

The Big Promise of Fintech

by Marcello Bofondi and Giorgio Gobbi⁵⁹

Abstract

Fintech is introducing in the financial landscape new products, new business models, new players. In this paper we elaborate on the relationship between Fintech and banks, bearing in mind that in the past innovation triggered widespread financial instability. We argue that Fintech represents a serious challenge for the traditional banking business model. However, we build on the evidence on the development of shadow banking to caution against early predictions of an irreparable decline of banking institutions. We conclude that a flexible, pragmatic and open minded approach to Fintech regulation is the second best in a world of huge uncertainty about technology and consumer preferences.

1. Introduction

It is difficult these days to find a cooler topic than Fintech in the broad world of finance. Typing “Fintech”, the most popular web search engine returns more than 30 million results. Half of the returns are related to Fintech

59. Banca d'Italia, Regulation and Macropprudential Analysis Directorate and Financial Stability Directorate, respectively. The usual disclaimers apply, and in particular the views expressed do not necessarily represent those of the Banca d'Italia.

start-ups, witnessing the burgeoning activity going on in the grassland of the financial industry. Policy makers, regulators, supervisors and international institutions have taken full notice of it and are beginning to explore the new environment. The number of official reports and consultation papers is rapidly increasing, but more interestingly, digital technologies are also potentially reshaping regulation (regtech) and supervision (supetch) of financial activities. Finally, the academia is responding with conferences and journal special issues focused on research about Fintech.

Fintech covers a broad area of activities and businesses ranging from the development of new technologies to the commercialization of financial services. From a financial policy perspective, the Financial Stability Board (Financial Stability Board, 2017) organizes Fintech activities in five broad categories: (i) payments, clearing and settlement; (ii) deposit, lending and capital raising; (iii) insurance; (iv) investment management; and (v) market support. These five classes cover virtually all the spectrum of services provided by traditional financial institutions. New Fintech companies are threatening market shares and profit margins of the incumbents in virtually all business areas.

The financial industry, and especially the banking sector, is heavily regulated because of its role as a key infrastructure of market economies. Disruptions in the supply of financial services may have huge consequences in terms of welfare losses as witnessed by the long history of financial crises, the last episode of the series being the global financial crisis of the past decade. In many circumstances financial innovation triggers widespread instability, which is why in academic research the balance between costs and benefits of competition in the industry is still an open issue (Thakor, 2011). Reaching an early understanding of transformations in the financial landscape induced by Fintech is then substantial to an efficient evolution of the regulatory framework. Furthermore, since most of the current regulation is institution-oriented rather activity-oriented, it is also crucial to assess how the new entrant Fintech firms fit into the framework and how the incumbent institutions react.

In this paper we elaborate on the relationship between Fintech and banks. First, we argue that Fintech represents a serious challenge for the traditional banking business model because of the “[d]isaggregation of the value chain

[that] could follow from online platform becoming the preferred customer interface” (Boot, 2016). Second, we build on the evidence on the development of shadow banking to caution against early predictions of an irreparable decline of banking institutions. Last, we conclude that a flexible, pragmatic and open minded approach to Fintech regulation is the second best in a world of huge uncertainty about technology and consumer preferences.

2. ICT in banking

Progress in Information and Communication Technology (ICT) began several decades ago, and the financial industry has historically been at the forefront in its adoption. Under the pressure of competition, the efficiency gains stemming from innovation should have been transferred to customers, leaving little room for new entrants. Philippon (2016), however, shows that, in spite of the advances in ICT, the unit cost of financial services for the end users has not changed significantly over the past 130 years: efficiency gains have been reaped by incumbent banks and other intermediaries.

As in several other industries (Brynjolfsson and McAfee, 2014), the more recent developments in ICT may have radically improved the chances for Fintech firms to successfully enter the financial sector. These changes affect the economics of the technological space along three dimensions: i) data storage and processing, ii) data transfer, and iii) data availability. Cloud computing allows large amounts of information to be stored and processed, using on demand computers with a high level of computational capacity without incurring in huge fixed costs. The Internet allows data to be transferred in bulk without the need for costly dedicated networks. The digitalization of society and economy produces an enormous amount of valuable information (big data). Fintech firms are leveraging these changes to provide services that have historically been the bread and butter of commercial banks, and a large source of their earnings.

So far, banks have taken advantage of their quasi-monopoly in the deposit market. Deposits are often the first way households and firms start their relationship with the financial industry. Presenting themselves as a one-stop-shop, banks offer their customers other services, typically more profitable than

deposits. Moreover, the higher the number of products a customer buys, the higher the costs to switch to competitors are likely to be, granting the incumbent bank oligopoly power and further profits. High switching costs also make it less compelling to invest in innovation that improves the customer's experience.

Fintech firms are using technological innovation to take advantage of these features of banks' business model, trying to leave to banks the business of low value-added products while stealing the oligopoly profits deriving from the sale of other services. Switching costs are lowered through the intensive use of remote distribution channels. Client acquisition is also fostered by an extremely close attention to customers' needs, particularly of those born in the 1970s and '80s, who place a high value on accessibility, speed, and user-friendliness.

Banks' margins are attacked from all sides: the Fintech ecosystem is populated by firms offering basically all kinds of financial services. Income from payment services is challenged by firms like Apple, Google, and PayPal. Fees from wealth management are threatened by robo-advisors that offer online financial advice and portfolio management mainly through automated algorithms. Peer-to-peer lenders have the potential to erode origination, servicing and interest rate income by disintermediating loans to households and small and medium enterprises. In a more futuristic scenario, virtual currencies may menace the last stronghold of banks: the creation of private money.

Is the threat to banks' profitability posed by Fintech firms real? Venture capitalists seem to believe that these challengers actually have the potential to create value: from 2010 to 2015 the amount of equity financing to the Fintech space increased from 2 to 22 billion dollars (Accenture, 2016).

A strictly related question refers to the viability of banks as traditional financial firms. McAfee and Brynjolfsson (2017) quote strategist Tom Goodwin pointing out a pattern: "Uber, the world's largest taxi company, owns no vehicles. Facebook, the world's most popular media owner, crates no content. Alibaba, the most valuable retailer, has no inventory. And Airbnb, the world's largest accommodation provider, owns no real estate." By extrapolating, can we envisage in a not so far future the world's largest provider of banking services with a very thin balance sheet? This bring back to the time-honoured academic question of why financial intermediaries like banks do exist. The

now standard textbook answer is that financial intermediaries arise because of scale and scope economies in solving or reducing market imperfections (e.g. Buckle and Beccalli, 2011) mostly connected with asymmetric information. Potentially, digital technologies can abate the market imperfections at the origin of the comparative advantage of intermediaries over markets.

Goldfarb and Tucker (2017) identify five types of economic costs that are abated by digital technologies: (i) search costs; (ii) replication costs; (iii) transportation costs; (iv) tracking costs; (v) verification costs. It is not difficult to map each of these types onto specific financial activities. For instance, banks have developed internal technologies to deal with the costs of matching fund savers and end users' preferences in terms of risk, maturity, liquidity etc., with those of information tracking and verification. Transportation costs have originated a particular (profitable) form of bank intermediation, i.e. relationships lending. The big promise of Fintech is to build on the potential cost-cutting allowed by digital technologies to dramatically reduce financial frictions. Even in the short run, the resulting gains appear substantial. The FSB enumerate some of them relying on market insiders information (Capgemini Consulting): "For instance estimates suggest that mortgage borrowers in the US and European markets could potentially save \$480 to \$960 per loan and banks would be able to reduce costs in the range of \$3 billion to \$ 11 billion annually by lowering processing costs in the mortgage origination process." (Financial Stability Board, 2017, p. 10).

There are two diametrically opposed ways in which Fintech can deliver its big promise. One is leaving the existing financial industry broadly unchanged: incumbents will adopt the new digital technologies and competition will drive down cost reductions to the consumers, with little disintermediation occurring. The other, on the opposite, is a financial landscape dominated by "thin layer" financial firms (platforms): "Because they're so thin – because they own mainly applications and code and not physical assets and infrastructure – they could grow rapidly" (McAfee and Brynjolfsson, 2017, p. 9). Most likely in the near future both (evolved) traditional financial intermediaries and new platform will coexist and compete.

Banks are actively responding to the threat posed by Fintech firms, although they are somewhat slowed down by old and complex IT systems that

are not designed to take advantage of the more recent advances in technology. In some cases, banks are trying to replicate Fintech models, such as by setting up online lending platforms. Other intermediaries are partnering with the new entrants, externalizing part of their production processes to exploit Fintech firms' greater efficiency. Many banks consider the adoption of new technologies a strategic priority. The most likely scenario is that margins will shrink and some of the products now offered by banks will also be provided by other firms.

But is this big promise to be trusted? The large amount of information processed by digital technologies may be used to open markets and squeeze price to marginal costs or to sophisticated price discrimination strategies (Shapiro and Varian, 1998). An extremely interesting case in point is provided by the residential mortgage market in the US. Buchak et al. (2017) document a huge increase in the market share of shadow banks from 2007 to 2015 (from 14 to 38 per cent) partly driven by regulatory arbitrage and partly by financial technology. Over the same period Fintech lenders have increased their market share from 5 to 15 per cent. Compared with the other shadow banks, namely within the same regulatory framework, the Fintech lenders present two distinguishing characteristics. First, Fintech firms ex-ante charge interest rates more closely related to loan ex-post performance than other (shadow) lenders. The evidence is consistent with the use of big data technique in the process of risk evaluation. The second characteristics pertains to price behaviour. Fintech lenders charge lower margins for the least creditworthy borrowers and higher for the most creditworthy borrowers. They appear to be able to appropriate part of the consumer surplus "generated" by the convenience of online transactions.

Summing up, digital technologies are potentially disruptive of the industrial organisation of the financial industry because they impact on the market frictions that give a comparative advantage to intermediaries like banks. The promise of cost saving to be translated to consumers is huge. There is however large uncertainty on who will deliver the promise and how. Finally, if on the one hand digital technologies open traditional markets to the competition of new entrants, on the other they also offer unprecedented tools for customising product and services and extracting consumer surplus through price discrimination.

3. Once again: Are bank dead or is the report greatly exaggerated?

Incumbents in the financial industry, and banks in particular, face recurrent challenges from outsiders. The one posed by Fintech firms is probably new in terms of its broadness and disruptiveness. All lines of businesses appear to be under threat and the innovation is not just in the provision of single products and services, but in the way in which financial services are produced, delivered and consumed. Most importantly, the development of digital technologies in the financial industry is fully integrated with the broader digitalization of economy and society at large. However, one should be prudent before announcing that this time is really different. Lessons from the past, if interpreted judiciously, may help to read some of the changes in the pipeline.

The big promise of Fintech is to open the financial and banking sector to the driving force of innovation and efficiency. But efficiency has often been in conflict with stability. Trying to enhance resilience, governments granted banks – i.e. the core institutions of any financial system – public insurance, both on credit (through deposit insurance) and on liquidity (lender of last resort). This, however, is not sufficient to ensure either stability or efficiency. Since public insurance is difficult to price, it generates moral hazard that may eventually lead to excessive risk-taking. In return for insurance, therefore, banking systems are heavily regulated. The literature on industrial organization teaches us that tightly regulated markets tend also to be highly inefficient. Policy makers' attempts to strike the right balance between efficiency and stability have been a major driver in shaping the financial industry over the last 100 years.

Financial crises have marked turning points in the regulatory stance. Following the crisis of the 1930s, the quest for stability induced policy makers to shelter the banking industry from competition, thus isolating it from innovation. In Europe and many other jurisdictions, large sections of the banking sector were directly or indirectly placed under public control.

In the 1980s, consensus on the priority given to stability began to weaken. The new regulation paradigm was to lift barriers to entry and any norms protecting banks from competition, while discouraging risk-taking by means of capital requirements (Claessens, 2016). This process culminated in 1988 with the first Basel Capital Accord, which was implemented by the ten largest

market economies by 1992. In Europe, deregulation was part of the larger project to create a single European market. The purpose of the First and Second European Banking Directives (enacted in 1977 and 1992) was to enhance capital allocation across the Continent by levelling the playing field through regulatory convergence. National banking markets, once strongly protected from foreign competition, became gradually more susceptible to challenge. In the US, the change in the regulatory framework was driven not only by considerations of efficiency but also by financial innovation (Wall, 2014). The expansion of money market funds in the early 1980s that threatened banks' deposit base eventually led to the removal of interest rate ceilings on deposits (Berger et al., 1995). Banks avoided large deposit outflows, but their margins shrank. On both sides of the Pond banks' profitability was at risk.

The adjustment to the new paradigm was not straightforward and life grew difficult for the banks. In some countries they responded with excessive risk-taking, which ended in systemic, though not too painful, crises. In the US the idea that banks were in deep trouble and that they would become irrelevant became mainstream. In 1993 William Isaac, former president of the Deposit Insurance Corporation, said that 'the banking industry is becoming irrelevant economically, and it's almost irrelevant politically' (Bacon, 1993). In the same year Carter Golembe, a leading consultant of the American banking industry at the time, highlighted that 'the major problems faced by the banking industry [are], most notably, its eroding competitive position in the financial community and the crushing burden of regulation' (Golembe 1993).

However, paraphrasing the title of a famous paper, the banks were not dead yet: the reports were greatly exaggerated. Boyd and Gertler (1995) showed that the apparent decline of commercial banks was mainly due to mismeasurement, in particular to the habit of computing the weight of commercial banks in the financial system by considering their total assets. Once off-balance-sheet items (such as loans sold to other intermediaries, credit commitments, and derivatives) were included, the statistics indicated that commercial banks were actually alive and thriving. They were just adapting to the new environment.

The findings of Boyd and Gertler were the prelude to the events of the following decade: to sustain their profitability banks changed their business model. In Europe, where deregulation allowed them to adopt the universal bank model, banks expanded their activities (Pagano et al., 2014). A wave of mergers

and acquisitions profoundly changed the structure of the banking system as European intermediaries sought to sustain their profitability by exploiting scope and scale economies. The universal bank model, once confined to a few countries, became pervasive and the share of customer loans over total assets declined significantly. Banks increased loans to other financial intermediaries and their proprietary trading. Off-balance-sheet activities such as derivatives, asset management, and underwriting became increasingly important.

In the US, where the separation between commercial and investment activities was maintained, commercial banks increasingly shifted their business out of the balance sheet, as far as possible from the regulators' eyes. The morphology of the US financial system changed dramatically: an unregulated shadow banking system emerged and banks became its most important service providers (Cetorelli et al., 2012). The shadow banking model of financial intermediation was characterized by a long credit intermediation chain that involved a multitude of agents (Pozsar et al., 2010). Banks issued deposits to shadow banks, secured with the senior tranches of the securities produced by the shadow banking system that were in part backed by sub-prime loans (Gorton, 2010). On top of this, banks' ability to provide liquidity was reinforced by their (insured) customer deposit base and by their eligibility as monetary policy counterparties. This mechanism worked smoothly until the quality of the securities backing the shadow banking system deposits was questioned.

We draw two lessons from these stylized facts. The first one is that the incumbents, i.e. the banks, have proven to be extremely resilient in different regulatory and economic environments, such as those prevailing in the US and in Europe. They have leveraged on a few comparative advantages - their key role in the origination and distribution of liquidity in the economy being the most important, but not the only one - to fend off the competition of new entrants or to develop new lines of business. Digital technologies are likely to dent the comparative advantages of the past but others could turn out to be crucial. The academic research on those industries that are more mature in terms of digitalization provides some useful insights. One relevant strand of research relates to a question similar to the one posed by Boyd and Gertler: "Is distance dead?". The results of the vast literature reviewed by Goldfarb and Tucker (2017) point out that, albeit distance matters less than in the past, it is not in fact dead. In several industries online sales are substitutes for offline

sales, but in others the relationship is rather one of complementarity. Even more relevant are the findings that “trust is easier locally”, namely the importance of known people even for online transactions. The presently oversized branch networks of many European banks, once restructured, might prove in the end a forceful competitive driver.

The second lesson drawn from history is that the incumbents’ reaction to the challenges posed by outsiders may be detrimental to the other main objective of financial policy: stability. The global financial crisis and the great recession are partly due to a mismatch between changes in financial markets and in the activities of banks and other financial institutions and the regulatory framework.

4. Risks and regulation

Fintech is introducing in the financial landscape new products, new business models, new players. Part of the intermediation chain and of the payment system is moving outside the traditional financial ecosystem. Incumbents are feeling the pressure of these changes, trying to adapt to the new environment. The potential for efficiency gains, increased accessibility to financial services and lower end-user costs are great, but great opportunities always come with great risks and safeguarding against risks without curbing innovation in a rapidly changing landscape is the challenge that regulators will face in the near future.

There is actually not very much new under the sun. The ‘traditional’ sources of both micro and macro financial risks – excessive credit growth and leverage, excessive maturity and liquidity mismatch, direct and indirect exposure concentrations, bad governance, misaligned incentives, vulnerabilities of the IT infrastructures – are always the same. However, some of them may be amplified by the spread of Fintech (FSB, 2017). In particular operational risk may increase as financial institutions and markets increasingly rely on a few third parties as providers of services such as cloud data storage or telecommunications. Moreover, vulnerability to cyber-attacks is greater the larger is the range and number of entry points that may be targeted and the consequences are more severe the more the systems of

different institutions are connected. Given the possible role of technology as financial shock amplifier, financial regulators will be called to strictly cooperate with the authorities responsible for IT safety and security.

Identifying and monitoring risks, however, is only the first and maybe easier job of regulators. The next and far more challenging step is to design the rules and define the regulatory perimeter. Regulators and supervisors have great experience, partly gained at the hard cost of painful crises, in dealing with banks and markets. However, they are still in the process of building their ability to cope with the shadow banking system, of which Fintech firms are the most dynamic part. Existing rules have been designed to regulate traditional activities and intermediaries and, given the speed of transformation of the Fintech landscape, it is often difficult to understand how, when, and to which agents they can be applied. However, specific rules for Fintech firms may not be effective, since they perform a broad range of activities (Panetta, 2017).

The temptation to over-regulate, minimizing the risks at the expenses of innovation, may be great. This, however, would not only be against the public interest, but also probably impossible, given the liquid nature of innovation. What regulators may reasonably do is to adopt a pragmatic approach that should be flexible, coordinated across jurisdictions and based on a continuous dialogue with the industry as suggested both in FSB (2017). In this spirit a number of national authorities set up innovation hubs, regulatory sandboxes or innovation incubators. The Bank of Italy, for example, recently launched its innovation hub (called 'Fintech Channel') opening a new channel of communication and dialogue with market operators supporting innovation processes in the regulatory arena and adopting a forward-looking approach.

Finally, regulators and supervisors need to invest resources and build skills also to understand how new technologies may be used to pursue their objectives. An increasing number of innovative 'Regtech' firms are offering solutions that help banks and other intermediaries to comply with regulatory requirements and manage risk more effectively and efficiently BCBS (2017). Moreover, supervisors should consider investigating and exploring the potential of new technologies to improve their methods and processes. Big data coming from social media, for instance, may result extremely effective to nowcast inflows and outflows of retail deposits when supervisors are concerned of potential bank runs (Accornero and Moscatelli, 2017).

References

- Accenture (2016). Fintech and the evolving landscape: Landing points for the industry, April.
- Accornero, M., and Moscatelli, M. (2017). Listening to the buzz: Social media sentiment and retail depositors' trust. Bank of Italy, mimeo.
- Bacon, K. H. (1993). Losing ground: Banks' declining role in economy worries Fed, may hurt firms. *Wall Street Journal* (July 9).
- Basel Committee on Banking Supervision (2017). Sound practices: Implication of Fintech developments for banks and bank supervisors. Consultative Document.
- Berger, A.N, Kashyap, A.K., Scalise, J.M., Gertler, M., and Friedman, B.M. (1995). The transformation of the U.S. banking industry: What a long, strange trip it's been. *Brookings Papers on Economic Activity*, 1995 (2), 55-218.
- Boot, A.W.A (2016). Understanding the future of banking scale and scope economies, and Fintech, in Demircug- Kunt, A., Evanoff, D.E., and Kaufman, G.G. (Eds.), *The future of large internationally active banks*. World Scientific Publishing.
- Brynjolfsson, E., and McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W. W. Norton & Company.
- Brynjolfsson E., and McAfee, A. (2017). *Machine, platform, crowd: Harnessing our digital future*. W. W. Norton & Company.
- Boyd, J.H., and Gertler, M. (1995). Are banks dead? Or are the reports greatly exaggerated? NBER Working Paper, No. 5045.
- Buchak, G., Matvos, G., Pikorski, T., and Seru, A. (2017). Fintech, regulatory arbitrage, and the rise of shadow banking. NBER Working Paper, No. 23288.
- Buckle, M. and Beccalli, E. (2011). *Principles of banking and finance*, London University Press.
- Cetorelli, N., Mandel, B.H., and Mollineaux, L. (2012). The evolution of banks and financial intermediation: Framing the analysis. *Federal Reserve Bank of New York Economic Policy Review*, 18 (2), 1-12.
- Claessens, S. (2016). Regulation and structural change in financial systems. Paper presented at ECB Forum on Central Banks, Sintra 27-29 June 2016. Available at: <https://www.ecbforum.eu/en/content/programme/speakers-and-papers-livre/stijn-claessens.html>
- Financial Stability Board (2017). Financial stability implications from Fintech: supervisory and regulatory issues that merit authorities' attentions. Available at: <http://www.fsb.org/wp-content/uploads/R270617.pdf>
- Goldfarb, A., and Tucker, C. (2017). Digital economics. NBER Working Paper, No. 23684.
- Golembe, C. H. (1993). *Golembe reports*, 7, 2-4.
- Gorton, G. B. (2010). Questions and answers about the financial crisis. NBER Working Paper, No. 15787.
- Pagano M., Langfield, S., Acharya, V., Boot, A., Brunnermeier, M., Buch, C., Hellwig, M., Sapir, A., and van den Burg, I. (2014). Is Europe overbanked? Report No.4, European Systemic Risk Board's Advisory Scientific Committee. Available at: https://www.esrb.europa.eu/pub/pdf/asc/Reports_ASC_4_1406.pdf?5fb1382c5a560f243ecf1989cfd37f4c

Panetta, F. (2017). Fact-finding inquiry on the impact of financial technology on the financial, banking and insurance sectors. Testimony to the Sixth Standing Committee (Finance) - Chamber of Deputies.

Philippon, T. (2016). The FinTech opportunity. NBER Working Paper, No. 22476.

Pozsar, Z., Adrian, T., Ashcraft, A.B., and Boesky, H. (2010). Shadow banking. Federal Reserve Bank of New York Staff Reports, No. 458.

Shapiro, C., and Varian, H.R. (1998). Information rules: A Strategic guide to the network economy. Harvard Business Press.

Thakor, A.V. (2011). Incentives to innovate and financial crises. *Journal of Financial Economics*, 103 (1), 130-148.

Wall, L.D. (2014). Two drivers of financial innovation. Notes from the Vault. Federal Reserve Bank of Atlanta.