

Cornelli, Giulio et al.

**Article**

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*Giulio Cornelli, Jon Frost, Leonardo Gambacorta, Raghavendra Rau, Robert Wardrop and Tania Ziegler*

# Fintech and Big Tech Credit: What Explains the Rise of Digital Lending?

## ABSTRACT

Credit markets around the world are undergoing a deep transformation. Fintech and big tech firms are providing more lending to households and small businesses. A new database estimates that fintech credit flows reached USD 223 billion in 2019, while big tech credit reached USD 572 billion. What explains their growth? Both fintech and big tech credit are larger with higher GDP per capita (at a declining rate), higher banking sector mark-ups and less stringent banking regulation. Both are higher where economic and institutional factors favor the supply of such lending. The Covid-19 pandemic represents an important test for these new forms of credit.

In the last decade, two new types of credit intermediation have emerged and grown rapidly. Both use new digital technologies to compete with banks in their core lending function (Stulz 2020). The first innovation is fintech credit, i.e., credit activity facilitated by electronic (online) platforms that are not operated by commercial banks (Claessens et al. 2018). This is also called “debt-based alternative finance” (Wardrop et al. 2015). It includes peer-to-peer or marketplace lending by platforms like Zopa and Funding Circle in the UK, LendingClub and SoFi in the US, Yiren Digital and others in China, and Harmony in Australia and New Zealand. It also includes invoice trading, mini-bonds and other forms of financing for consumers and small businesses based on online platforms. Data

on this type of activity is compiled in the Cambridge Centre for Alternative Finance (CCAF) and the Global Alternative Finance database (Ziegler et al. 2020). These data, discussed in Rau (2021) and available from CCAF, are based on an annual online questionnaire of alternative finance volumes and characteristics available for 2013-2018.

A second innovation is the expansion of big tech firms into credit markets. Big tech refers to large companies whose primary activity is digital services, rather than financial services (de la Mano and Padilla 2018; Frost et al. 2019). These firms often have large established networks from non-financial business lines, such as electronic commerce (“e-commerce”), social media or internet search, and these networks and activities give them access to valuable data on individuals and firms (BIS 2019). In recent years, many such firms have begun to lend to their users, either directly—e.g., through a financial services subsidiary—or in partnership with traditional financial institutions. Examples include the lending activities of Alibaba’s Ant Group and Tencent’s WeBank in China, of Amazon in the US, UK and other countries, of Google in India, of M-Pesa and other mobile money operators in Africa or Grab and Go-Jek in Southeast Asia and of Mercado Libre and others in Latin America.

Because these forms of credit intermediation are new, they are often not yet included in official credit statistics. This is a problem, as central banks and regulators are responsible for monitoring credit markets. Like good pilots, authorities should not be “flying blind.”



**Giulio Cornelli**

is Senior Financial Market Analyst at the Monetary and Economic Department of the Bank for International Settlements.



**Jon Frost**

is Senior Economist at the Monetary and Economic Department of the Bank for International Settlements and a research affiliate of the Cambridge Centre for Alternative Finance at the University of Cambridge.



**Leonardo Gambacorta**

is Head of the Innovation and the Digital Economy Unit at the Monetary and Economic Department of the Bank for International Settlements.

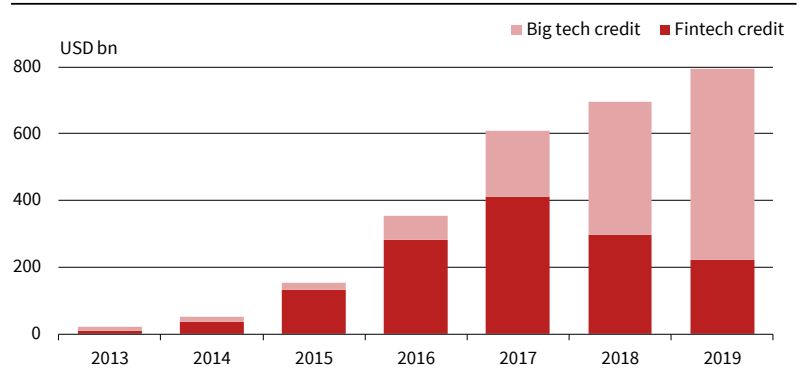
A new paper and database (Cornelli et al. 2020) aims to fill this gap. It combines data from the CCAF Global Alternative Finance database with hand-collected data on big tech credit from various public sources such as firms' annual reports, as well as information from contacts at big tech companies and central banks. In some cases, it has been necessary to estimate lending flows based on end-year stocks of credit, and to estimate 2019 numbers based on figures in past years and growth in user numbers or revenues. Where big tech firms lend in multiple jurisdictions, it has sometimes been necessary to make assumptions about how such lending is distributed across different markets.

The data show that globally, big tech credit is booming, overtaking fintech credit (Figure 1). Big tech lending volumes reached USD 572 billion in 2019—a growth of 44 percent over 2018. Fintech credit volumes actually declined by 25 percent to USD 223 billion in 2019. This decline is driven entirely by China, where regulatory reforms and a series of platform exits have led to a contraction in both the stock and flow of fintech lending. In other countries, fintech credit continues to grow rapidly. Both fintech and big tech platforms have in some cases moved toward partnership models, where the fintech or big tech firm distributes financial products, but a financial institution retains such lending on its balance sheet.

The largest markets for big tech credit in absolute terms are China, Japan, Korea and the US. In each of these markets, lending by big techs, either directly or in partnership with financial institutions, has risen rapidly (Figure 2). In Japan, e-commerce firm Rakuten and social media company LINE are notable lenders. In Korea, the two virtual banks Kakao Bank and KBank have ramped up their lending since their launch in 2017.

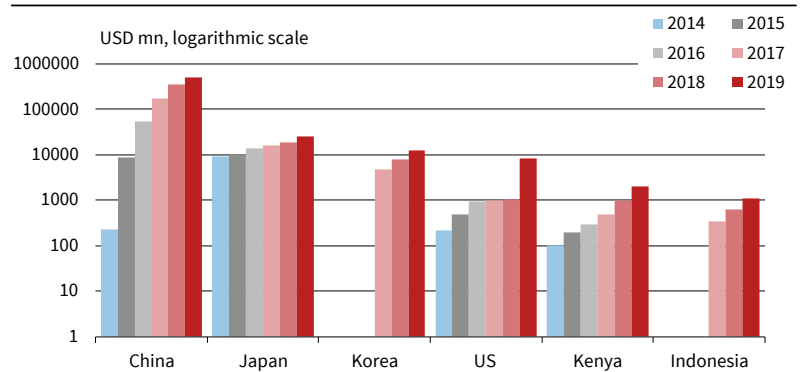
In some markets, the two new forms of credit intermediation are becoming economically relevant. In particular, the sum of fintech and big tech credit flows were equivalent to 2.0 percent of the stock of total private credit in China in 2019 (Figure 3). Meanwhile, they reached 5.8 percent of the stock of total credit in Kenya and 1.1 percent in Indonesia. In ad-

Figure 1  
Big Tech Credit Is Overtaking Fintech Credit



Note: 2019 fintech lending volume figures are estimated on AU, CN, EU, GB, NZ and US. Source: Cornelli et al. (2020). © ifo Institute

Figure 2  
Big Tech Credit Is Booming in Asia, the United States and Africa



Note: Figures include estimates. Source: Cornelli et al. (2020). © ifo Institute

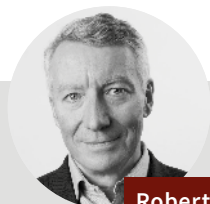
vanced economies, volumes are smaller relative to overall markets, but market shares can be large in specific market segments. In the UK, for example, Ziegler et al. (2020) estimate that fintech credit platforms accounted for up to 27.7 percent of equivalent bank credit to small and medium enterprises with annual turnover below GBP 2 million in 2018. Buchak et al. (2018) and Fuster et al. (2018) show that fintech lenders are becoming important players in US mortgage markets.

There are some key differences between fintech and big tech lenders. Most notably, the core busi-



Raghavendra Rau

is the Sir Evelyn de Rothschild Professor of Finance at Cambridge Judge Business School, University of Cambridge. He is Director of the Cambridge Centre for Alternative Finance and a member of the Cambridge Corporate Governance Network.



Robert Wardrop

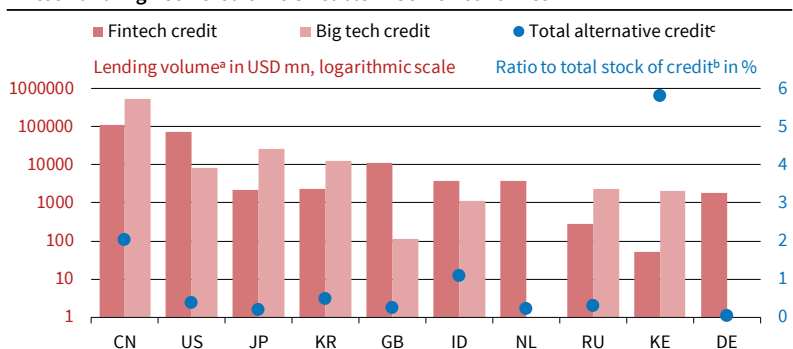
is Professor in Management Practice at the University of Cambridge Judge Business School and Director of the Cambridge Centre of Alternative Finance.



Tania Ziegler

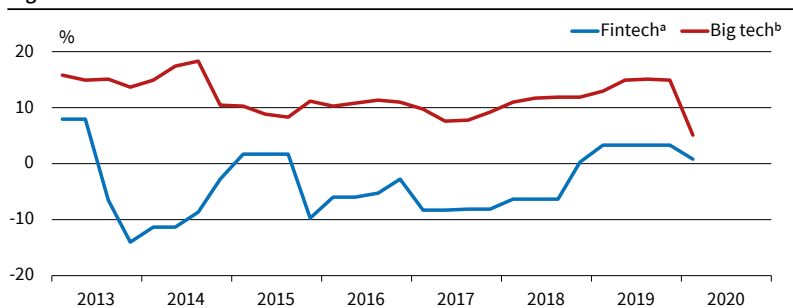
is a senior research associate at the Cambridge Centre for Alternative Finance, Cambridge Judge Business School and manages the Centre's alternative finance benchmarking program.

Figure 3  
Fintech and Big Tech Credit Are Sizeable in Some Economies



Note: <sup>a</sup> Data for 2019. <sup>b</sup> Domestic credit provided by the financial sector. Data for 2018. <sup>c</sup> Total alternative credit is defined as the sum of fintech and big tech credit. Data for 2019. Source: Cornelli et al. (2020). © ifo Institute

Figure 4  
Big Tech Firms Are More Profitable Than Fintech Platforms



Note: <sup>a</sup> Simple average of Black Knight Financial Services, Elevate, Enova International, Fellow Finance, Funding Circle, LendingClub, Lendingtree, Nelnet, OnDeck and Synchrony. <sup>b</sup> Simple average of Alibaba, Amazon, Apple, Baidu/Du Xiaoman, Facebook, Google, JD.com, Kakao, LINE, Microsoft, MTS bank, Orange, Rakuten, Samsung, Tencent, Uber, Vodacom, Vodafone and Yandex. Source: Cornelli et al. (2020); Brismo.com; Refinitiv Eikon; WDJ.com. © ifo Institute

ness of fintech credit platforms is financial services, whereas big tech firms often have a range of (non-financial) business lines in addition to their lending activities. This gives big techs access to user data and distribution networks, as well as high profit margins, which in turn provide big techs' financial resources to grow. These margins are particularly high when compared with those of fintech credit platforms, which have often struggled to achieve profitability (Figure 4) and have relied on new investor funding for expansion.

**DRIVERS OF FINTECH AND BIG TECH CREDIT**

To understand the drivers of fintech and big tech credit, we perform panel regressions of log credit per capita for 79 countries over 2013–2018.<sup>1</sup> We consider fintech and big tech credit separately and the sum of the two (total alternative credit). We also consider differences between fintech and big tech credit. Table 1 shows our regression results.

We confirm that fintech and big tech credit can be explained by a mix of supply and demand factors. On the demand side, we show the following:

<sup>1</sup> We exclude 2019 volumes given the lack of availability of many independent variables.

- More developed economies (with higher GDP per capita) have a higher demand for credit from firms and households, and thus higher fintech and big tech credit. This relationship decreases for very high levels of development (in line with Claessens et al. 2018; Bazarbash and Beaton 2020). It is relative stronger to fintech than for big tech credit; the difference between the estimated coefficient for fintech and big tech credit for GDP per capita is statistically significant.
- When banking services are more expensive (higher banking sector mark-ups), for instance because of less competition, this may mean more demand for cheaper credit from fintech and big tech lenders. Bank mark-ups explain around 5 percent of the variability of total alternative credit per capita. Again, fintech credit is especially higher in these cases.
- Where there is a larger un(der)met demand for financial services, as proxied by fewer bank branches per capita, we find higher fintech credit volumes—but not more big tech credit. This is consistent with the view that fintech credit serves clients in underbanked areas and that it is therefore complementary to traditional bank credit. Big tech credit, while also relying on digital distribution channels rather than physical branches, does not appear to be correlated with the number of bank branches relative to the adult population, all else being equal.

On the supply side, we find that:

- More stringent banking regulation (a proxy for the overall stance of financial regulation—see Barba Navaretti et al. 2017) is associated with higher fintech and big tech credit. These rules may create barriers to the entry for fintech and big tech firms. Banking regulation explains around 10 percent of the variability of total alternative credit per capita in the baseline model. Conversely, we find in a separate set of results that dedicated regulatory frameworks for fintech credit (typically designed when the market reaches a certain scale) allow these markets to further grow and develop. This is in line with Rau (2021).
- Institutional characteristics, such as the ease of doing business, investor protection and disclosure and the judicial system (also reported in the paper), are associated with higher alternative credit volumes, likely because they allow fintech and big tech firms to enter credit markets and to grow.
- Characteristics of the incumbent banking system and of financial markets shape innovation. Alternative credit volumes are higher where banks are better capitalized, the bank credit-to-deposit ratio is lower, and where bond and equity markets are more developed. There is also a strong

Table 1

**Drivers of Fintech and Big Tech Credit Volumes**  
(All variables are expressed in current USD, except where indicated)

	Ln (total alternative credit per capita)	Ln (big tech credit per capita <sup>5</sup> ) (a)	Ln (fintech credit per capita <sup>6</sup> ) (b)	Difference  b-a  H <sub>0</sub> :  b-a <0
GDP per capita <sup>1</sup>	0.123*** (0.022)	0.069*** (0.020)	0.171*** (0.038)	0.102*** (0.043)
GDP per capita <sup>2</sup>	-0.002*** (0.000)	-0.001*** (0.000)	-0.002*** (0.001)	0.001 (0.001)
Lerner index <sup>2</sup>	1.438*** (0.401)	0.867** (0.365)	2.436*** (0.732)	1.569** (0.818)
Bank branches per 100,000 adult population	-0.017*** (0.005)	0.005 (0.005)	-0.028*** (0.009)	0.033*** (0.010)
Normalized regulation index <sup>3</sup>	-4.665*** (0.560)	-1.735*** (0.544)	-8.427*** (1.068)	6.692*** (1.199)
Other controls <sup>4</sup>	Yes	Yes	Yes	
Geographic area fixed effects <sup>7</sup>	Yes	Yes	Yes	
No. of observations	453	453	453	
Estimation method	OLS	OLS	OLS	
R <sup>2</sup>	0.469	0.112	0.516	

Notes: Estimation period: 2013–18. Robust standard errors in parentheses. \*\*\*/\*\*/\* denotes results significant at the 1/5/10% level. Ln = natural logarithm. The dependent variables have been winsorized at the 1% and 99% level. <sup>1</sup> GDP per capita (in USD thousands). <sup>2</sup> Lerner index of banking sector mark-ups in economy *i*, reflecting market power by incumbent banks. <sup>3</sup> The index is normalized between 0 (no regulation) and 1 (max regulation). <sup>4</sup> Other controls include: GDP growth; a crisis dummy that takes the value of 1 if the country was hit by the GFC and 0 elsewhere; total banking credit growth to the private non-financial sector; mobile phones per 100 persons; a dummy that takes the value of 1 for advanced economies and 0 elsewhere; and country-specific real interest rates. <sup>5</sup> Big tech credit is zero in 47 countries. To allow the computation of the log of the ratio (not defined for zero), big tech credit has been rescaled summing an arbitrary constant (the minimum value). <sup>6</sup> Fintech credit is defined as credit activity facilitated by electronic platforms that are not operated by commercial banks or big tech firms. <sup>7</sup> The sample has been divided into five geographical areas: Africa, Asia Pacific, Europe, Latin America, Middle East, and North America.

Source: Cornelli et al. (2020).

positive association with venture capital, private equity and merger and acquisition activity. Overall, this implies that fintech and big tech credit can complement bank credit and market-based finance, rather than substitute for it.

### LOOKING AHEAD: WHAT IMPLICATIONS FOR POLICY?

Fintech and big tech credit are growing rapidly in countries around the world. However, data on their size and growth have until now been scarce. The CCAF database and the data in our new paper aim to fill this gap. Our full database of fintech and big tech volumes by country is made publicly available as a resource for policymakers, researchers and practitioners.<sup>2</sup> Nonetheless, improving the data availability will remain an important policy priority. As such, efforts to include fintech and big tech credit providers in regulatory reporting should continue apace.

As with other forms of credit, there is the potential for these new forms of lending to enhance economic growth—but also to engender risks to the macroeconomy and financial system. In particular, as credit grows rapidly, there is the potential for individual borrowers to become overindebted, and—as

in past periods of rapid credit growth—even for risks to financial stability. Whether this growth represents the natural diffusion of a promising new type of intermediation or a credit bubble remains an open question; it may only be possible to assess this after a downturn.

In this light, the Covid-19 pandemic represents an important test to these new business models. Information on lending flows and credit losses over 2020 is not yet available. However, the recent “Global COVID-19 Fintech Market Rapid Assessment Study” (CCAF et al. 2020) suggests that digital lending transaction values contracted globally as a result of Covid-19. It will be important to assess how new credit models function during the Covid-19 induced recession. After the initial shock and credit losses, it can be expected that the greater demand for online services may actually further support fintech and big tech credit. For instance, big techs have seen a surge in demand for e-commerce services, particularly in countries with more stringent lockdown measures (Alfonso et al. 2021). Both fintech and big tech providers have seen a surge in demand for digital payment services, which generate further transaction data for use in lending decisions (BIS 2020). In some markets, fintech and big tech firms have even helped to channel emergency lending to small businesses during the Covid-19 pandemic.

<sup>2</sup> The database can be found at <https://www.bis.org/publ/work887.htm>.

Policymakers should continue to monitor these new markets, and to develop a better understanding of their risks and potential. They may need to accelerate the pace of regulatory intervention to better regulate and supervise an increasingly digitalized financial sector (CCAF et al. 2020). Some authorities have already taken measures to better regulate fintech credit platforms, for instance with dedicated rules or frameworks. There is an ongoing debate on how best to regulate big tech firms, both in financial services and beyond, as evidenced by recent regulatory initiatives in China, the EU and the US. Ensuring financial stability and market integrity, efficiency and competition, and consumer and data protection will pose new trade-offs and challenges (Feyen et al. 2021).

Equally, during the Covid-19 pandemic, fintech firms have reported a need for regulatory interventions that relate to core regulatory activities, such as customer on-boarding and stream-lined authorization processes (CCAF et al. 2020). Despite calls from the industry for greater regulatory assistance, fintech firms have by and large been unable to enjoy enhanced support from their key regulator or supervisory relationship.

In all of this, authorities can learn a great deal from one another, and from research conducted around the world.

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