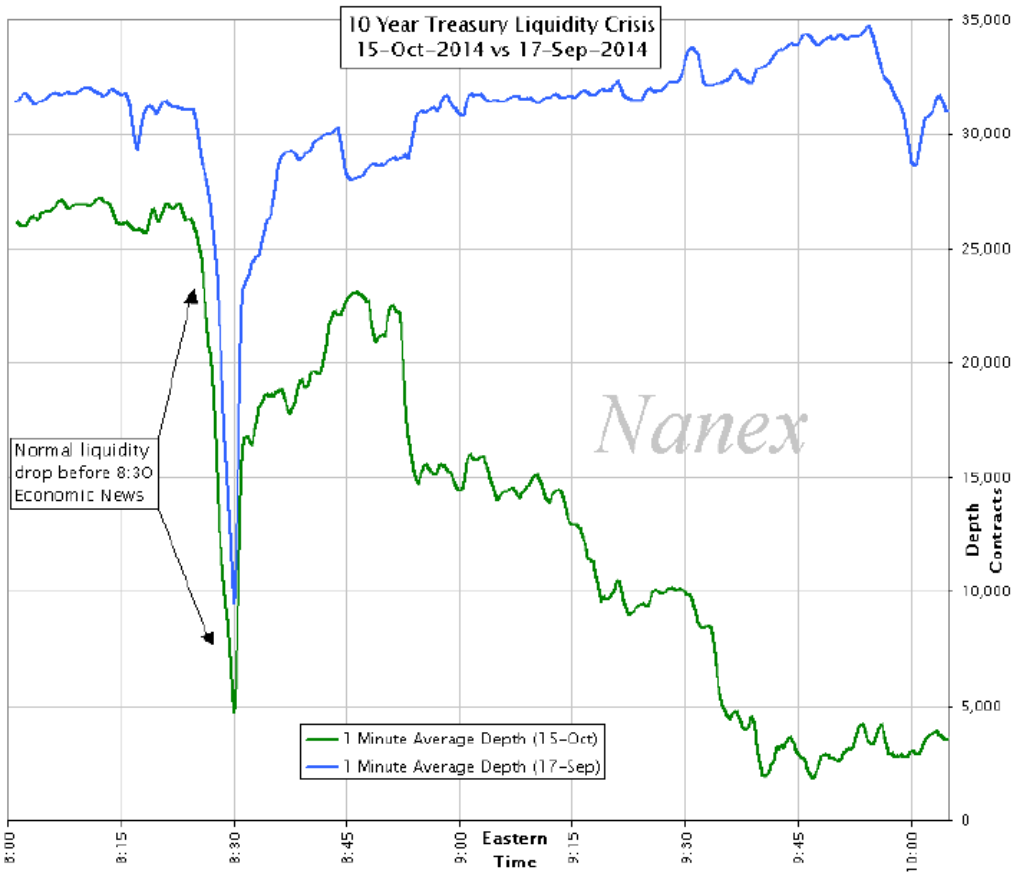
Flash events: Episodes of sudden liquidity dry-ups with large price movements that quickly reverse



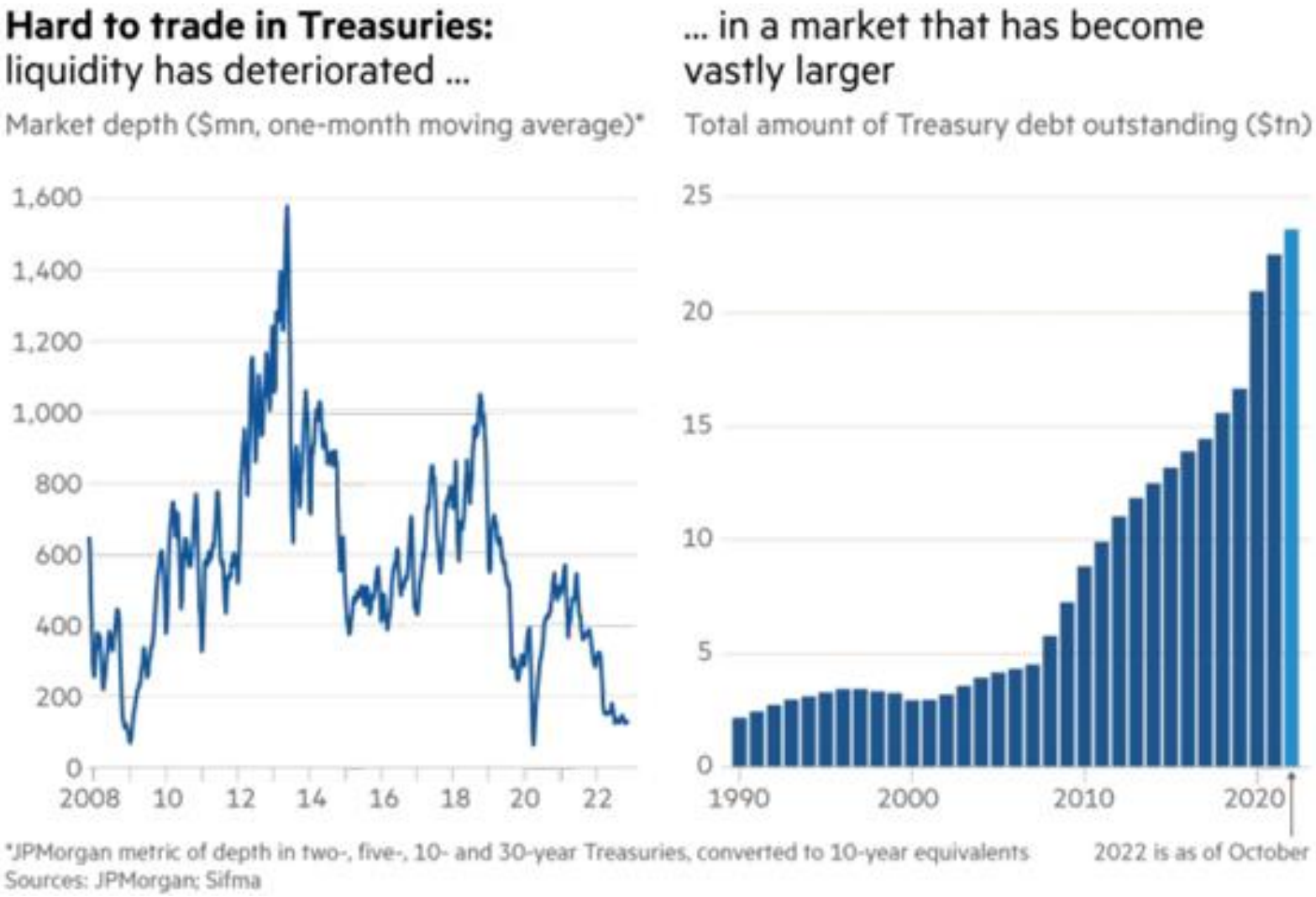
Source: BIS (2017), "The Sterling 'Flash Event' of 7 October 2016", Markets Committee Paper 9.

The US Treasury bond flash event

October 15, 2014



Hard to trade in Treasuries

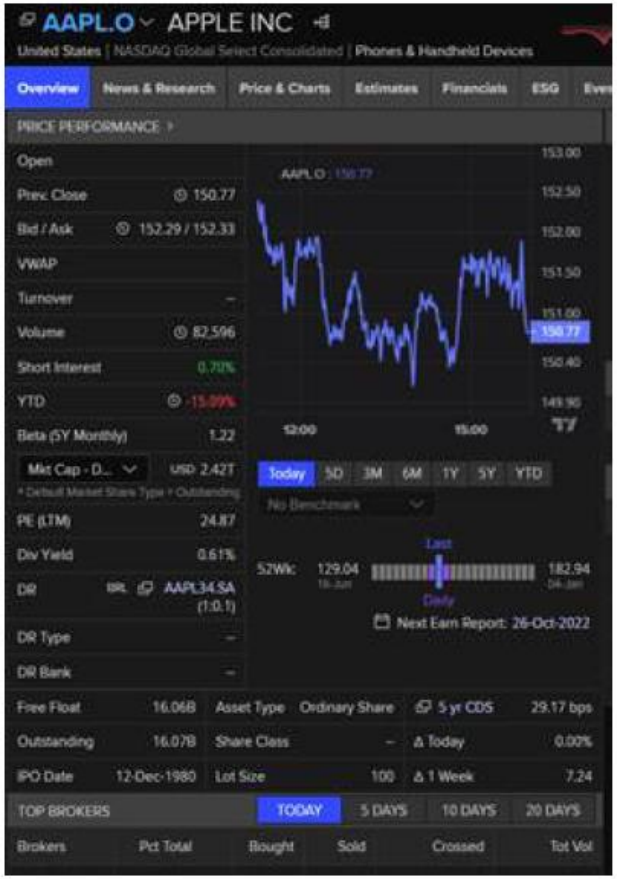


Fragility in the US Treasury market

- Financial Stability Report of the Fed (November 2022):
  - "The continued low level of market depth means that liquidity remains more sensitive to the actions of liquidity providers that use high-frequency trading strategies to replenish the order book rapidly."
  - "Greater concentration of liquidity provision among firms that may follow similar strategies can be a source of fragility, making it more likely that liquidity could further deteriorate sharply in response to future shocks."
- Greg Peters (PGIM Fixed Income):
  - "The odds of a financial accident are just higher"

Electronification and change in market structure

(a) Trading floor: liquidity supplied by professional agents.



(b) LOB: all-to-all trading

Consequences

Market information is vital to trade and provide liquidity

Despite that there are more potential liquidity suppliers and there is more information provision:

(a) Participation of some liquidity suppliers is variable (for technical or regulatory reasons) and

(b) there are *frictions in market information* limiting some traders' access to reliable and timely market information

The result is that *modern markets have improved liquidity and welfare on average but at the cost of increased fragility*: small changes in market parameters may have large effects in liquidity

The feedback loop mechanism

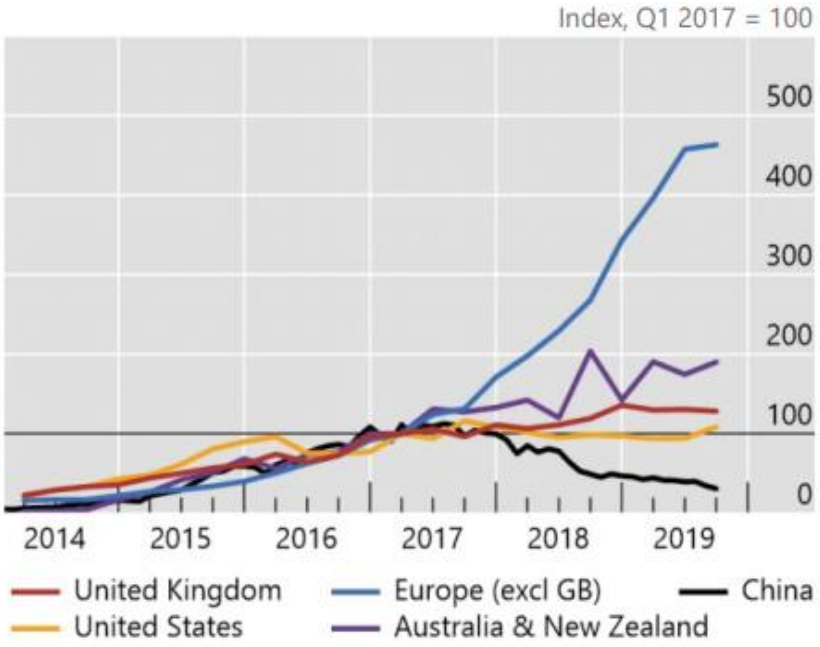
- Market opacity can prevent the participation of non-standard liquidity providers in the market and impair the risk bearing capacity of the market.
- The loop: A drop in liquidity may increase the demand for liquidity and generate a further drop in liquidity, making liquidity fragile.
  - This happens when the risk bearing capacity of the market is insufficient to absorb traders' hedging needs (liquidity demand is strong, volatility of payoff large, traders/market makers with high risk aversion).
  - Fragility is aggravated by withdrawal of market makers.
- *Policy* to foster risk sharing, market stability, and improve welfare:
  - Disclosure/transparency to make available reliable market information.
    - Consolidated tape in Europe.
  - Continuous dealer participation in the market (with non-linear effects)

Impact of FinTech in lending markets: consequences for investment, bank stability and welfare

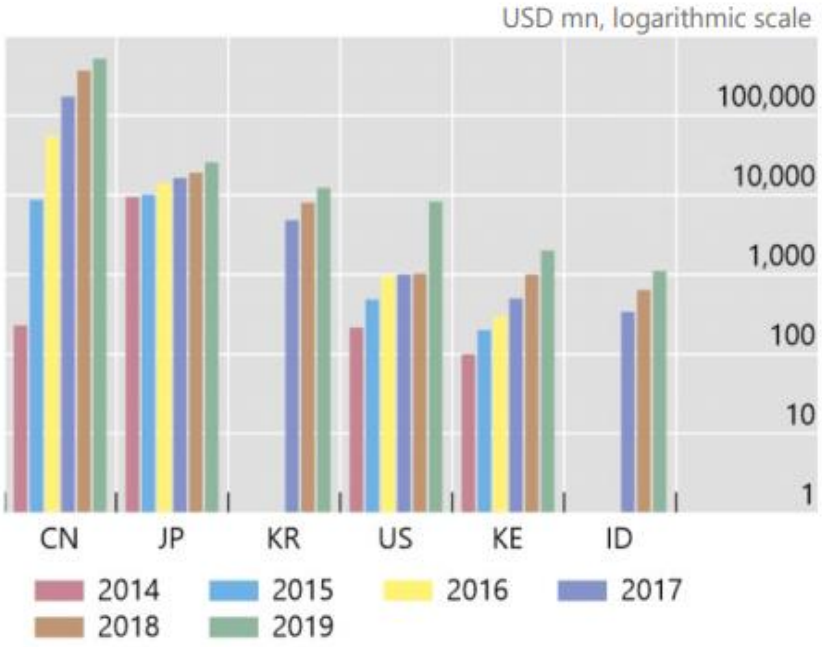
Growth of Fin/BigTech credit

Fintech credit is growing in Europe, big tech credit is booming in Asia

Fintech lending volumes are diverging[1]



Big tech credit is booming in Asia, the United States and Africa[2]



CN = China, JP = Japan, KR = Korea, US = United States, KE = Kenya, ID = Indonesia.

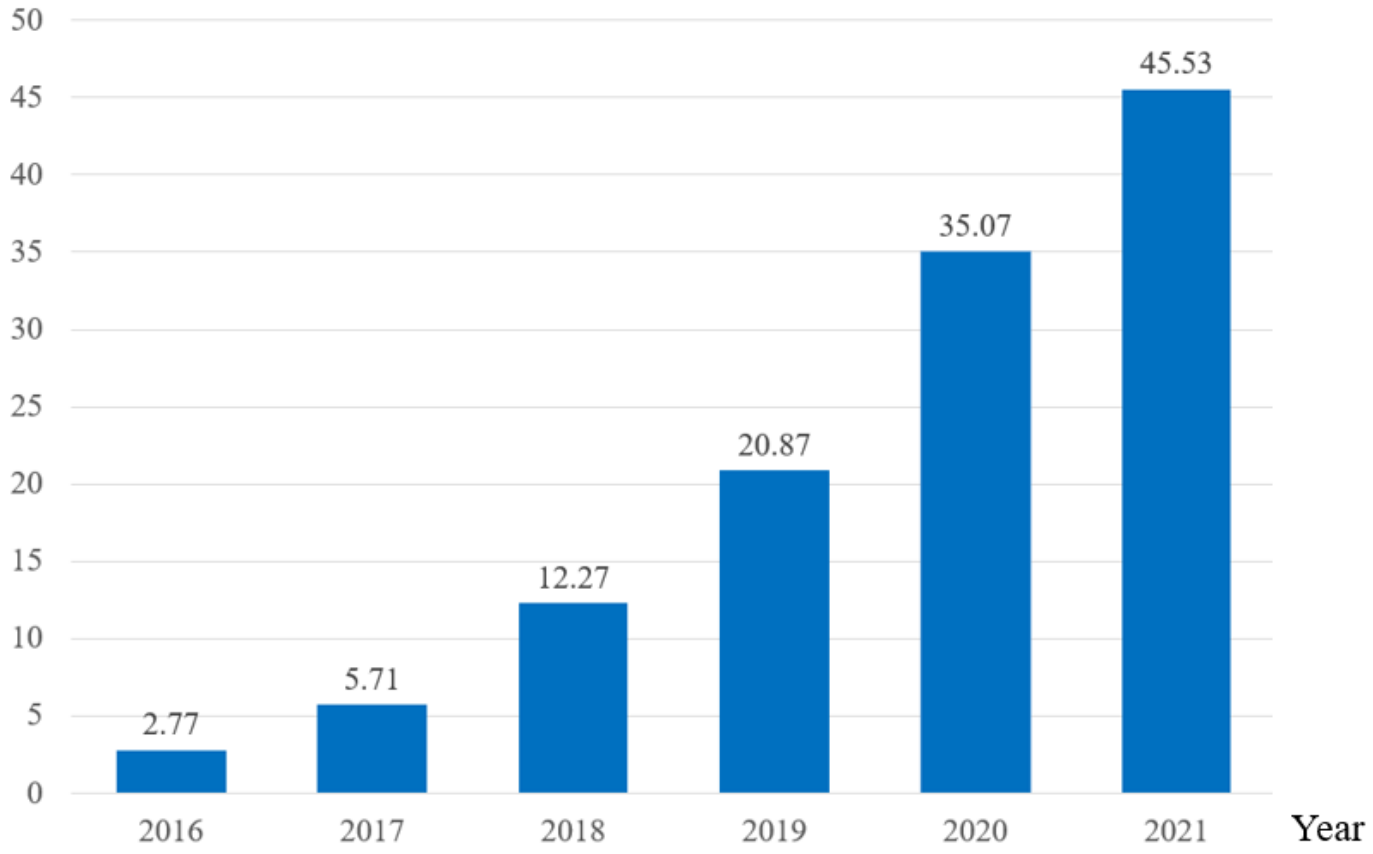
[1] Data are based on five platforms for Australia and New Zealand, all platforms covered by WDZJ.com for China, 49 platforms for Europe, 34 for the United Kingdom and five for the United States. Volumes are reported in local currency. [2] Figures include estimates.

Source: Brismo.com; WDZJ.com; companies' reports; authors' calculations.

Source: Cornelli et al. (2020), "Fintech and big tech credit: a new database", BIS WP nº 887.

Individual-Micro-Small business lending of MY Bank in China

The Number (Million) of Individual-Micro-Small Enterprises Supported by MY Bank Digital Loans



Source: Annual reports of MY Bank 2016-2021

To what extent does the emergence of FinTech makes banking

more contestable?

more or less stable?

better or worse aligned with social welfare?

Lending markets:

- If an intermediary adopts more advanced IT, then it can charge higher loan rates and is more stable (skin in the game monitoring effect)
- However, the impact of an overall adoption of IT depends on its type

Technology improvements in monitoring and welfare

Improvement in monitoring efficiency	Related technology
Type I: In processing information	ML with big/unconventional data, advances in cloud storage/computing, information management software
Type II: Improvement in communication (decreasing physical distance friction)	diffusion of internet, video conferencing, smart phone, mobile apps, social media
Type II: Hardening soft information (decreasing expertise distance friction)	ML with big/unconventional data, credit scoring

- Type I improvement betters bank stability
- Type II improvement decreases bank differentiation, increasing competitive pressure and making banks less stable and reducing welfare if competition is already intense
- Both types of IT improve welfare when they extend the market

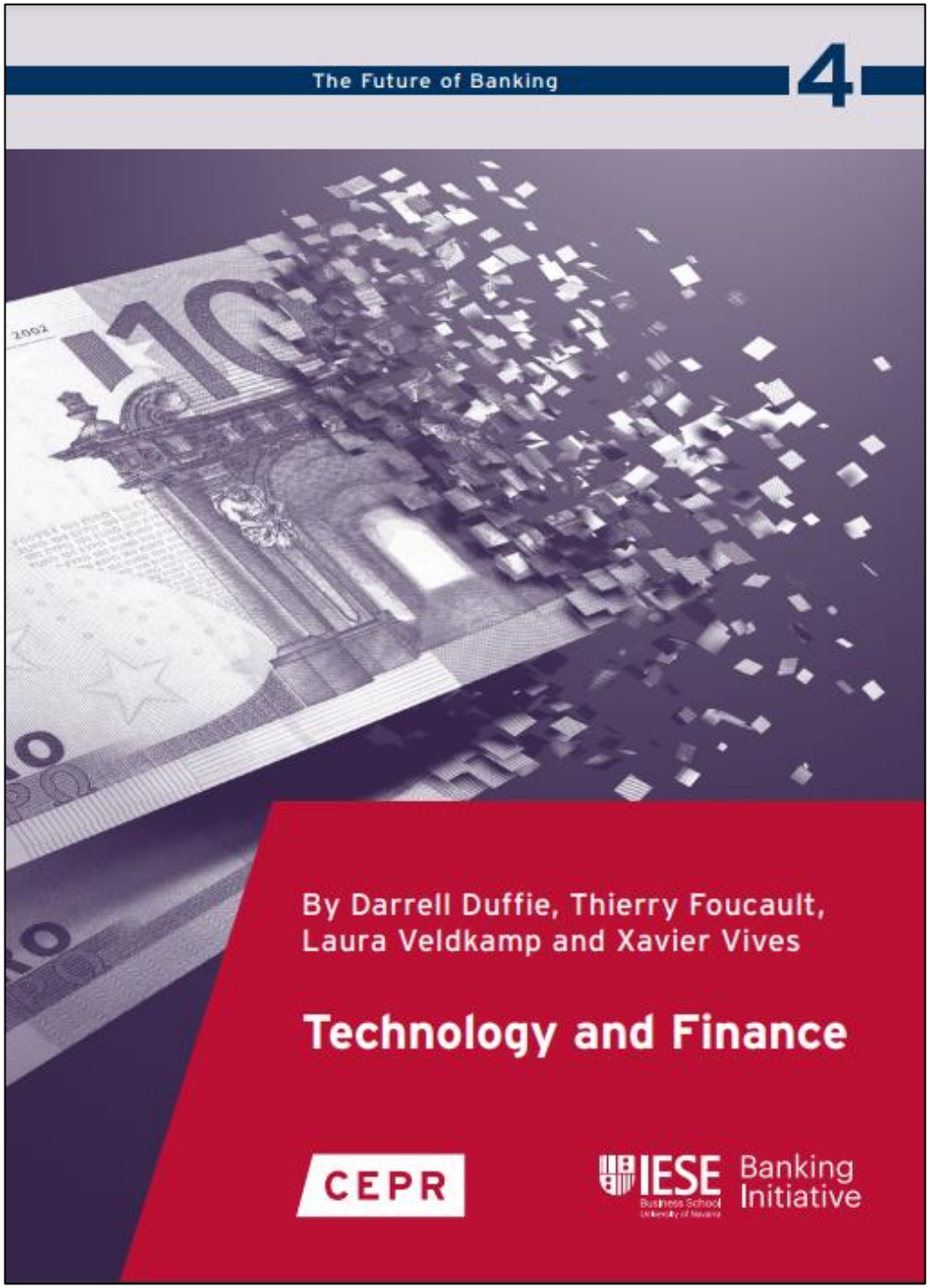
The effects of entry of fintechs

- If banks have less flexibility in pricing than fintechs:
  - A fintech can penetrate the lending market with no advantage in monitoring efficiency or funding cost.
  - For entrepreneurs of the same characteristics, banks' monitoring effort is higher than the one of fintechs (and fintech borrowers are more likely to default).
  - Fintech entry may decrease entrepreneurs' investment if the competition within fintechs is not sufficiently intense.
- When banks can price as flexible as fintechs, fintech entry happens only if they have better efficiency or funding costs.
- Fintech entry can induce bank exit/restructuring, potentially reducing the intensity of lending competition and hurting investment.
- Fintech entry is unambiguously good when it extends the market to unserved customers.

References

http://blog.iese.edu/xvives/

- Carletti, E., Claessens, S., Fatás, A. and Vives, X. (2020). The Bank Business Model in the Post-Covid-19 World, CEPR.
- Cespa, G. and Vives, X. (2022). Market Opacity and Fragility, WP.
- Duffie, D., Foucault, T., Veldkamp, L. and Vives, X. (2022). Technology and Finance, CEPR.
- Vives, X. (2019). Digital Disruption in Banking, *The Annual Review of Financial Economics,* 11, 243-272.
- Vives, X. and Ye, Z. (2022). Information Technology and Bank Competition, WP.
- Vives, X. and Ye, Z. (2022). Fintech Entry, Lending Market Competition and Welfare, WP.


The Future of Banking
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By Darrell Duffie, Thierry Foucault,
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