Is fintech disrupting the banking sector?

New digital financial technologies have the potential to shake up banking. Fintech services offer potential benefits to consumers and have made inroads into online lending and payment services. But the sector remains small and does not yet pose an existential threat to banks.

Over the past decade, new digital financial technologies – ‘fintech’ – have begun to transform and disrupt the financial services sector. While technological advances in finance are not new, progress has arguably accelerated in the digital age due to improvements in the internet, mobile communications, machine learning, and information collection and processing technologies.

Fintech spans digital innovations in the financial sector. Notable examples include peer-to-peer lending, equity crowdfunding, cryptocurrencies and the blockchain, digital wealth advisory and trading platforms, and mobile payment systems.

These innovations can disrupt the financial services sector by ratcheting up competition and blurring industry boundaries. Fintech provides new gateways to entrepreneurship and credit, and may promote financial inclusion.
Online lending: challenges for banks and consumer benefits

While fintech companies are emerging across the financial services industry, digital innovators are especially present in banks' traditional markets. Online peer-to-peer lending platforms are at the forefront of the fintech revolution. These platforms match borrowers with investors (for example, private individuals) online who fund loans rather than traditional finance providers such as banks and building societies.

A unique characteristic of peer-to-peer platforms is that they use digital algorithms to screen a borrower's loan application and determine whether it meets their credit standards. The entire digital lending process is automated such that applicants are not required to talk to a loan officer or visit a bank branch.

Although commercial banks increasingly rely on similar technologies, they do not digitise credit processing to the same degree and typically use offline processes and staff to determine whether to lend to a borrower.

Crucially, unlike banks, peer-to-peer lenders do not accept or use deposits to fund loans. Instead, after digitally screening borrowers' loan applications, these platforms list on an online marketplace the loans in which individuals and institutions can decide to invest.

While investors typically receive a higher rate of return on peer-to-peer investments compared with bank deposits, they face losses in cases where a borrower defaults and is unable to repay the loan. Peer-to-peer lending platforms do not invest in loans, but rather receive a fee for each loan they process.

The benefits of peer-to-peer lending to consumers include faster and cheaper access to credit relative to banks (Cornaggia et al. 2018 [https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3000593]). Peer-to-peer lenders also promote access to credit for individuals and businesses that are geographically distant from bank branches (Cumming et al. 2021 [https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3316250]).

Further, digital algorithms are less prone to conscious and unconscious biases than loan officers, which reduces discrimination in lending (Bartlett et al. 2022 [https://ideas.repec.org/a/eve/finec/v143y2022i1p30-56.html]). But this may be offset by peer-to-peer investors' preference for funding loans to borrowers with similar characteristics to themselves (Duarte et al. 2012 [https://academic.oup.com/rfs/article/25/8/2455/1570804]; Iyer et al. 2016 [https://ideas.repec.org/a/mis/misrnc/v62y2016i6p1554-1577.html]).

A key question is whether peer-to-peer lending promotes financial inclusion by expanding access to credit. Early evidence on this issue is mixed. Some studies show that marketplaces are a substitute for bank credit, such that digital disruption alters who provides credit rather than increasing the overall amount of available credit (Cornaggia et al. 2018 [https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3000593]).

But other research finds that peer-to-peer lending complements bank lending by expanding access to credit among people to whom banks are unwilling to grant a loan (Tang, 2019 [https://ideas.repec.org/a/oup/rfinst/v32y2019i5p1900-1938.html]).
Peer-to-peer lending appears to have wider economic effects. For example, these platforms are able to meet borrowers' credit needs rapidly during crises (Yang et al., 2016 [1]). Restricting access to peer-to-peer loans increases household financial hardship and the incidence of personal bankruptcy, particularly among low-income households (Danisewicz and Elard, 2018 [2]).

Regions with access to more peer-to-peer credit have a higher rate of entrepreneurship and business creation. For example, in the United States, a 10% rise in peer-to-peer lending (per capita) increases the number of establishments (per capita) by 0.44%.

But most of these new business ventures tend to be small firms with less than five employees because peer-to-peer loans are typically capped at low amounts. These businesses are also predominantly in traditional industries (for example, convenience stores) where the costs of creating a firm are low (Cumming et al., 2021 [3]).

Payment services and cryptocurrencies

A second area where fintech has encroached on banks' market share is payment services – in other words, the transfer of money between accounts. The payment market has experienced a rapid proliferation of digital innovations that make payments faster and cashless.

Notably, banks face competition from fintech companies such as PayPal, Revolut and Wise, as well as large technology companies including Meta, Apple and Google. The rapid growth of digital payments has provoked a fall in consumers' demand for cash (Rogoff, 2014 [4]). Digital payments represent the largest component of fintech by transaction volume (Thakor, 2020 [5]).

Digital currencies have the most significant disruptive potential for fintech in payment services. Cryptocurrencies are decentralised peer-to-peer digital currencies based on computer cryptography for security (Dandapani, 2017 [6]). A cryptocurrency is not real money that exists. Rather, it is a virtual currency that relies on a digital ledger, known as the blockchain, to replace a bank's role for securing and verifying transactions (Thakor, 2020 [5]). Well known examples include Bitcoin and Ethereum.

So far, uptake and use of cryptocurrencies has been relatively limited, even in El Salvador where Bitcoin is now formal tender. In part, this is due to volatility in cryptocurrencies' values (https://www.economicobserver.com/whu-has-the-price-of-bitcoin-risen-fallen-in-the-last-day-week-month) that limits their ability to act as a store of value.

Another limitation is the ability of cryptocurrency networks to process transactions, which determines how useful a currency is. For example, Bitcoin processes approximately seven transactions per second. By contrast, for Visa and Mastercard, the values are 24,000 and 5,000 (https://phemex.com/blogs/what-is-transactions-per-secondtps) respectively.

Cryptocurrencies also have far-reaching environmental effects. Bitcoin mining uses more electricity than Finland and Belgium [7], and produces a carbon footprint capable of pushing global warming beyond 2°C within the next three decades (Mora et al., 2018 [8]).

In addition, as one of the largest unregulated markets in the world – along with the anonymity of blockchain transactions – cryptocurrencies have become important within the black market. Approximately 25% of Bitcoin users are involved in illegal activity and...
$76 \text{ billion} \href{https://academic.oup.com/rfs/article/32/5/1798/5427781}{(2021)} \text{ of illegal activity per year involves Bitcoin, equivalent to 46\% of Bitcoin transactions. This is close to the scale of the US and European markets for illegal drugs.}

**How have banks responded to fintech?**

The fintech revolution has provoked important changes among banks. They have responded to the emergence of peer-to-peer lenders and fintech rivals by adopting digital innovations such as smart chips, biometric sensors, branchless banking, artificial intelligence and machine learning to protect against fraud.

They have also introduced chatbots, e-wallets and m-banking, which have enabled them to provide safer and more user-friendly customer services. The adoption of fintech solutions by banks is, in part, driven by imitation of fintech rivals’ products and services, and by acquiring these companies to gain ownership of their technologies and intellectual property \href{https://www.sciencedirect.com/science/article/pii/S104295731930049X}{(Thakor, 2020)}. For example, JP Morgan Chase acquired \href{https://www.instamed.com/press-releases/jpmorgan-chase-closes-instamed-acquisition}{InstaMed} to strengthen their healthcare payment solutions; and Goldman Sachs acquired \href{https://www.goldman.com/content/goldman/en/advisers/about-goldman/news-and-media/2022/Goldman-Sachs-to-Acquire-NextCapital-Group.html}{NextCapital}, a retirement plan robo-adviser, to fuel their expansion of assets and wealth management business towards retirement programme construction.

**Will fintech disrupt the financial sector?**

As fintech companies capture market share from traditional banks and other firms operating in financial services, they pose a potential threat to the stability of the financial sector by eroding profits and raising operating costs.

Evidence on this issue remains relatively sparse, although research indicates that competition between peer-to-peer lenders and banks for money to fund loans can destabilise the banking sector. This occurs as the cost of deposits are increased, which forces banks to rely more heavily on riskier forms of debt, although the extent of these effects is modest \href{https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3398843}{(Cumming et al., 2022)}.

Despite encroaching into banks’ activities, and exponential growth over the past decade, the fintech sector remains small in comparison with the banking sector. For example, while global fintech activity reached around $210 billion in 2021, the size of global financial services in the same year was $23.319.52 billion \href{https://www.reportlinker.com/p06277918/Financial-Services-Global-Market-Report.html?utm_source=GNW}{(see Figure 1)}.

Even in the lending market, fintech's reach remains small. For example, the total amount of credit originated through peer-to-peer lenders in the UK in 2021 was £4 billion versus £316 billion by banks. Similar patterns exist elsewhere, although peer-to-peer lending is more important in China and Japan \href{https://cepr.org/voxeu/columns/fintech-and-big-tech-credit-markets-around-world}{than in other countries}.

**Figure 1: Total global investment activity in fintech**
Regulation and public policy

Banks are heavily regulated, in part because of their size and deposit taking. So far, fintech credit providers generally lie outside this prudential regulatory and reporting framework. To the extent that fintech firms are regulated, they could be drawn into either existing or new regulatory frameworks.

An important guiding principle is likely to be ‘neutrality’: ensuring that regulation does not disproportionately favour one entity or form of activity over another, providing that the risks are equivalent (Bank for International Settlements, BIS, 2018).

For example, in the United States, peer-to-peer lenders must document that they are able to prevent fraud in borrowers’ credit applications to protect investors from losses. But regulators have also sought to minimise the regulatory burden to promote innovation, market entry and competition.

Recent events in cryptocurrency markets have raised questions about regulating digital currencies due to their black market uses, environmental impact and ‘pump-and-dump’ schemes that harm investors.

Cryptocurrencies can be a significant vehicle for avoiding taxes, regulations and capital controls. This is especially problematic in emerging economies, which have limited institutions to curb this behaviour. To date, China is the only country to declare all cryptocurrency transactions illegal.

Such measures are unlikely to have a substantial effect on banks. Rather, the remarkable growth of fintech firms in domestic and international payment services is a bigger threat to their market share in this line of business.

Where can I find out more?

- What is fintech? An outline of fintech, fintech companies, regulations and the future by Stephanie Walden.
- The role of peer-to-peer lending in fintech.

- Understanding cryptocurrencies: A paper in a leading finance journal by Wolfgang Karl Härdle, Campbell Harvey and Raphael Reule, which provides insights into the mechanics of cryptocurrencies.
- Sex, drugs, and Bitcoin: how much illegal activity is financed through cryptocurrencies? A paper in a leading finance journal by Sean Foley, Jonathan Karlsen and Tõnis Putnins, which estimates the extent of illegal activity involving Bitcoin.
- The digital credit divide: marketplace lending and entrepreneurship: A paper in a leading finance journal by Douglas Cumming, Sofia Johan, Hisham Farag and Danny McGowan, which estimates the effect of peer-to-peer lending on business creation.

Who are experts on this question?

- Douglas Cumming
- Piotr Danisewicz
- Santosh Koirala
- Danny McGowan
- Biwesh Neupane
- Andrew Urquhart

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