BANCO DE ESPAÑA
Eurosistema

26.04.2023

Technology and finance: new risks plus new challenges or traditional risks in new suits?

Keynote address at City Week "Meeting Global Challenges through Innovation"
Guildhall, London

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Thank you for the introduction, and many thanks also to the organisers for inviting me to this event.

My speech today will focus on the implications of new technologies for the financial system.

When thinking about this specific area, one question that comes to my mind is: are we facing new risks and new challenges? Or are we facing traditional risks in new suits?

Let me further reflect on this by focusing, first, on key developments in the financial system related to new technologies; second, on the specific opportunities that these bring to the financial system; and, third, on the risks posed by digitalisation and how these could be addressed from a regulatory and supervisory perspective.

How technology is changing the financial system

Multiple studies have highlighted the progressive digitalisation of financial services, covering very different areas.

Digitalisation, together with the exponential growth in computing power, allows, first, enormous amounts of data, the new collateral, to be collected and processed. Second, it paves the way for fast and growing interactions among participants, which makes network economies essential.

This is the basis for the creation of new assets and new forms of intermediation, for the emergence of new players, and for the development of new analytical tools.

New financial assets and forms of intermediation are emerging thanks to crypto-asset technology. As you know, the growth in crypto-assets has been volatile, with their total market capitalisation peaking at $3 trillion in November 2021, to then decrease to $1.2 trillion.[1]

Crypto-assets rely on a technology designed for decentralised decision-making – which could mean a trend towards disintermediation – and in some cases aspire to perform the basic functions of money.[2] A key element in this respect is the programmability of the asset, which allows the use of smart contracts.

These new assets have an important effect not only on cross-border links, given their global reach, but also on cross-sectoral interconnections with the financial sector in general and with the banking sector in particular.

There are different types of crypto-assets, but the ones that have attracted the most attention are: (i) **unbacked crypto-assets**, whose value has fluctuated dramatically[3] as it depends essentially on users' perceptions; and (ii) **stablecoins,** which represent an evolution of unbacked crypto-assets, with the goal of stabilising their value through the backing of traditional assets.

[1] CoinGecko.com

[2] Banco de España (2022) "Crypto-assets" Special Chapter, Spring Financial Stability Report.

[3] Conesa, C. (2019) "Bitcoin: a solution for payment systems or a solution in search of a problem?", Documentos Ocasionales, Banco de España, No 1901.

The Financial Stability Board (FSB) has also highlighted the emergence of new actors in the financial landscape.[4] Proxies suggest that the market shares of digital-born companies like FinTechs and BigTechs have further expanded during the last few years.

The use of digital wallets (offered primarily by BigTechs) grew from 6.5% of all e-commerce transactions in 2019 to 44.5% in 2020, indicating an increase in these entities' payments market penetration.

In the case of FinTechs, the picture is somewhat mixed, as the impact was uneven depending on the nature and source of their funding: the larger, more established ones performed well, while partnerships with traditional (or incumbent) institutions are becoming more frequent.

The new tools to process and monetise individual information are being increasingly used in finance. **Artificial intelligence (AI)** techniques are present in areas such as asset management, algorithmic trading, credit underwriting or blockchain finance. **Machine learning (ML)** models use big data to learn and to automatically improve predictability and performance through experience and data.[5]

Digitalisation also has major implications for the banking system.[6] There are three sectors of innovation that directly relate to (and compete with) core banking services. At the same time, some innovations relate more to market support services:

(1) Credit, deposit and capital-raising services: which include crowdfunding, marketplaces, etc.

(2) Payments, clearing and settlement services; including both retail, such as mobile wallets, and wholesale, for example, digital exchange platforms.

(3) Investment management services: including, for example, high-frequency trading and robo-advice.

(4) Market support services, such as cloud computing.

The use of technology also has important implications from the perspective of regulation and supervision of the financial system. SupTech tools based on AI technologies are a strategic priority for an increasing number of authorities. At the same time, regulated institutions are making use of RegTech to explore the benefits of AI applied to regulatory requirements, compliance and reporting.[7]

Potential benefits and risks, and levers to address them

In my view, a standard cost-benefit analysis is a useful approach to analysing the implications of these developments, but, importantly, one that also considers how the potential costs could be mitigated.

[4] FSB (2022) "FinTech and Market Structure in the Covid-19 Pandemic: Implications for financial stability".

[5] OECD (2021) "Artificial Intelligence, Machine Learning and Big Data in Finance. Opportunities, Challenges and Implications for Policy Makers".

[6] BCBS (2018) "Implications of fintech developments for banks and bank supervisors. Sound Practices".

[7] FSB (2020) "The Use of Supervisory and Regulatory Technology by Authorities and Regulated Institutions: Market developments and financial stability implications".

Data scarcity is an obstacle to such analysis. Thus, a first key lever to properly monitor, identify and address any potential risks posed by new technologies is **improved data gathering**. This requires cooperation at the international level and also between different authorities overseeing the financial sector, competition, data protection and AML-CFT areas.

Potential benefits

Focusing first on the potential benefits, the use of new technologies could boost innovation and process efficiency. I will highlight three concrete examples:

- New technologies can increase access to financial services for underserved customers. Improving financial inclusion is especially important in regions were the traditional financial sector is not very well developed.[8]
- They can also reduce transaction costs for customers and financial entities through the development of time-saving processes. Instant payments is a clear example.[9]
- AI and ML allow for enhanced analytics and the use of big data to improve risk management and customer adaptation.

Risks to the financial system and potential levers to address them

Turning now to the potential risks and levers to address them, I will first touch on those stemming from the new financial ecosystem associated with crypto-assets, and, second, I will focus on the banking sector itself.

Crypto-assets[10]

Crypto-assets could pose risks relating to, for example, illicit activities or the huge volatility in crypto-asset prices. Additionally, there are increasing interconnections with regulated institutions, either directly or indirectly, which entail new contagion channels. These new channels could make for faster and more coordinated movements across the financial system.

Turning to specific types of crypto-assets, **unbacked crypto-assets** lack intrinsic economic value, which increases their price volatility. Their opacity and lack of user protection, as well as the absence of regulation, can give rise to fraud and credit risk in crypto-asset transactions.

Secondly, **stablecoins** can entail potential problems related to moral hazard and, should they escalate, they could encompass collateral markets. This new digital financial product aspires to represent a new means of payments. Therefore, it is key that legal redemption rights and the backing of the reserve assets are clear. In addition, liquidity risks and interconnections, through the reserve assets, are the main sources of contagion.

[8] https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_836084/lang--en/index.htm

[9] For instance, in Spain, the "Bizum" initiative was developed to support instant payments between customers by linking their phone numbers and email addresses to their bank accounts. Users can thus send or request money by simply entering another user's mobile number or by selecting it from their contact list. This initiative strengthened the ability of banks to provide digital services and compete with BigTech or FinTech alternatives.

[10] Developments in central bank digital currencies could have important implications for the financial system and would warrant a dedicated keynote speech.

Thus, the potential risks to global financial stability are significant and show similar patterns as traditional ones, including their cross-sectoral and cross-border nature. A key lever to mitigate them is the development of a coordinated international approach - in conjunction with jurisdictional actions - not only to warn users about the potential risks, but also, and importantly, to develop a regulatory and supervisory framework which addresses both sets of risks both at their source and via interconnections.

Significant work has already been done and more is underway. Allow me to illustrate this with three relevant examples.

At the European level, we have already approved the European **Regulation on Markets in Crypto-Assets, or MiCA,**[11] which offers a set of uniform rules and a common supervisory architecture to provide legal certainty and appropriate legal protection to users.

Second, also at the European level, the **DLT Pilot Regulation**[12] aims to enable the development of crypto-assets qualifying as financial instruments.

At the global level, the **Financial Stability Board developed a set of high-level recommendations for the regulation and supervision of so-called "global stablecoins". It is also working on finalising a set of recommendations on unbacked crypto-assets.** This approach seeks to apply the principle of "same business, same risks, same rules".[13]

Focusing on the banking sector

Focusing now on the banking sector itself, I will differentiate between direct and indirect risks.

(1) When it comes to direct risks, I would mention the following three:

> First, banks' direct exposures to crypto-assets. Even though they are relatively limited to date, we know that these markets have the potential to scale up rapidly. For that reason, the Basel Committee on Banking Supervision published a new framework seeking to ensure that the prudential treatment appropriately accounts for any additional risks arising from crypto-assets exposures relative to traditional assets.
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> Second, banks are exposed to operational risks deriving from increased dependency on technology infrastructure and technology-based solutions provided by third parties, which could also entail further cyber risks. As an important lever, **in March 2021 the Basel Committee published the Principles for Operational Resilience and revised its Principles for the Sound Management of Operational Risk** to address these issues.[14] At the European level, the **new Digital Operational Resilience Act Regulation, or DORA**, creates a new regulatory framework for operational resilience, including ICT-related incidents.

[11] https://data.consilium.europa.eu/doc/document/ST-13198-2022-INIT/en/pdf

[12] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R0858

[13] https://www.fsb.org/2020/10/fsb-publishes-high-level-recommendations-for-regulation-supervision-and-oversight-of-global-stablecoin-arrangements/

[14] https://www.bis.org/publ/bcbs_nl28.htm

Third, it is important that the use of artificial intelligence and machine learning by the banking sector continues to be monitored from the supervisory side.[15] Banks should ensure the same level of transparency and oversight to ensure the explainability of results, including the potential for bias and undue discrimination.

(2) Turning to indirect risks, I would like to emphasise the following:

First, competition, since new technologies entail the entrance of new players in the market. This is not necessarily a negative consequence. However, we know that there is a non-linear trade-off between competition and financial stability. In this respect, it is important to keep in mind the "same business, same risk, same rules" principle,[16] and also to favour a dynamic approach to competition, focusing on the long-run implications for financial stability.

Second, banks' business model sustainability could be impacted. New entrants being able to compete under different conditions would pose a risk to existing business models. Again, upholding the "same risk, same rules" principle is important to ensure a level playing field and to avoid imbalances developing across differently regulated areas of the financial system. Even if this is not the case, banks that are unable to adapt to the new environment could end up in a situation in which their business model is no longer sustainable.

Third, banks are exposed to digital fraud and cyber risk. These can result in significant losses as a result of illicit activities performed through financial institutions' IT systems, such as online banking services or mobile apps. In this respect, cyber risk monitoring from the financial institutions' side would be key. Educating customers in financial and digital literacy would also help to minimise these incidents.

Allow me to add a further reflection from the macroprudential perspective. We know that the use of technology means greater interconnection between different parts of the financial system and also between banks and new digital assets. It also poses new challenges regarding the velocity of financial transactions and the degree of coordination within the financial system. With this in mind, it would be well worth reviewing whether the current framework is able to cope with these new trends to safeguard global financial stability.[17]

Conclusion

In conclusion, technology could bring important efficiency gains to the financial system and also to financial authorities. But, evidence shows that it could have costs if not properly managed.

At the very least we should ensure that the principle of "same business, same risk, same rules" is upheld. But we should also assume that there are still unknowns and that some situations would call for a more cautious approach. Technology is already evolving at a rapid pace, one that, to date, neither regulation nor supervision has managed to hold back.

[15] https://www.bis.org/publ/bcbs_nl27.htm

[16] Vives, X. (2019) "Digital disruption in Banking", Annual Review of Financial Economics, 11:243–72.

[17] Hernández de Cos, P. (2023) "Banking starts with Banks: initial reflections on recent market stress episodes" BCBS Chairman keynote speech at the IIF Roundtable on the Shifting Risk Landscape.

Allow me to end by emphasising that risk management and industry awareness will continue to be key.

Thank you very much for your attention.