![BIS 1930-2020 Promoting monetary and financial stability]

Innovation and the digital economy: some new evidence

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"Policy panel on policy implications of financial innovation" – 25 September 2020

# Two examples of policy areas we are working on

- How the use of big data changes the financial intermediation process
  - Is big tech credit less pro-cyclical than bank credit?
  - How could big techs entry in finance affect the monetary policy transmission mechanism?

- Sandboxes and public policy to foster innovation and competition
  - Does entry into a sandbox help fintech start-ups to raise funds?
  - What are the mechanisms, and the implications?

Data vs collateral

- Data reduce the importance of collateral in solving asymmetric information problems in credit markets, especially for SMEs

- Random sample of more than 2 million Chinese firms that have received credit from Ant Group and traditional banks

- Compared three types of credit:
  - Big tech credit (short term)
  - Secured bank credit (mortgages)
  - Unsecured bank credit (credit lines)

Big tech credit reacts less to changes in house prices and local GDP

Elasticity of credit with respect to house prices and GDP
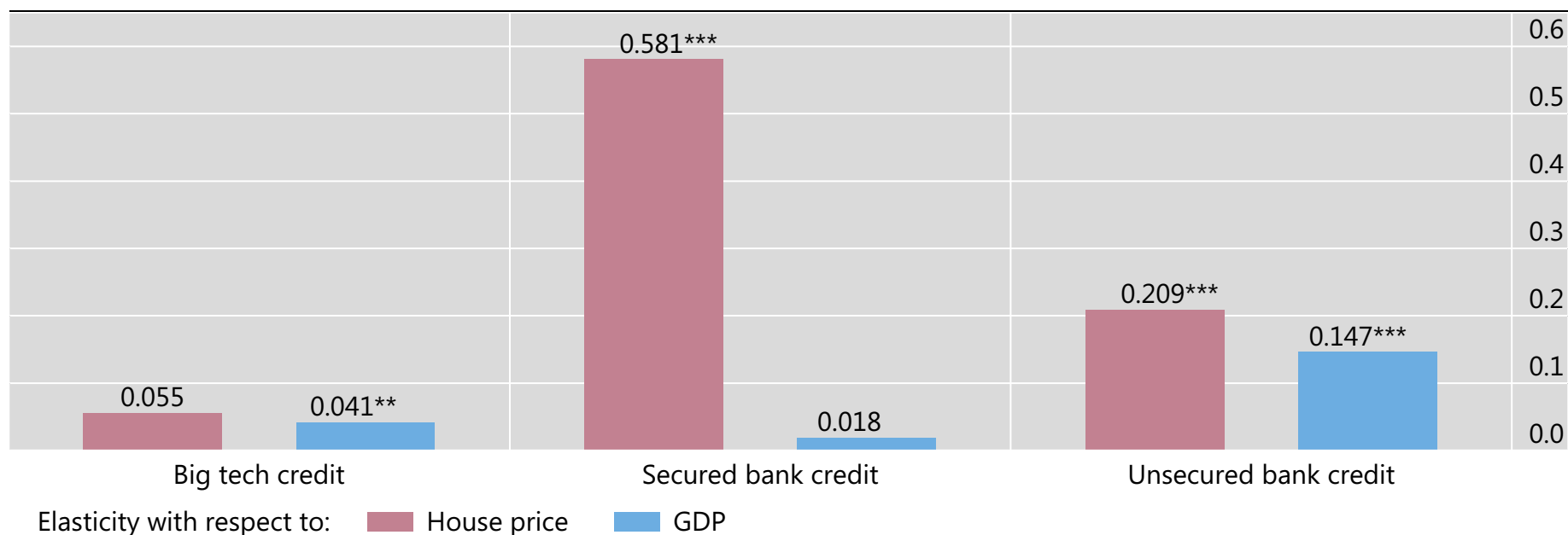
The figure reports the coefficient of three different regressions (one for each credit types) in which the log of credit is regressed with respect to the log of house prices at the city level, the log of GDP at the city level and a complete set of time dummies. Significance level: ** $p<0.05$; *** $p<0.01$.

Source: Gambacorta, L, Y Huang, Z Li, H Qiu, and S Chen (2020): "Data vs collateral." *BIS Working Paper*, no 881, September.

Sandboxes and public policy to foster innovation and competition

- Trade-off between the positive effects on competition/inclusion and new risks to financial stability/consumer protection

- "Regulatory sandboxes" to foster innovation in the financial sector while staying alert to emerging risks

  - For regulators: identify risks *ex ante* and facilitate information sharing with start-ups

  - For start-ups: reduce regulatory uncertainty and time-to-market, obtain better access to finance

- Already adopted in more than 50 countries; UK FCA started in 2015
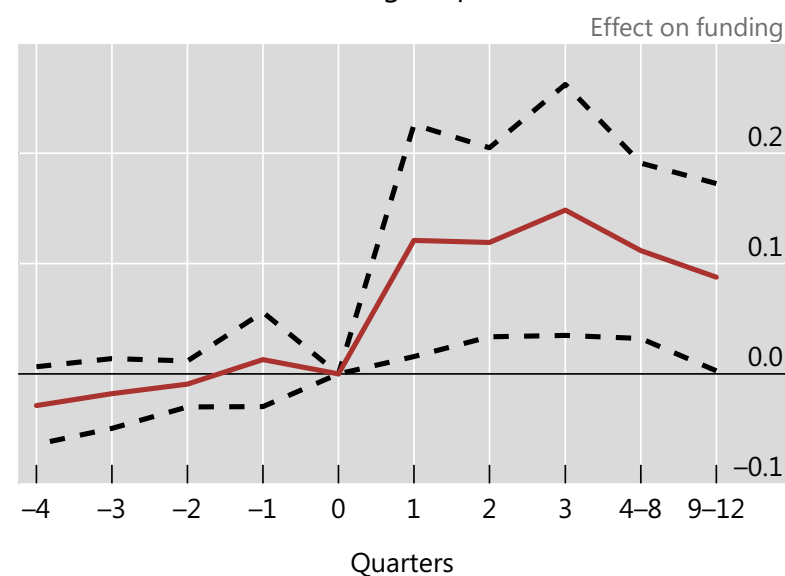
Sandboxes help start-ups to raise funding

Effects of regulatory sandboxes on fintech funding

Deal volume around sandbox entry date

Model estimates: controlling for pre-trends
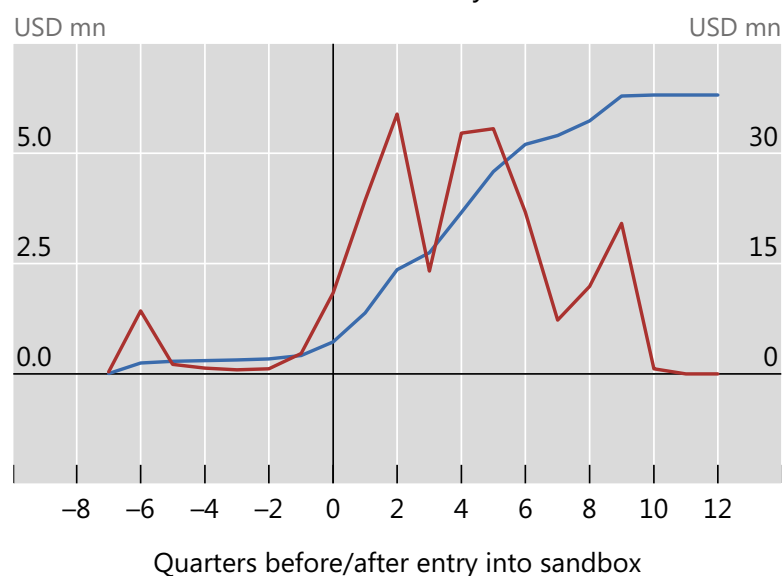
The left-hand panel plots total quarterly funding raised (left axis) and cumulative funding raised (right axis) by our sample of sandbox-fintech firms. Negative values on the horizontal axis denote the quarters before a firm enters the sandbox, zero the quarter of entry, and positive values the quarters post-sandbox entry. The right-hand panel shows coefficient estimates of β_k from a model that controls for pre-trends. Value zero on the horizontal axis corresponds to the date of entry, and k is the estimated change in deal amount t quarters before or after entry. Dashed lines represent 90% confidence intervals.

Source: Cornelli, G, S Doerr, L Gambacorta and O Merrouche (2020): "Inside the Regulatory Sandbox: Effects on Fintech Funding", *BIS Working Paper*, forthcoming.

Main takeaways and open questions

- Big techs' entry in finance changes the financial intermediation process

  - What are the effects on competition?

  - Can the massive use of data lead to digital monopolies?

  - Could the sophisticated algorithms used to process the data develop biases towards minorities?

- Sandboxes reduce informational asymmetries and regulatory costs

  - What are the costs and benefits of sandboxes for society as a whole?

  - Do they produce competitive distortions and inequality among firms?

  - What are the overall welfare effects?

References

Cornelli, G, S Doerr, L Gambacorta and O Merrouche (2020): "Inside the regulatory sandbox: Effects on fintech funding", BIS Working Paper, forthcoming.

Gambacorta, L, Y Huang, Z Li, H Qiu, and S Chen (2020): "Data vs collateral", BIS Working Paper, 881, September.