BBVA | Research

Digital Economy Outlook

September 2017 | DIGITAL REGULATION UNIT

BBVA | Research

Index

Closing date: 1 September 2017

1. Summary

Banks and new digital players: is there a level playing field? This article discusses the concept of a 'level playing field' between banks and new providers of financial services, analyses the existing asymmetries in the regulatory and supervisory framework, and proposes some lines of action to advance towards a more level playing field in digital financial services.

The paradox of the digital consumer: more demanding but less aware of his rights. The digital environment has dramatically changed the way consumers and businesses interact, by allowing easier remote B2C transactions. The rise in the use of online channels has driven the market to an unprecedented business model shift. In financial services, the change brought about by digital interaction has been big and had major implications for banks. However, on the customer side, the move over to these new digital environment has sometimes implied certain risks for their consumer rights.

PSD2 implementation: transposition deadline draws closer as access debate continues. The deadline for transposition of PSD2 is now less than 6 months away. But with technical standards still under development and no pan-European consensus on how to meet the access to accounts requirements, many of the questions over how firms will comply and what the European payments market will look like in the future will continue well into 2018.

Central Bank Digital Currencies (CBDC): challenging the financial system as we know it. Central Bank Digital Currencies have become a topic of debate not only in the academic field but also within national and supranational authorities that have set internal teams in order to analyze their potential implications. Although improbable in a short term, Distributed Ledgers allow for their existence in the future.

Financial innovation policies across the European Union: a new approach to foster FinTech. The current economic environment is fast-changing and highly competitive. The ability to innovate becomes a necessity for leading financial institutions. Europe is aware of this and is introducing policies to enable innovation while keeping risks under control. One-stop-shops, Regulatory Sandboxes or regulatory adaptation are the tools used for this purpose.

2. Banks and new digital players

Is there a level playing field?

This article discusses the concept of a 'level playing field' between banks and new providers of financial services, analyses the existing asymmetries in the regulatory and supervisory framework, and proposes some lines of action to advance towards a more level playing field in digital financial services.

In recent years, the financial services sector has undergone a significant transformation that is closely linked to advances in the Internet and mobile technologies. Part of this transformation is the entry of new players into the previously walled garden of financial services, where commercial banks were almost the only providers of the whole gamut of financial products, from credit to deposits, including payment and investment services. Today, a mass of non-bank digital providers compete (and cooperate) between them and with banks in most of the areas of financial services. These new *FinTech* providers are generally start-up firms that specialise in a specific service or customer niche. However, large digital players such as Amazon, Facebook or Apple have also started to offer financial services (mainly, payments and credit) to complement their core value proposition.

Different factors explain the entry of new players into the market of financial services. On the one hand, new technologies have reduced the cost of distribution (mobile channels vs. physical branch networks) and the cost of information technology (IT) infrastructure, thanks to cloud computing solutions. Moreover, digital technologies have facilitated the emergence of new platform business models in which widely dispersed agents are directly matched (e.g. crowdfunding or marketplace lending). On the other hand, today's technology-savvy customers demand a new customer experience (real-time, ubiquitous, transparent, personalised) that has not always been offered by the incumbents.

In this new competitive environment, both banks and other players are calling for a level playing field (LPF) that ensures fair competition amongst the various different providers of financial services. In many cases, however, the concept of LPF has been used with different, even contradictory, meanings. For some, it means lowering the regulatory barriers to entry in the financial sector, whereas for others new players should be subject to the same obligations that are imposed on banks.

The issue is of the utmost importance given the risks involved in providing financial services and consequently, the heavy regulation and supervision to which the sector has always been subject. Ensuring a LPF is not only an issue of fair competition but also of appropriately managing the risks for consumers and for the overall economy.

In our view, the principle of LPF ought to comprise two aspects. First, activities involving the same risks — for the sake of financial stability, consumer protection and the integrity of the financial system — should receive the same regulatory treatment. Therefore, any difference in regulation and supervision should be based on the risks posed by different products and services. Second, there should not be unnecessary barriers to competition in the market

beyond those justified by risk considerations. This means, for example, granting different types of players access (under fair conditions) to payments infrastructure, customer data, and regulatory and supervisory guidance, where the latter is aimed at keeping unavoidable risk-justified regulatory barriers to a minimum. In the rest of this article we will discuss the current state of play and how to achieve a more level playing field.

Asymmetries in the regulatory and supervisory framework

Regulations on consumer protection and the integrity of the financial system (Anti-Money Laundering and Combating the Financing of Terrorism) are generally activity-specific and therefore satisfy the principle of LPF, except with respect to certain forms of discrimination based on the size of the firm.[1] However, regarding financial stability, banking groups are subject to prudential regulations that have implications for most of their businesses, including those in which they compete with non-bank players that are only subject to activity-specific regulations or benefit from regulatory loopholes. Therefore, FinTech activities are generally subject to additional rules on internal governance when they are carried out within a banking group.[2] For instance, the EU Capital Requirements Directive (CRD) limits the ratio between the variable and the fixed salary components that financial institutions can pay to certain staff members who are identified as risk-takers. This puts banking groups at a competitive disadvantage in terms of attracting and retaining digital talent and keeping the founders and management teams of acquired start-ups on board.

Existing loopholes in the regulatory framework are another source of an uneven playing field between banks and non-bank players. Some new services or business models are not yet covered under existing regulations. This means that not only are potential risks to financial stability, consumer protection and the integrity of the financial system left unaddressed, but also asymmetries between players arise, given that regulated providers often face obstacles to engaging in unregulated activities. A case in point here is that the European Banking Authority (EBA) recommended that competent authorities should prevent credit institutions, payment institutions and e-money institutions from buying, holding or selling virtual currencies.[3]

The second aspect of the principle of level playing field refers to the removal of unnecessary barriers to fair competition; for example, by facilitating access of all players to payments infrastructure and customer data. The new EU Payment Service Directive (PSD2) takes a step in that direction by allowing non-bank players — authorised as payment service providers — to access bank account data and initiate credit transfers on behalf of clients. However, since these third-parties will not pay for accessing bank accounts, this imposes an unfair burden on banks and creates an asymmetry in the contribution to the sustainability of the payments infrastructure. Furthermore, sector regulations on third-party access to customer data (such as PSD2) might create asymmetries between players in a digital context in which the boundaries between sectors are becoming blurred. Although the new General Data Protection Regulation

1: In the European Union, the General Data Protection Regulation and the Anti-Money Laundering Directive set maximum administrative fines as a percentage of the total worldwide annual turnover of firms and the net equity of the obligated entities, respectively. This proxy is common when enforcing all types of regulations, and penalises larger players, who are not necessarily those taking larger risks.
2: Under the EU prudential regulatory framework (CRR/CRD), all financial service activities (except insurance) fall within the perimeter of prudential consolidation for banks and are therefore subject to prudential regulation and supervision. Only some exceptions are allowed, based on the immateriality of subsidiary firms.
3: EBA Opinion on 'virtual currencies', July 2014.

(GDPR) will bring in a new right to personal data portability which applies to all sectors, this way of accessing customer data will be less standardised than in PSD2 and only affects individual customers (whereas PSD2 also applies to business accounts).

Towards a more level playing field

To ensure a level playing field among all providers of financial services, be they banks or not, the regulatory and supervisory framework should progress on three fronts:

- **Limiting the implications of prudential regulation** for non-core businesses (i.e. non deposit-taking activities) in which banks compete with non-bank players. The internal governance of these businesses should be subject to the same activity-specific regulations that apply to non-bank players. To this end, either exceptions within the regulatory framework or exclusions from the perimeter of prudential consolidation could be allowed.

- **Plugging existing gaps in the regulation** by developing a regulatory and supervisory framework for new services, such as virtual asset management, alternative finance or financial service marketplaces. These rules should apply to both banks and non-bank players, the latter being authorised by narrowly defined (activity-specific) FinTech licenses.

Facilitating innovation for all players, under safe and even conditions, in case regulatory obstacles or uncertainties come to hinder the development of innovative solutions that would benefit consumers. Regulatory sandboxes are a useful tool in this respect. They are controlled environments in which firms can test innovative solutions with real customers without immediately incurring all of the normal regulatory burden.

3. The paradox of the digital consumer: more demanding but less aware of his rights

Growth of digital B2C transactions

The digital environment has dramatically changed the way consumers and businesses interact, by allowing easier remote B2C transactions. The rise in the use of online channels has driven the market to an unprecedented business model shift. In financial services, the change brought about by digital interaction has been big and had major implications for banks. However, on the customer side, the move over to these new digital environment has sometimes implied certain risks for their consumer rights.

New customer behaviour

There are some characteristics that define online customer behaviour and distinguish it from the way customers interact in the physical world:

- **24/7 service expectations**

Customers now demand services 24/7, rather than 9-to-5. In the physical world, financial service customers used to accept the regular business-hour model and were willing to wait until Monday to open accounts or apply for loans. This situation has changed**: customers expect companies to monitor their communications, complaints and compliments permanently**, regardless of the time, and wish to have instant answers to their demands. According to Edison Research, 42% of customers expect service requests made online to be sorted out within 60 minutes, while 32% expect a response within 30 minutes. Around 57% expect the same response in the evening and at weekends as during normal business hours.

- **Omnichannel integration**

Online customers **expect firms to offer the same services and products through all channels** (web, in-store, tablet, mobile) and expect to switch between channels seamlessly. A credit card ordered over the phone should be ready to use when the customer buys in the store. A purchase made in a physical shop should be easily returnable through the app. In the banking sector, even though customers are expected to interact less with the branch, 62% of respondents to a PwC survey felt that it was important for them to have local branches. In the future, “branches” will probably be different, with more sophisticated ATMs or offices that provide virtual capabilities.

- **Customers expect companies to be proactive**

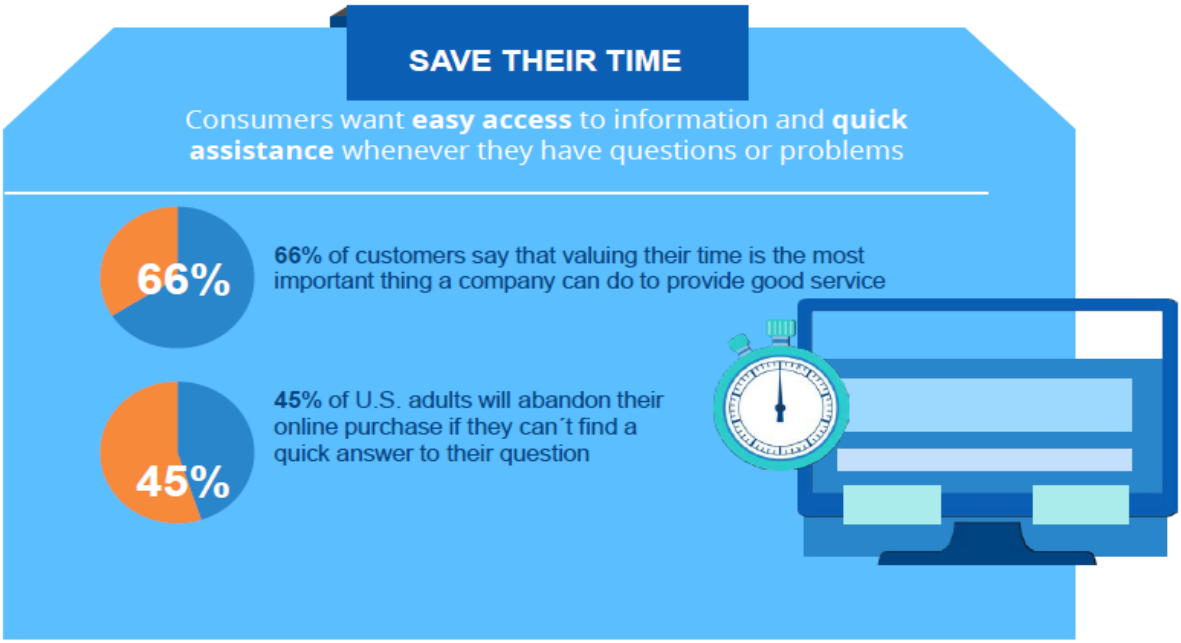
Customers are used to digital experiences and expect personalised help from the firms that support them in their financial management. Traditionally, banks’ approaches to customers have been reactive but nowadays customers

expect the bank to notify them when their account balance has gone down to a level that puts them at risk of overdraft or alerts to be sent to them about suspicious credit card transactions. Moreover, if customers are in the process of obtaining mortgages, their bank should proactively inform them about their status.

- **Customer empowerment**

Customers want to be in control of when and where their communication with firms takes place and, what is most important, they are **ready to make the move into services that offer the best customer experience quickly.** As for financial services, customers consider their banking relationships as mainly transactional. Even if customers hold a checking account with their primary bank, they often buy high-margin products from other companies. They know that they will always be listened to, thanks to the social media options at their disposal. Social media customers have increasingly demanding expectations. When a customer says something about a company on Twitter, Facebook or any other social channel, they expect the company to answer and to do so instantly. Companies must dedicate resources to deal with the reputational risk associated with these social platforms.

Figure 1



Source: Provide Support.com (USA market)

With such exacting customers, **companies are compelled to innovate constantly** in order to shorten delivery times and satisfy increasingly high consumer expectations. Banks need to invest and move fast to be able to offer the best services online, while looking carefully at their processes to provide the best customer experience without compromising the quality of the service.

Digital consumer challenges

After analysing the profile of the new digital customer, we might reach the conclusion that, given that they are so well informed and proactive, they are likely to be more aware of their rights and take steps to safeguard them. However, counter-intuitively, it seems that **consumer rights are not as well protected in the virtual world as they are in the physical environment**. Key issues of concern in this regard are:

- **Excess information and the customer's so-called bounded rationality**

The Internet provides consumers with much better information about products, services and prices by means of social networks, comparison sites and discussion forums. Sometimes, they find the amount of information **overwhelming.** Traditional economic theory predicts that consumers are rational and that they will systematically search for and analyse information in the market before making a purchase. Nonetheless, obtaining and studying the information may be costly, due to rational consumers possibly failing to search the entire market before making a decision[4].

Besides, and according to the theory of *bounded rationality*[5], the purchasing patterns of consumers may be influenced by a number of behavioural biases that arise from phenomena such as specific context and psychological factors and which might induce errors in their decisions.

- **Lack of transparency**

When consumers interact online, **they are usually unaware of the identity of their contractual partner and the extent of their rights**. This may lead to consumer harm if problems arise after transactions. Regarding financial services, a recent survey of active users of peer-to-peer platforms[6] has revealed that 60% of P2P consumers "did not know who was responsible if something were to go wrong and only 25% of P2P providers responded that they had a precise knowledge of their rights and responsibilities". This lack of transparency of online intermediaries makes it difficult for consumers to claim their rights.

- **Data protection unawareness**

Consumers are willing to share their personal data with companies when there is a clear trade-off and they benefit from sharing it if this leads to a more tailored product or a better price. Recent surveys[7] revealed that 67% of online consumers would grant investment advisory firms access to more personal data in return for benefits. Customers are sometimes not fully aware of the implications of consenting to the use of their data, due to the fact that they do not read all the information on such potential consequences, or else they just skim through it or only partially grasp the implications.

4: The Future of Retail Financial Services. What policy mix for a balanced digital transformation?. CEPS. February 2107
5: Consumer Decision-Making in Retail Investment Services: A Behavioural Economics Perspective. N Chater, S Huck, R Inderst_2010
6: 'Key findings about problems consumers face in the collaborative economy. European Commision Factsheet. June 2016
7: Investment advice: Maintaining trust amid shifting consumer demands. Accenture. January 2017

- **Regulation not fully adapted to the digital environment**

The omnichannel approach raises issues regarding the consistency of rules across online and offline channels, as the principle of non-discrimination across both types of channels has to be maintained. **No matter the means through which information is supplied to customers (paper, websites, apps), its content and the timing must be similar.** For instance, when the consumer uses mobile telephones in their search for a service, often with small screens that have space restrictions (affecting the number of visualised text, for instance), the information provided is not the same as the one provided via a computer screen. This issue has not been covered in financial services regulation yet.

Furthermore, in cross-border transactions consumers are confused about the implications of the national differences in consumer law and practices.

Consumer rights awareness and future EU regulations

The European Commission has recently completed its Fitness check of consumer and marketing law and one of the conclusions is that **many of the standards which are fully accepted in the physical world are still ignored when consumers, traders and providers interact in the virtual world.**[8]

The assessment confirms that there is a need to improve awareness, enforcement of the rules and how opportunities are addressed to make the best of existing consumer legislation, which is not properly adhered to in the online world. Regarding awareness of customer rights, surveys show that only four in ten people (41%) knew they had the right to a free repair or replacement if their goods are defective and only one third (33%) knew that they do not need to pay for or return products they did not ask for.

There is evidence that legislative changes are necessary in certain areas within the EU[9] such as:

- Providing **more transparency** over both who consumers conclude contracts with when buying over online platforms (online marketplaces) and whether EU consumer laws apply to such contracts.
- **Extending certain consumer rights to contracts for online services where customers provide data instead of paying with money**.
- Simplifying rules and requirements, and **harmonising** regulation, to avoid problems raised by national differences in consumer law and practices.
- Studying the possibility of applying **behavioural insights** to financial regulations.

8: EESC's European Consumer Day 2017 Conclusions. Malta, May 2017
9: Targeted revision of EU consumer law directives. 2017 European Commission, June 2017

Conclusion

The new digital consumer is, on the one hand, exigent and proactive: customers are forcing firms to keep up with their demands by investing in technologies and developing analytics capabilities. These should help integrate and track a personalised service and the best customer experience across all channels, while also providing responses in real time. On the other hand, the digital consumer is not completely aware of his rights. Some online platforms do not comply with regulation, and the lack of transparency in information provided by companies is a central issue which the latter needs to address. **An appropriate balance between the level of complexity in the information provided and simplifying the processes whereby customers can understand their rights should be defined jointly by suppliers, consumers and regulators.**

4. PSD2 implementation

Transposition deadline draws closer as access debate continues

The deadline for transposition of PSD2 is now less than 6 months away. But with technical standards still under development and no pan-European consensus on how to meet the access to accounts requirements, many of the questions over how firms will comply and what the European payments market will look like in the future will continue well into 2018.

Building on the original PSD

The first Payment Services Directive (PSD) came into effect in 2009 and created a single market for payment services in the EU and the basis for the Single Euro Payments Area (SEPA). It harmonised, or in many cases introduced for the first time, the requirements for providing a payment service and set out clear rights for payers and payees.

However, finding there were gaps in this initial effort, European legislators set out to address the shortcomings with the revised Payment Services Directive, commonly known as PSD2. Agreed and published in 2015, it extends the scope of the payment rules - for example, transactions in non-EU currencies and those through online marketplaces will now be covered - and strengthens consumers' rights, with new maximum processing times for disputes and a ban on surcharging for the use of most types of retail debit and credit cards. But legislators have also tried to account for the changing nature of online payments, with two new sets of provisions that have been the cause of much debate throughout the EU:

- **higher security** for payments and internet banking, known as Strong Customer Authentication; and
- **access to accounts requirements** that will guarantee users are able to use third party services that function by accessing the information or payment operations in the user's online payment account.

The deadline for Member States to transpose PSD2 into national law - and therefore when it should come into effect - is January 2018. However, a number of details for how both Strong Customer Authentication and access to accounts (including "common and secure communication" between account providers and third parties) are to work will be set out in regulatory technical standards - often abbreviated to RTS on SCA and CSC. These won't come into effect until 18 months after they are adopted by the European Commission, which isn't expected until later this year.

The process of drawing up the standards has highlighted the range of views that remain as to what PSD2 is intended to do and how it should be implemented, as well as the gap that exists between what is explicitly in the directive and what falls to firms to interpret. Furthermore, the time lag between when PSD2 and the RTS on SCA and CSC come into effect, which will now be at least a year, creates a transition period where account providers are required to provide access to third parties but security requirements won't yet be in place.

Security and access to accounts

The higher security requirements will mean that for the majority of electronic payments two-factor authentication will now be required. That is, a user will have to provide two of three possible pieces of evidence to carry out a transaction: something they have (e.g. a debit card); something they know (e.g. a PIN); and something they are (e.g. a fingerprint). In addition, where it's a remote payment, the evidence will need to be linked to the payment amount in a process known as dynamic linking.

As explained in the July 2016 Digital Economy Outlook[10], the access to account rules will require banks to grant licensed third parties access to bank accounts when authorised by the clients. Those third parties will be able to offer two new types of regulated services:

- account information services (AIS) - the use of transactional and account information, for example the aggregation of multiple accounts together to offer better personal financial management; and
- payment initiation services (PIS) - the use of the payment functionality available through internet banking, for example to make a payment as part of an online purchase.

Regulatory Technical Standards

The directive itself does not specify the technical mechanism through which access to accounts will have to be granted. The European Banking Authority, in its first draft of the standards, therefore proposed that account providers (like banks) should provide at least one form of access: either through the user interface (essentially a form of screen scraping), or through a dedicated interface (for example, an Application Programming Interface - API).

The use of APIs is already widespread throughout internet based services and there is broad agreement that they can offer better security and control to users. However, some third party providers remain concerned that banks' APIs might not be fit for purpose, for example by falling short of the high levels of availability they need. Responding to these concerns, the Commission suggested in May a number of changes to the EBA's proposal, including a "fallback option" that wherever the API was not available for more than 30 seconds then third party providers would have access through the user interface.

In turn, the EBA expressed concern[11] that this change might reduce the likelihood of APIs being used, increase costs for account providers, and leave new third party entrants to the market at a competitive disadvantage, without any improvement to the reliability of access. The EBA proposed its own alternative amendments to meet the Commission's objectives and ensure that account providers using APIs developed them within the spirit of PSD2. These included the development and publication by account providers of key performance indicators of service levels

10: Pablo Urbiola. 2016. Open Banking: a regulatory perspective, BBVA Digital Economy Outlook
11: EBA opinion in response to the European Commission intention to amend the EBA Technical Standards for open and secure electronic payments under PSD2, June 2017

of their interface; making the interface available for testing 3 months before the RTS come into effect; and a review of how interfaces are functioning by the EBA.

Harmonisation and challenges

All eyes are now on the Commission as they produce a final version and look to adopt the RTS in the coming months. This will provide some welcome clarity to industry, but the debate on PSD2 implementation will be far from over.

While British regulators are forcing 9 of the largest banks in the UK to develop a common approach to PSD2 APIs for January next year[12], discussions on pan-European harmonisation are likely to continue well into 2018. A number of different parties have launched efforts to galvanize support for the development of common standards (such as the Berlin Group), a directory of third parties and account providers (Preta and Equens Wordline), and for shared infrastructure (CAPS). Harmonisation is also on the agenda of the ECB's stakeholder forum, the Euro Retail Payments Board, and the accompanying working group of the European Payments Council.

However, none of these efforts have yet received cross-industry backing or published detailed proposals, leaving it possible that in the short term country-level initiatives may instead emerge as ways to overcome fragmentation in a number of Member States.

In any event, as the RTS on SCA and CSC won't come into effect immediately, account providers can comply with the general access to accounts requirements in January 2018 by allowing the current standard practice - screen scraping - to continue. Many firms are therefore likely to wait until much closer to the entry into effect of the RTS on SCA and CSC (potentially around Q2 2019) to roll out their final PSD2 (and RTS) compliant solution. Whether they plan to use APIs or not, whether those APIs are harmonised, within or between Member States, and what this could mean for competition in the EU payments and banking market will become clearer over the course of the coming 18 months.

12: See https://www.openbanking.org.uk/

5. Central Bank Digital Currencies (CBDC)

Challenging the financial system as we know it

Central Bank Digital Currencies have become a topic of debate not only in the academic field but also within national and supranational authorities that have set internal teams in order to analyze their potential implications. Although improbable in a short term, Distributed Ledgers allow for their existence in the future.

What CBDCs are

Money has been traditionally defined as a financial asset that serves three distinct roles: as a medium of exchange, a store of value, and a unit of account. Several types of money coexist under this definition -- cash, checking accounts, bank reserves in the central bank, foreign currency, money market securities, short-term repurchase agreements, and privately issued assets -- each with their own set of strengths and weaknesses when fulfilling their roles.

One can observe that most money has already been digitized, a process made easy when it is redeemable[13]. The reason rests on the nature of redeemable money, which relies on the trust put on its issuer together with its non-anonymity, which is an additional safeguard that facilitates proof of ownership in court. As a result, the digitization of redeemable money has evolved quite naturally: it has proven relatively easy for already trusted issuers to gain the institutional support and additional trust needed to offer and guard solely digitized versions of the money they supply.

Nevertheless, being the bulk of money in the form of private banks' deposits, cash is still the cornerstone of money supply. Its strength lies in three distinguishing attributes that have upheld it as the world's quintessential means of payment: universality, anonymity and peer-to-peer exchangeability[14]. A fourth key attribute, no yield bearing, has additionally fueled the role of cash as a unit of account. But, despite its widespread use and convenience, cash has many drawbacks: it is the main instrument of tax evasion, money laundering and the financing of illegal activities; it deteriorates rapidly, especially in high inflation countries, posing significant logistical problems; it limits the scope for monetary policies based on negative interest rates, since it provides a zero rate alternative that can be stored; etc.

Those are the reasons why "digital cash" has been pursued for decades. However, preserving cash attributes within a digitized platform has proven to be significantly challenging until 2008, when distributed ledgers (DL), a generalization of the blockchain technology popularized by Bitcoin, offered the key to digitize cash. More specifically, DL offered a solution for the "double spending problem" by founding a decentralized way to assure that no one could ever spend twice his or her withholding of cash[15]. As a consequence, technology now provides a way for central banks to issue a digital cash alternative in the form of central bank digital currencies (CBDCs). Recent literature explores this option,

13: I.e., it is a contract that stipulates that the bearer can redeem from the issuer a given amount of a specified asset, usually cash.
14: I.e., it does not require the intervention of a third party.
15: Through a combination of algorithms and cryptography operated in an open network, DL decentralizes the supervision of the balances in all accounts, which in the context of crypto currencies are called "wallets". A digital wallet is actually a pair of two cryptographic keys (one public and one private) which gives access to the funds in the form of crypto currency. The word "wallet" is used as analogy to physical wallets where bills and coins are stored.

with the objective of overcoming the drawbacks of cash and also, in the view of some authors, as a means by which banking crises can be limited, by providing a central bank-based alternative to private banks' deposits.

The Bank of England was among the first central banks to take notice of the feasibility of CBDCs, followed by Canada, China, Senegal, South Africa, Sweden, and many others that are currently assessing and piloting its implementation.

The many flavours (and implications) of CBDCs

Different types of CBDCs can be defined to replicate all or some of the main features of physical cash, with different implications. We identify four main scenarios, from least to most disruptive (more detail in this report):

The most simple option is the use of CBDCs only for wholesale payment systems (**option A**). Under this scheme the CBDC would be held by banks and other participants in wholesale payment systems (but not by the general public), identified (as opposed to anonymous) and non-interest bearing. This scenario would increase the efficiency of wholesale payment systems, and has few drawbacks for the public at large or for policy makers, although banks could be hit due to higher competition with non-bank payment institutions.

Option B opens the CBDC scheme to the general public, and retains the anonymity of cash. The efficiency gains would exceed those of option A, as money transfers would no longer require intermediaries and it would, for example, facilitate long-distance payments. The payment business of banks would be severely hindered and their retail funding could be lower and more volatile, which would pressure down credit levels. However, the CBDC would be less secure than bank deposits, which offer both additional safeguards and traceability in case of legal disputes, aside from potentially offering higher yield and complementary services.

Option C introduces the possibility of CBDCs bearing non-zero interest rates. It hugely increases the room for anti-deflationary policies, through the use of negative interest rates. It would imply the elimination of cash, except perhaps for very low denominations: negative rates would remain bounded if cash is readily exchangeable with CBDC (for a low enough rate, everyone would swap into cash) while demand for cash would dry up for a high enough positive yield. The advantages of broader policy making should be balanced against the legitimacy issues that central banks would face as a result of potentially implementing unbounded financial repression. As in scenario B, banks would be negatively hit as people converted their bank deposits into CBDCs, with a potential cost for society in terms of credit. However, the restrictions in the usage of physical cash could drive up bancarization.

Finally, **option D** centres on a non-anonymous and universal CBDC. Identification would make this CDBC equivalent to a deposit at a central bank, increasing its security while granting higher surveillance power to policy makers to fight illicit activities and tax evasion. This scheme in particular would certainly disrupt retail banking, because commercial banks would face direct competition from central banks and a type of narrow banking model would likely emerge, with the resulting threat to aggregate credit. Unless the monetary authority is willing to take a new role as manager/investor of CBDC, which is hard to fathom, or outsource such responsibility to the financial sector, although it is not yet obvious how and under what criteria, CB deposits would be hoarded rather than channeled into investment.

A clear advantage shared by all four basic CBDC schemes is the significant reduction in the intermediation costs of the domestic-payment infrastructure. As a result, financial firms relying on the provision of intermediation services are likely to become obsolete or commoditized unless they develop alternative sources of revenue. Also, regardless of the scheme, physical cash would retain certain advantages, such as its ease of use by the "digitally uninformed", availability "outside the grid" and trust in an asset that is completely shielded from "singled out" confiscation. Moreover, the cost to both instruct everyone and provide access everywhere may prove insurmountable to many authorities, especially in emerging economies.

We think that the less disruptive scenarios are more likely, because of their ease of implementation and because the authorities would be reluctant to choose more disruptive schemes given their potential costs and the uncertainty about their impact. This naturally conservative bias of central banks would probably give rise to an evolutionary approach, with scenario A being likely in the short to medium run, whereas the probability of other options would depend a lot on the weighting of different objectives by both central banks and authorities in general.

And there is still the main significant implication about how to solve the severe threat to today's maturity transformation of deposits into investment. One undeniable point is that modern economies currently count on the credit generated by the maturity transformation of deposits, and a reduction in deposits would disrupt the flow of available credit, generating significant transition costs, regardless of alternative channels from savings to credit that narrow banking may or may not foster.

6. Financial innovation policies across the European Union

A new approach to foster FinTech

The current economic environment is fast-changing and highly competitive. The ability to innovate becomes a necessity for leading financial institutions. Europe is aware of this and is introducing policies to enable innovation while keeping risks under control. One-stop-shops, Regulatory Sandboxes or regulatory adaptation are the tools used for this purpose.

The introduction of policies to foster innovation are vital for the financial services industry. Several empirical studies show the potential of innovation to improve the quality and variety of banking services, complete the market and improve allocative efficiency[16]. However, those innovations do not arise in isolation, they require an enabling environment to foster them[17]. **The creation of a friendly policy framework is one of the main enablers.**

Traditionally, most policies have focused on enhancing the work of research and development laboratories, mostly linked to scientific or industrial organizations. The tools used have been focused on the provision of economic benefits like financing, encouraging production through public procurement or tax benefits for businesses focusing on eligible research and development activities[18]. Along with these, there are other measures to foster the creation of intangible assets such as the establishment of clusters or hubs, physical places where similar industries share knowledge and rise creativity levels[19].

However, with those measures, the authorities did not enter into understanding the innovation process, as this approach only checked the pre-conditions and the final output. Furthermore, those policies did not fit well with highly regulated firms such as those engaged in financial services, where one of the main issues for innovation is compliance. As an answer to these concerns we observe that **there has been an evolution of those tools, introducing new actions that imply a more proactive role by the regulators in order to create evidence-based and future-proof regulations**.

New policies for a new phenomenon

Innovative firms, both start-ups and incumbents, often face difficulties to meet regulatory requirements. As a result, financial organisations spend huge resources in navigating the red tape and reduce their efforts focused on the creation of new value propositions. Moreover, the speed of change has increased because of the introduction of exponential technologies and new services are entering the market on almost a daily basis. In this regard, it is

16: Beck, T., Chen, T., Lin, C., & Song, F. M. (2016). Financial innovation: The bright and the dark sides. *Journal of Banking & Finance*, 72, 28-51.
17: EDQUIST, C., & CHAMINADE, C. (2006). Industrial policy from a systems-of-innovation perspective. *EIB papers,* 11(1), 108-132.
18: Larédo, P., Köhler, C., & Rammer, C. (2016). 2. The impact of fiscal incentives for R&D. *Handbook of Innovation Policy Impact*, 18.
19: Florida, Richard L. *The Rise of the Creative Class,* Revisited. New York :Basic Books, 2012. Print.

important to balance the creation of measures to foster the development of new offerings with the reduction of potential new risks, while ensuring a level playing field. Authorities globally are aware of this situation and are currently reviewing their innovation policies in order to provide more efficient tools and informed regulations that fit this new reality better.

There are different solutions to overcome this issue across the EU, although they all have something in common, those options are accessible to all players, incumbents and new entrants alike. Although the creation of these initiatives is positive, **there is a risk of fragmentation within Europe as there are different approaches and a divergent degree of maturity in the understanding** of the fintech phenomenon. In any case, this new approach aims to tackle financial innovation enhancing the whole ecosystem, taking into account the needs of all players.

On a first stage, regulators are aware of this change but seek for input to learn about this phenomenon. Public consultations and workshops released by authorities have opened a debate in order to listen to the market before taking any decision but targeting their questions on the most controversial issues. Examples are the Public Consultation on FinTech in March 2017[20] or the Financial Technology Task Force, both initiatives by the European Commision. Some countries are still in this stage such as Portugal with their Workshop on Digital Banking and FinTech or the Estonian Financial Supervisory Authority (FSA) FinTech Taskforce. The creation of knowledge is the first step to better understand the implications of this new environment in order to draft a new policy agenda that fits market needs.

There are other authorities who focus on establishing forums to nest the creation of initiatives, like the Bank of Cyprus hackathon for FinTech; or institutionally led accelerators such as the one arranged by the UK's FCA, which involves the authority in the creation of new value propositions fostering entrepreneurship.

One of the main problems observed is not only the legal framework but also its practical application. Most companies find difficult to interpret current requirements and what authorisations are needed. In this regard, one-stop-shops allowing companies to seek first-hand advice arise as a solution. In the case of Germany, BaFin has established a webpage dedicated to this issue, although no regulatory change is envisaged yet. However, other countries have gone steps further and include this option within a most ambitious innovation framework, such as France or United Kingdom.

A step further is the revision of the regulatory framework in order to attract investment. This is the case of France and their FinTech friendly regulation framework with the introduction of a new law that sets a threshold below which no authorization from regulators is needed to start FinTech businesses and the establishment of a one-stop-shop to attend company needs. This program eases the requirements to start a fintech business and the 2-Week-Ticket offers a pre-authorisation for foreign businesses to start operating in France until full authorisation is granted, followed by a six month monitoring period and the possibility to access to European passporting rights. This program

20: Casadas, V. Fostering financial innovation. Assessing a new policy framework for financial innovation. *Financial Regulation Outlook. Third Quarter 2017*. BBVA Research

is boosted with the creation of several incubators established by the Fintech, Innovation and Competitiveness (FIC) division within the *Autorité des Marchés Financiers* (AMF). This comprehensive approach is called the 'Regulatory Soundbox', referring to sound rules giving access to European passports with an oversight that is proportional to these companies activities.

Finally, **the approach that implies a maximum degree of collaboration between the authorities and the industry are Regulatory Sandboxes.** First of all, it is important to clarify that **this initiative is not about deregulation, but rather an interactive regulatory dialogue between a company willing to launch a new product or service and the relevant authorities.** Furthermore, this option is only a temporary legal relief for the market testing of innovations, as there is a high degree of uncertainty and, once the project ends, it should meet all regulatory requirements before entering the market. Nevertheless, as a result of the process the authority in charge might consider reviewing its current framework in order to fit new realities. The origin of this concept is in the British FCA[21], but is currently under discussion in several geographies like Poland, Lithuania, or Spain.

As an example, there is an already operating sandbox in the Netherlands, within the boundaries of the Innovation Hub set up by the Dutch National Bank (DNB) and the Authority of the Financial Market (AFM). These sandboxes allow to assess whether the innovative concepts comply with the underlying purposes of applicable financial markets regulations rather than the strict letter of the law. However, there are restrictions for projects willing to enter: they must meet at least one of the objectives of financial supervision laws, run into unnecessary barriers that the company cannot reasonably overcome, and the company's corporate processes must include procedures and measures to protect the solidity of the financial services company and the interests of its clients and stakeholders. However, aside from the sandbox, the Netherlands also allows companies to obtain a partial authorisation, opt-in authorisation, or "authorisation with requirements". Finally, there is a contact center which allows companies to submit questions about regulations, regardless of whether they are currently subject to a regulatory framework.

Conclusion

The introduction of this new breed of policies to foster financial innovation is a recent phenomenon. Although their theoretical background is strong, it is still early to determine their success. However, there is no doubt that in order to obtain the most benefit of these initiatives at a European level, it is necessary to achieve a certain degree of harmonisation of the different initiatives. As a result, a common framework would reduce asymmetries among Member States and enable the provision of cross-border services.

21: Urbiola, P. (2016) Regulatory sandboxing: a risk-based approach to promote innovation in financial services. *Digital Economy Outlook*. BBVA Research

DISCLAIMER

This document has been prepared by BBVA Research Department, it is provided for information purposes only and expresses data, opinions or estimations regarding the date of issue of the report, prepared by BBVA or obtained from or based on sources we consider to be reliable, and have not been independently verified by BBVA. Therefore, BBVA offers no warranty, either express or implicit, regarding its accuracy, integrity or correctness.

Estimations this document may contain have been undertaken according to generally accepted methodologies and should be considered as forecasts or projections. Results obtained in the past, either positive or negative, are no guarantee of future performance.

This document and its contents are subject to changes without prior notice depending on variables such as the economic context or market fluctuations. BBVA is not responsible for updating these contents or for giving notice of such changes.

BBVA accepts no liability for any loss, direct or indirect, that may result from the use of this document or its contents.

This document and its contents do not constitute an offer, invitation or solicitation to purchase, divest or enter into any interest in financial assets or instruments. Neither shall this document nor its contents form the basis of any contract, commitment or decision of any kind.

In regard to investment in financial assets related to economic variables this document may cover, readers should be aware that under no circumstances should they base their investment decisions in the information contained in this document. Those persons or entities offering investment products to these potential investors are legally required to provide the information needed for them to take an appropriate investment decision.

The content of this document is protected by intellectual property laws. It is forbidden its reproduction, transformation, distribution, public communication, making available, extraction, reuse, forwarding or use of any nature by any means or process, except in cases where it is legally permitted or expressly authorized by BBVA.

BBVA | Research

This report has been produced by the Digital Regulation Unit:

Chief Economist for Digital Regulation Unit
Álvaro Martín
alvaro.martin@bbva.com
+ 34 91 537 36 75

María Álvarez
maria.alvarez.caro@bbva.com

Vanesa Casadas
vanesa.casadas@bbva.com

Edward Corcoran
Edward.corcoran@bbva.com

Jesús Lozano
jesus.lozano@bbva.com

Alicia Sánchez
alicia.sanchezs@bbva.com

Javier Sebastián
jsebastian@bbva.com

Ana Isabel Segovia
ana.segovia@bbva.com

Pablo Urbiola
pablo.urbiola@bbva.com

BBVA Research

Group Chief Economist
Jorge Sicilia Serrano

Macroeconomic Analysis
Rafael Doménech
r.domenech@bbva.com

Global Macroeconomic Scenarios
Miguel Jiménez
mjimenezg@bbva.com

Global Financial Markets
Sonsoles Castillo
s.castillo@bbva.com

Global Modelling & Long Term Analysis
Julián Cubero
juan.cubero@bbva.com

Innovation & Processes
Oscar de las Peñas
oscar.delaspenas@bbva.com

Financial Systems & Regulation
Santiago Fernández de Lis
sfernandezdelis@bbva.com

Countries Coordination
Olga Cerqueira
olga.gouveia@bbva.com

Digital Regulation
Álvaro Martín
alvaro.martin@bbva.com

Regulation
María Abascal
maria.abascal@bbva.com

Financial Systems
Ana Rubio
arubiog@bbva.com

Financial Inclusion
David Tuesta
david.tuesta@bbva.com

Spain & Portugal
Miguel Cardoso
miguel.cardoso@bbva.com

United States of America
Nathaniel Karp
Nathaniel.Karp@bbva.com

Mexico
Carlos Serrano
carlos.serranoh@bbva.com

Turkey, China & Geopolitics
Álvaro Ortiz
alvaro.ortiz@bbva.com

Turkey
Álvaro Ortiz
alvaro.ortiz@bbva.com

China
Le Xia
le.xia@bbva.com

South America
Juan Manuel Ruiz
juan.ruiz@bbva.com

Argentina
Gloria Sorensen
gsorensen@bbva.com

Chile
Jorge Selaive
jselaive@bbva.com

Colombia
Juana Téllez
juana.tellez@bbva.com

Peru
Hugo Perea
hperea@bbva.com

Venezuela
Julio Pineda
juliocesar.pineda@bbva.com

CONTACT DETAILS: BBVA Research: Azul Street, 4. La Vela Building - 4 and 5 floor. 28050 Madrid (Spain). Tel.:+34 91 374 60 00 y +34 91 537 70 00 / Fax:+34 91 374 30 25 - bbvaresearch@bbva.com www.bbvaresearch.com