

2022 DIGITAL MONEY & PAYMENT SYSTEMS



Working Group
QOSP
by **Fide**
Law | Economy | Technology

TABLE OF CONTENTS

INTRODUCTION

FOREWORD

WHY DIGITAL MONEY AND PAYMENTS SYSTEMS?

ARTICLES

BIBLIOGRAPHY

AUTHORS

DDSP 2022 DOCUMENT DIRECTION AND COORDINATION

ABOUT THE FIDE FOUNDATION

DIGITAL MONEY AND PAYMENT SYSTEMS WORKING GROUP - DDSP



Fide is a legal-economic think-tank, an operational center of knowledge in a practical state, made possible thanks to the active participation of all levels of civil society that have something to say about the main legal and economic developments in Spain, Europe and the World: from top management of companies to law firms, from university chairs to courts of justice, from all levels of the administration to professionals from different fields related to the world of law and business.

INTRODUCTION

The document presented to the reader constitutes a useful tool for understanding a certainly complex phenomenon. Professionals in law, economics, finance and citizens in general may be more or less familiar with the concepts of digital money, cryptoassets, digital identity or the technologies that today determine the evolution of financial infrastructures, but what is extremely difficult to do is to keep up to date and have a rigorous conceptual framework from the different perspectives from which these issues must be approached today. This is where this document is of great value.

At the initiative of Fide's Digital Money and Payment Systems Working Group, we have brought together professionals from the fields of law, economics, finance and technology to help us understand this reality, to propose from their respective fields the initiatives and approaches that they consider should be taken into consideration by national authorities or, where appropriate, to provide valuable information to all citizens interested in making responsible decisions in the financial sphere. And we believe they have achieved their goal.

The document is worth reading for both experts and novices, and above all it is a complete overview of a reality that will reshape a very important aspect of our lives and of our society as a whole.

I invite you all to read it and share it, to comment on it and to enrich it with your contributions.

The authors, whom we sincerely thank for their work, have made the first part of the journey, but the effort should not stop here. We have a lot at stake in this area as a country, as a society, as individuals, and it is in our hands to decide how we act on it.



CRISTINA JIMÉNEZ

President of the Fide
Foundation

FOREWORD



PABLO HERNÁNDEZ DE COS

Governor of the Banco de España

2022 marks the twentieth anniversary of the introduction of the Euro. Two decades ago, we were preoccupied with familiarizing ourselves with the new banknotes and coins, a fundamental pillar of our daily activity. Today, cash still plays an important role in our daily lives, but it has ceded much of its prominence to digital means of payment. Although digitalization is a general phenomenon that affects practically all areas of our lives, I believe that it is in the area of payments that the opportunities opened up by new technologies are developing most rapidly.

The digitalization of the world of payments, like that of financial markets in general, brings numerous benefits for society: efficiency gains, cost reductions, greater access to financial services, enhanced security... The launch of immediate transfers or the possibility of paying by cell phone are just two examples that perfectly illustrate the advantages of these advances for citizens. At the same time, however, new technologies, new players and new products open the door to new sources of risk. Sometimes these risks are relatively similar to those posed by traditional payments, and we know how to deal with them. In others, however, they pose new challenges that need to be identified and assessed in order to determine how best to address them.

It is this combination of opportunities and risks that financial authorities must analyze in detail in order to ensure that the former are exploited to the maximum and the latter are properly managed.

This requires a broad and deep knowledge of new developments, a remarkably complex task given the speed at which innovations are occurring. In this context, initiatives such as the creation of Fide's Digital Money and Payment Systems Working Group make a major contribution to understanding the characteristics and implications of the digital transformation. Only by taking into account the different perspectives of the many agents affected by these changes is it possible to structure a careful and complete analysis that will make it possible to respond to the challenge of maintaining an appropriate balance between the risks and benefits brought about by the digitalization of payments. It is precisely this multiplicity of stakeholders that leads me to the reflection to which I would like to devote the rest of this prologue.

Digital means of payment, by their very nature, are not easily attributable to a specific jurisdiction, they are not constrained by the physical borders separating States. **International coordination is essential to successfully deal with the phenomenon of the digitalization of payments.** This coordination must be carried out without opening the door to spurious opportunities for regulatory arbitrage that do nothing for the welfare of citizens. Aware of this fact, there are many efforts by the authorities in this direction and I think it is worth highlighting, without being exhaustive, at least three particularly relevant initiatives.

First of all, I would like to highlight the plan launched by the G-20 to boost cross-border payments worldwide, including remittances. This is a collective program involving various global committees and authorities (the Committee on Payments and Market Infrastructures of the Bank for International Settlements (BIS), the Basel Committee on Banking Supervision (BCBS), the World Bank, the International Monetary Fund, IOSCO, etc.) and is being developed under the coordination of the Financial Stability Board (FSB). This initiative encompasses a wide range of actions aimed at facilitating faster and safer cross-border payments, thereby reducing costs and increasing accessibility for a large majority of consumers. **New technologies offer great opportunities in this area, and this strategy advocates capitalizing on them to advance in the modernization of existing infrastructures, with a commitment to the emergence of new multilateral platforms.**

On the other hand, cryptocurrencies have become another major focus of attention, as evidenced by the large number of articles on the subject in this publication. These digital assets make up a heterogeneous universe of initiatives that serve different purposes, ranging from pure means of payment to

instruments that seek to satisfy investment needs. Although this is a very extensive field of work, it is perhaps in the area of stablecoins where progress in international coordination is most visible. Particularly noteworthy is the interest of the authorities in stablecoins with a global vocation, which, by extension, could have systemic consequences.

In addition to reiterating the importance in Europe of the draft MiCA regulation (the details of which are discussed in more detail in this monograph), it is also worth highlighting the work of the CPMI and IOSCO **to apply the same standards and principles to this class of crypto-assets that already apply to systemically important infrastructures**. The FSB has also published a report assessing the regulatory, supervisory and oversight challenges associated with global stablecoins and formulating a set of high-level recommendations to mitigate their potential risks to financial stability.

Along the same lines, the supranational exercises carried out by the FSB and the BCBS to assess the macro- and micro-prudential implications of the development of these crypto-assets should also be highlighted, exercises that also serve as a basis for the design of possible actions in this regard. In this context, the FSB's Standing Committee for the Assessment of Vulnerabilities (SCAV) periodically gathers data on the status of the main channels through which threats could be transmitted. On the other hand, the BCBS, which I have the honor to chair, is discussing the features of the regime that will define the prudential treatment of banks' exposures. Both elements are part of a still open debate, which is expected to materialize into concrete actions in the short and medium term.

Third and finally, I would also like to mention **the coordination that is taking place at the international level in the area of central bank digital currencies (CBDCs)**. As noted in another of the articles in this publication, CBDCs ultimately respond to the desire to ensure that payment ecosystems do not lose the ultimate anchor provided by central bank money (the secure means of payment par excellence). The benefits of these solutions are therefore considerable, as are the size of their challenges, which include the risks to the normal functioning of international financial flows if CBDCs are not designed to ensure an adequate degree of interoperability between them, thus facilitating their use outside their national borders.

It is not surprising, therefore, that various multilateral collaboration initiatives are underway in the area of CBDCs. Among them, I would like to highlight the one being developed under the auspices of the Bank for International Settlements (BIS), in which seven central banks from around the world have come together to try to outline a set of founding principles and minimum characteristics that all CBDCs should share. In a complementary manner, the BIS Innovation Hub is

hosting a series of practical experiments that may prove very useful for further technical harmonization among the central banks that are making the most progress in this area.

Ultimately, it is clear to any minimally attentive observer that digitalization is profoundly transforming the financial sector, in general, and the world of payments, in particular. We, the authorities responsible for financial regulation and supervision, have the task of providing the framework that will enable us to capitalize wisely on the many opportunities offered by these developments. I believe that the provision of such a framework will not be possible without greater and closer international collaboration among institutions. At the same time, **it is necessary to create spaces for reflection that allow the opinions of all the participants involved in these new ecosystems that are taking shape to be taken into account. This is where initiatives such as those of Fide's Digital Money and Payment Systems Working Group demonstrate their full value.** I am convinced that the reflections contained in this publication will be of great help in better understanding the situation of this constantly evolving market and will thus contribute to enriching a much-needed debate.

WHY DIGITAL MONEY AND PAYMENTS SYSTEMS?



ENRIQUE TITOS

Director of the DDSP - Digital Money and Payments Systems Working Group. Academic Advisor of Fide.

ABSTRACT

We are witnessing an exceptionally competitive scenario that has a direct impact on the established concepts of money and financial value, with new options for users, new technological players, and infrastructures that are emerging from DLT, blockchain, and advanced cryptography systems. Fide's Working Group "Digital Money and Payment Systems" attempts to address the complexity of this constantly evolving framework, in order to provide understanding and guidance to companies and institutions, taking advantage of new technologies, while preserving public policies through a regulation proportionate to the established objectives

2021 represents the first full year of work for Fide's Working Group "Digital Money and Payment Systems" (DDSP). This group is an evolution from Fide's previous "Digital Currencies" group created when Facebook (now Meta) announced its intention to launch the Libra stablecoin, almost simultaneously with the revelation that China had been analysing the launch of a digital Yuan since 2014, directly issued by the People's Bank of China, accessible to all citizens.

In hindsight, we can detect colossal forces striving to bring changes to the current system through which official money and financial value circulate.

It's the financial and economic system configured since the Second World War that has promoted state issued currencies - with the US dollar as the dominant global reserve currency and the main medium used in cross border payments -, with the creation of multilateral financial institutions like the IMF or the World Bank. Over the time, electronic payment systems such as cards and ATMs emerged, modern financial and capital markets were developed, and fast payment systems were implemented at the beginning of the 21st century.

In addition to standard setting bodies like the Bank of International Settlements (BIS) and specific forums like the Financial Stability Board (FSB) among others, this entire system encompasses financial regulators, supervisory authorities, private banks, financial and market infrastructures at its core. This is the financial ecosystem that has allowed undoubted economic growth throughout most of the world, despite some dysfunctional episodes such as the 2008 financial crisis.

The appearance of Bitcoin in 2009, the consolidation during the last decade of an economic model increasingly based on the services provided by global technology platforms, the accelerated digitalization brought by the COVID-19 pandemic, and the emergence of new operators in the field of payments, marked by the attempt of Facebook (Meta) in 2019 to launch its own digital currency, bring forth a new scenario for money and payments, at the same time that use of cash decreases in favour of mobile payments. This new framework impacts all industries through digital payments, which are also in the process of redefining their processes and value chains using the potential of new technologies.

In this context, financial regulators and central banks are forced to rethink how to ensure that state money remains relevant within their respective currency areas, while the G20 has set itself the goal of offering efficient and useful cross-border payment solutions for almost 2 billion people around the world excluded from modern and efficient financial services. These are to be achieved while preserving financial stability, ensuring the legitimate use and transit of money, and the protection and information of users of financial and investment services.

Thus, we now face a time of considerable changes in the fields of money and finance. Changes of such magnitude that one can only wonder if these changes are not equivalent to the financial transformations that followed the Second World War.

On top of the money-trust system rooted in the modern states, its institutional backstop and the regulated and supervised ecosystem (especially the banking sector) that today dominates the money transmission and circulation, we are

witnessing the birth of competing alternatives where the concept of money and how to use it, in its traditional meanings of means of payment, stable value deposit and unit of account, brings new proposal to citizens based on private technology platforms and DLT systems with advanced cryptography and smart programming functionalities.

Cryptoasset markets, DeFi (Decentralized Finance), and the tokenization of almost everything are emerging realities. Central banks are responding to the decline of cash and the threat of stablecoins by analysing the launch of Central Bank Digital Currencies (CBDC), already live in small countries like Bahamas with the “Sand Dollar”. The private banking system itself need to consider digital money 2.0, incorporating the functionalities of DLT systems to the commercial bank money and payments

This alternative system is not yet sufficiently regulated, and the speed of evolution, as well as its multi sector and transnational nature and impact makes difficult to map institutional action, legislative and supervisory coordination.

The transfer of monetary value has historically been carried out through payment rails closely connected with the banking system under the supervision of central banks. Since the last century, there have been modern records of value such as centralized securities systems or real estate central depositories that allow the registration and subsequent transit of dematerialized securities or property titles. **Money and value today circulate through different albeit connected systems.**

In an economic environment in which agility and efficiency are increasingly important, one of the main challenges is to reduce liquidation risks through delivery of value against payment in a specific monetary unit.

Data registration and value transfer systems need to adapt to the communication requirements between machines brought by IoT and 5G technologies, in such a way that greater speed and fractionalization of payments become a reality. Tokenization - immutable and consensual records in distributed databases - can bring significant efficiencies to today's more expensive and centralized processes. The registration of value in tokens and crypto assets represent new types of value ownership with enormous potential for disintermediation and multiplication of activity.

This context calls for the development of new regulatory frameworks dealing with the complexity without hampering innovation. New frameworks such as the European regulatory packages like MiCA regulation, the Pilot Regime regulation, or national laws such as the Spanish regulatory sandbox.

Public policy actions are needed to make investors, users, and new actors aware of the new risks without focusing solely on the opportunities. For current intermediaries, it is almost an existential challenge to adapt to the competition of new digital natives with different business models, unhindered by the stringent regulatory frameworks. For supervisors, it represents the opportunity for a more focused and directed oversight, and legislators and regulators will have to reconcile the objectives of public policies with the promotion of private innovation. For countries, it represents a challenge and an opportunity to be at the forefront of the sustainable adoption of the advantages of DLT systems, which, together with other broad-purpose technologies such as artificial intelligence, will be key in the economic and social performance of countries.

For Europe, this will not suffice if progress is not made in the integration and development of the Capital Markets Union (CMU) adopting new technologies as enablers and financing those companies that develop new models using exponential technologies. **The current fragmentation is the result of mostly national approaches, but it is only through efficiently connected ecosystems that the advantages of scale and network effects can materialize.**

To discuss and understand this entire process, we decided to create “Digital Money and Payment Systems” Working Group (DDSP) in Fide. Because we believe that we are at a historic moment for money as we've known it for most of the last 100 years, with new promises of trust based on convenience of use, with backstop models that are less based on institutional support and more in technology, and with new value transfer systems that will minimize current delivery versus payment frictions. Eventually, we can reach peer-to-peer payments with dematerialized transit of value and money: **it is the merge of money and the systems in which it is registered and through which it circulates.**

This breath-taking pace of change is only manageable with a global perspective in mind, an attitude of curiosity and experimentation that must permeate public authorities and private sector. Only understanding the transnational nature of technology can the regulation support the strategic sovereignty of states. Changes in financial intermediation are unavoidable and the recognition and inclusion of new players in the rules that structure our economic and social system are urgent.

The change in the world of money and the infrastructure systems of that which we consider financial value has arrived. The next few years will be decisive in the materialization of new scenarios, that bring forth an opportunity for Spain and Europe to gain relevance in the global financial ecosystem.

2022 DIGITAL MONEY & PAYMENT SYSTEMS

ARTICLES

LIST OF ARTICLES

DIGITAL ASSET CUSTODY: RESPONSIBLE ROLE OF BANKS

Alfonso Gómez

THE DIGITAL EURO: A FURTHER STEP IN ADAPTING TO THE NEW PAYMENT SCENARIO

José Manuel Marqués Sevillano

UPDATE ON THE MICA REGULATION: CHALLENGES AND OPPORTUNITIES FOR THE SPANISH INDUSTRY

Gloria Hernández Aler

ASSET TOKENIZATION: AN OPPORTUNITY AND A CHALLENGE FOR THE LEGISLATOR

Alfredo Muñoz

EUROPEAN DIGITAL IDENTITY

Montse Guardia

THE SPANISH SANDBOX JOURNEY AFTER ONE YEAR

Isabela Delgado and Andrés Barragán

THE ROLE OF THE BANKING SECTOR IN THE FACE OF THE EMERGENCE OF THE DIGITAL EURO AND CRYPTO-ASSETS

Lorena Mullor

A GLANCE INTO THE NEAR FUTURE

Miguel Ángel Cestero

PRESENT AND FUTURE OF FINANCIAL INFRASTRUCTURES

José Luis Langa

REGULATING DIGITAL CURRENCIES

Miguel Ángel Fernández Ordóñez

THE FUTURE OF CASH IN AN INCREASINGLY DIGITAL WORLD

Gonzalo Suárez Martín

THE MARKET INFRASTRUCTURE PILOT REGIME PROJECT. BETWEEN INNOVATION AND REGULATORY FLEXIBILITY

Laura Sacristán Martín and Diego García Novillo

CRYPTOCURRENCIES AND DEFI

Santiago Márquez Solís

THE EMERGENCE OF PLATFORMS IN THE FINANCIAL SECTOR: REGULATIONS AND TRENDS

Teresa Rodríguez de las Heras Ballell

DIGITAL ASSETS AND BANK TREASURIES: TOWARDS A NEW MODEL FOR LIQUIDITY MANAGEMENT

Julio Faura

REGULATING DIGITAL ASSETS IN THE EUROPEAN UNION: STATE OF THE ART AND OUTLOOK

Gloria Hernández Aler and Teresa Rodríguez de las Heras Ballell

BIBLIOGRAPHY

DIGITAL ASSET CUSTODY: RESPONSIBLE ROLE OF BANKS



ALFONSO GÓMEZ

CEO BBVA Switzerland

ABSTRACT

We are facing an unprecedented time of technological convergence that entails important changes in the strategies of different sectors. Interestingly enough, one of the most affected sectors is the financial sector, along with the technology sector itself. Blockchain technology is gradually initiating a transformation in Banks, and like with all major changes, it will take a long period of time for this sector to adapt to the new management drivers, where putting organizations out of their comfort zone will be a necessary, but not sufficient condition to continue adding value to society, being faster, more efficient, more predictable and therefore more reliable

Without fear of being mistaken, the concept of "digital" is surely one of the most important or avant-garde topics and therefore deserves to be reflected upon, in hopes of improving our future as a community and setting adequate foundations for its proper evolution. Immersed in a 4th revolution characterized by less industrial and more technological components, judging by what we are experiencing, it seems logical to think that this new world should be able to generate a wider impact on society and therefore improve the coverage of our needs, also in the financial field.

Technology must be the catalyst behind the creation of value, both economically and socially. This will prove to be a substantial challenge for our society, and it will emphasize the need for a good conceptualization of how certain matters, resulting from the development side of these technologies integrate into our day-to-day lives. The interaction with robots that'll be assuming tasks previously carried out by humans, cybersecurity concerns, artificial intelligence, crypto assets, data processing, and many more must pivot around the idea of societal progress. Thus, implementing values and ethics into the development of these technologies is now of paramount importance, since this role will be the cornerstone that lays the foundations for the future for all, where cybersecurity has also become the new cornerstone of creating confidence.

The financial sector, and more specifically the banks, are no strangers to these processes of profound transformation, where we must increase our sensitivity to changes, being prone to them and thus becoming transforming axis of a traditional industry, which I call 1.0 and which must gradually migrate to the 2.0 world, coupling and uncoupling structures of the value chain with our clients, generating more efficiency, faster processes and therefore increasing the productivity of the system, generating growth for the sector itself and therefore for society as a whole.

In these processes, the financial industry has been immersed in a system with new operators, who are alien to the traditional financial ecosystem that imprints an even more disruptive dynamic in their own sphere and therefore exerts more pressure on the traditional financial world. There are reflections or philosophical considerations regarding the role of banks vs fintech, which, as we advance, must serve to increase our commitment as traditional players in favor of society, thus breaking dynamics that question the role of banks in a world that should be one of progress without historical precedent.

In this respect, we economists like to say that for there to be economic growth, a series of critical factors must be guaranteed, such as access to money or assets, easily accessible reserves, and the speed with which we can mobilize these underlying assets. The efficiencies resulting from easy and quick access to funds are critical when providing financial flows in the different economies, and it is precisely when these two factors concur, along with appropriate legal, macroeconomic, and political frameworks, along with a solid educational system, that we can create solid economies.

In this context, since the year 2009 with the creation of Bitcoin we've witnessed the gradual introduction of crypto assets in many blockchain protocols, reaching a current market value of around 3 trillion; too large to be ignored, not only

because of its value, but because of the nature of these assets in terms of efficiency and the implications in generating growth throughout different sectors which are bound to be extraordinary given the automatization of processes and their self-verification systems by means of smart contracts, powered by new protocols based on DLT technologies, among others.

At present, this new Blockchain world has five common characteristics, which should ensure that Banks focus on them: They are assets that can be sold in a 2.0 market, 24/7, absolutely divisible, they are transferable, they have solid and decentralized technology and, furthermore, they are storable. All this makes them respond to the starting premises where accessibility to assets as well as the speed of commissioning gain even more strength with their corresponding implications for the real economy, generating unprecedented efficiency in the system.

In their original format, crypto transactions have always been considered "peer-to-peer" operations. Citizens were fully responsible for their exchange as well as for their custody, and no third party could guarantee the integrity of the funds or resources. In its most basic format, an operation or transaction with this technology is nothing more than an entry in the chain between two addresses subject to a decentralized confirmation base, but over the years, as this ecosystem has grown, they have been generating more decentralized protocols and therefore the system has become more complex, in addition to the constant threat of cybersecurity attacks. All this clearly implies that new users of these new technologies require higher levels of sophistication and mechanisms that guarantee solutions where operational risks and, obviously, counterparty risks are minimized. In this way and no other, new players emerge in the market with a diversity of services and strategies based on software and hardware that guarantee solutions that combine "cold storage", having absolutely isolated digital assets, and "hot storage", connected to the network. The infrastructure is also critical when designing mechanisms that guarantee adequate security and, in addition, the governance of the processes becomes more relevant in order to manage private keys, having different systems, with multi-signature, separation of roles, identity verifications, and all kinds of measures that shield or, better said, guarantee the possibility of accessing those assets only because of their ownership.

In this new dynamic, the main questions that banks must ask is: what role should banks play? This new world remains operational on a 24/7 basis, it allows for automatic liquidation of its assets, and these are globally distributed. Furthermore, this new technology gives way to constantly emerging innovative business models.

How should the 1.0 financial system react in order to adapt their business models to the new 2.0 reality? I'd be making a mistake if I were to give a definitive answer. However, it seems reasonably clear that traditional banks must try to assume a relevant role in this new ecosystem by combining the best of both worlds, and I'd argue that the friction between traditional and digital assets is not as considerable as one might initially believe. The tokenization of assets and/or services via the different market protocols will seek the monetization of both worlds, and traditional banks must claim that role, appealing to their original fundamental purpose. Today, self-custody systems imply a high level of professionalism, and few people are willing to assume that responsibility. Custody has always been the historical core business of banks and perhaps we should continue to see it from that perspective, relying on the fact that they can also provide greater comfort in the face of regulation due to their own experience in this matter and the ability to integrate both worlds under the same umbrella, with all that it implies for our customers.

The great challenge that arises now is how to add value to these types of services; the question is clearly strategic, and I do not have a definite answer, only time will reveal the appropriate road map.

At the moment there are a series of questions that we should ask ourselves:

- 1) Are the traditional Banks the ones who should safeguard their clients' keys, effectively being their custodians and protecting their clients from any type of cyber-attack?
- 2) Should banks integrate processes into their value chain that, thanks to technology, will make them more efficient, such as KYC or AML verification solutions?
- 3) Is segregated custody ideal for all clients in terms of absolute counterparty risk reduction?
- 4) Do Omnibus accounts facilitate daily operations with more flexibility and therefore reduce operational risk?

All these issues are undoubtedly already in the hands of our regulators and a good part of the entities that consider incursions in this space. The other big issue, perhaps of greater significance, is whether these services should be valued under outsourcing dynamics or assumed on their own behalf without delegating them to third parties.

Today we find ourselves, as I previously mentioned, in a market that grows exponentially. This is not significant if we take into account that the gold reserves in the world are worth 11 T, Apple 2.3 T, or BTC 1.2 T. The big question is what the promotion of smart contracts implies, how real goods or services are going to be "packaged" and in whose hands we are going to leave those digitized assets with TOKEN format.

We are in the midst of a technological convergence that will reshape the interactions between all the main market players. Deposits and custody of these assets will be the cornerstone of this revolution, and our goal must be to assume a critical role in those areas, by guaranteeing their liquidity and ensuring a clear system that converges the traditional and digital worlds and will ensure their coexistence for years to come.

It is the responsibility of all the protagonists to make the system work, putting technology at the service of society, generating efficiency, economies of scale and therefore providing development for a world in constant change.

THE DIGITAL EURO: A FURTHER STEP IN ADAPTING TO THE NEW PAYMENT SCENARIO



**JOSÉ MANUEL
MARQUÉS SEVILLANO**

Head of the Financial
Innovation Division at the
Bank of Spain

ABSTRACT

The Digital Euro project is an essential tool for the Eurosystem to be able to react to a setting in which the digital transformation may significantly modify our means of payment, and in which it is imperative to preserve the fundamental role that access and convertibility to central bank issued money play on the confidence in our economic system. To this end, an ambitious initiative has been launched, involving not only the analysis of numerous technical issues but also a dialogue with society, members of the private sector, other authorities, and jurisdictions, so that the proposed solution will allow for the development of new initiatives and features in the means of payment, which will improve the welfare of individuals while maintaining the necessary stability, security and level of competition.

Over the past few years, we have seen how emerging technologies have modified and transformed different services and the way in which they are provided. Services as heterogeneous as transportation, accommodation, retail distribution, and even the audiovisual industry have been affected. Financial services have not been an exception, and many aspects of the value chain that were traditionally covered by a small group of agents are undergoing significant changes, as new players are stepping in with business models and proposals that are very different from those that preceded them.

Within this vertiginous and generalized transformation sweeping the financial sector, payment systems have probably been the first to feel the effects of change and are likely to be the ones that experience the most intense transformations within the sector. Not only have new initiatives been brought forth from traditional industry players as well as newcomers, who propose alternative methods of payments and a better use of data to enhance user experience, but the users' consumption patterns have also been modified. Users are no longer solely focused on the costs of transactions. Instead, they are now more sensible to aspects such as convenience, availability, and show a clear preference for the use of digital means, a trend that has been accentuated throughout the pandemic.

Logically, this situation poses important challenges for financial authorities and regulators, who have to preserve the public policy objectives assigned to them without placing unnecessary restrictions on the development of new technologies and allowing for the exploitation of the opportunities that these new technologies can bring.

In the case of payment systems, the challenge is particularly complex, since their infrastructures are fundamental to the proper functioning of our economic system, and not only are they subject to strong regulation and oversight, tasks generally assigned to the central banks, but also core parts of the system, such as the creation of and access to central bank-issued money, are the exclusive responsibility of these authorities.

In this context, in the last couple of years, many jurisdictions have considered whether it is necessary to expand the ways in which central bank money is offered (traditionally cash and bank reserves of private banks at the central bank itself) and whether it is advisable to consider additional instruments, such as central bank digital currency or CBDC. The objective is none other than to maintain the stability and credibility of the currency in a scenario of greater digitalization in which new forms of payment emerge that incorporate different functionalities to those that currently exist, and that could end up bringing about significant changes in the habits of the population and in the demand for and use of central bank money.

Naturally, the Eurosystem has not been oblivious to this debate and, at the end of 2019, took the decision to create a high-level task force to address this possibility. In October 2020, this group published a report¹ containing a broad conceptual reflection on the various aspects involved in the eventual issuance of a digital euro. This document highlights the complexity of a project of this nature and outlines the agenda of issues and matters that need to be worked on before launching a means of payment such as the digital euro. In addition, the document

reflects some aspects on which there is consensus, and which are inherent to the concept of public money², such as recognizing it as a liability of the central bank, convertible on a par with cash or the reserves of the banks in the central bank, which are also considered as such. There is also consensus on more operational aspects, such as the need for the Eurosystem to control its management, although it is recognized that the involvement of supervised entities in the private sector is necessary to provide some of the aspects related to its distribution to the public and, potentially, to the creation of value-added services.

Furthermore, they also define the core principles and design characteristics of the Digital Euro as being complementary (not necessarily a substitute) to cash or the need to safeguard innovation in payments in the private sector. One aspect in which the Eurosystem report is particularly novel compared to previous publications is in delimiting a set of scenarios that could justify the implementation of a Digital Euro. Specifically, up to seven scenarios are identified that consider more strategic issues such as the reduced use of cash, the emergence of new forms of private payment, the role of a CBDC in the digitization of the economy or aspects as diverse as the resilience of the payment system or the carbon footprint associated with different means of payment.

As previously mentioned, the drafting and publication of this report highlighted the scope of such a project and the need to involve not only all the Eurosystem central banks which, together with the ECB, are represented in the high-level group in charge of coordinating the whole project, but also many other private sector agents, as well as other public authorities. In this respect, in the following months a series of actions with different objectives have been implemented:

- Gathering public opinion via large scale consultations with over 8.000 responses from citizens and organizations, in which the concerns for aspects such as privacy³ were evident.
- Learning about the possibilities of the technology through different experimental projects that analyzed, for various designs, issues such as the scalability of centralized models, their compatibility with distributed networks, the scalability of distributed networks and their integration with different digital identity models, or the possibility of implementing devices that, at certain times, can operate off-line⁴.
- Intensify dialogue at the international level with other central banks regarding CBDC designs and alternatives⁵. A contact group was also established with the European Commission to discuss the legislative adjustments that a hypothetical launch of the digital euro might require and to analyze the fit of different design options in the European digital strategy.

With all these elements, the Governing Council of the ECB decided in July of 2021⁶ to initiate what is known as a research project with the aim of establishing over the next two years the design and technical characteristics that a Digital Euro prototype should have.

Once this period has elapsed, a more prolonged phase would begin in which the prototype or prototypes that have been developed would be tested in order to analyze their performance in a practical setting and to detect possible shortcomings. At the end of this last phase, and considering not only the outcome of the tests but also the degree to which the scenarios identified in the initial report have materialized, the Governing Council of the ECB would be in a position to make an informed decision as to whether or not to issue a Digital Euro and with which characteristics.

In essence, the Digital Euro project responds to the need for Central Banks to be prepared to meet their objective of guaranteeing the security and efficiency of payment systems in a context in which new technologies may transform the way in which these services are provided.

This horizon contains high doses of uncertainty, and it is still premature to venture not only the design it will have, but even its possible issuance. In any case, what there is no doubt about is the need to preserve, in any scenario, access to central bank money and its convertibility with other forms of money as a fundamental pillar of confidence in our currency and a cornerstone of our economic system. If it were necessary to have a Euro in the future, there are no doubts about the enormous complexity and implications of this instrument, more than enough reason to continue working intensely on the project that has just begun.

UPDATE ON THE MiCA REGULATION: CHALLENGES AND OPPORTUNITIES FOR THE SPANISH INDUSTRY



**GLORIA HERNÁNDEZ
ALER**

Partner at finReg 360.
Academic Advisor of Fide

ABSTRACT

The paper analyzes the content of MiCA according to the latest available version of the draft regulation of November 2021, regarding the issuance of crypto-asset types and crypto-asset service providers. It urgently calls on the Spanish Ministry for Economic Affairs and Digital Transformation to promote national regulations that anticipate MiCA, as, failing to do so, Spain will miss the digital asset train and will be a jurisdiction that is relegated to being a recipient of services from other EU states or third countries.

I. INTRODUCTION AND SCOPE OF THIS WORK

The European Commission published in September of 2020 a regulatory proposal by the European Parliament and Council for the crypto-asset markets (known in the industry by the acronym MiCA, for Markets in Crypto-Assets).

The MiCA⁷ regulatory proposal is part of the so-called digital finance package, a set of laws aimed at boosting the European Union's "digital revolution" and financial innovation⁸.

In this paper, we analyze the main content of MiCA according to the latest available version of the draft regulation, regarding the issuance of crypto-asset types and crypto-asset service providers, and we conclude it by making an urgent call to the Spanish Ministry for Economic Affairs and Digital Transformation to elaborate or promote the enactment of national regulations that anticipate MiCA, since, failing to do so, will lead to Spain's disappearance from the map in the world of cryptoassets in terms of issuing these assets or providing services on them, and we will remain only as a recipient country of services from other EU states or third countries.

2. STATUS OF MICA PROCESSING, BASE TEXT FOR THIS PAPER AND ESTIMATED DATE OF APPLICATION

The first MiCA text, as previously mentioned, was published in September 2020. On this version, the European Economic and Social Committee passed verdict on March 2021 (2-3-2021), the European Central Bank did the same on February 2021 (19-2-2021), and the European Data Protection Supervisor on June 2021 (24-6-2021).

In November 2021, the EU Council came to an agreement on its position and started negotiations with the European Parliament to complete and approve four policies that are part of the digital finance package, including MiCA. Thus, these two institutions, together with the European Commission, initiated in this month the triilogue on the new MiCA regulation. In this paper, we comment on the version published by the Council in November 2021, which presents significant changes compared to the one published in September 2020.

One of these changes is the deadline for its enforceability. The first version provided for a period of 18 months from the effective date of the regulation, while the most recent version proposes 24 months for most of its contents and 12 months for the issuance of asset-referenced tokens ("stablecoins" or e-money tokens⁹), which are included in Titles III and IV of the draft.

The deadline has been shortened from 18 to 12 months in the part that worries supervisors the most, which is the appearance and growth of the so-called stablecoins ("stable cryptocurrencies"). As an example of this concern, see how the European Central Bank, in its "Financial Stability Report" of November 2021, mentions stablecoins as generators of risk for financial stability and mentions the need to move forward quickly with MiCA (emphasis added):

Appropriate regulatory, supervisory and oversight frameworks must be put in place urgently before stablecoins pose greater risks to financial stability. The European Commission's recent proposal for the Regulation on Markets in Crypto-assets (MiCA) is a significant step forward. The global reach of this market also underscores the need for global standard-setting bodies to further assess the extent to which existing standards are appropriate for, and applicable to, stablecoins, and close any gaps as necessary.

It is a pity, however, that the deadline has been extended from 18 to 24 months for other very relevant parts of MiCA, such as the regulation of crypto-asset providers. It would be very positive if an agreement to shorten it could be reached in the trilogue negotiations between Parliament, Council and Commission.

If these 12- and 24-month deadlines for MiCA enforceability hold, and we assume that the regulation will be approved and published in the first half of 2022, stablecoins and e-money tokens will be a reality in 2023 and the rest of their content, in 2024.

In the last section of this paper, we argue that, despite these deadlines, MiCA allows EU countries not to wait for its final publication or the expiration of these deadlines to bring forward a national regulation on cryptoassets based on the MiCA draft. **As we shall see, other countries are already doing so, and if Spain does not react, the financial innovation train will pass us by, and we will lose a unique opportunity as a country.**

3. MAIN CONTENT OF MICA

3.1. Scope of the regulation on crypto-asset markets

MiCA defines the typology of cryptoassets that will fall under its umbrella, their issuance, their corresponding services, and the requirements to be met by the providers of these services. It also contains measures to prevent market abuse and ensure the integrity of crypto-asset markets, although in this paper we will not focus on this part.

The proposed regulation precisely regulates those types of cryptoassets that are currently outside the scope of EU financial regulation. In other words, it covers digital assets not regulated by the financial Acquis Communautaire to date.

At this point, it is important to remember the principle of technological neutrality by virtue of which an asset does not change its legal nature depending on the form or technology in which it is represented.

This means that the following asset categories, even if presented with DLT¹⁰, do not fall within the scope of MiCA:

- **Financial instruments or marketable securities** that are represented by decentralized registry technologies, known as security tokens, are not subject to MiCA, but are subject to MiFID and other securities market regulations.
- (Bank) **deposits** as defined by Directive 2014/49/EU, including structured deposits under Directive 2014/65/EU, and **securitizations**.
- **Funds** (understood as banknotes and coins, scriptural money or electronic money within the meaning of Directive 2009/110/EC), except electronic money tokens or e-money tokens¹¹.

Likewise, the following are also excluded from the scope of application of MiCA:

- **Cryptoassets issued by central banks as the monetary authority** (the best known of these is known as CBDC, which stands for central bank digital currency). These will be subject to their own regulation. Such is the case, for example, of the digital Euro.
- **Cryptoassets that are unique and non-fungible against other cryptoassets** (known as NFT, from non-fungible tokens). This is a new feature of the new version of MiCA, which also clarifies that the fractional parts of a unique and non-fungible crypto-asset should not be considered unique and non-fungible.

3.2. Categories of regulated cryptoassets and issuance requirements

MiCA, on the one hand, generically defines cryptoassets and, on the other hand, regulates the types of cryptoassets that fall under its scope of application.

Cryptoassets are broadly defined as **"a digital representation of value or rights that can be transferred and stored electronically, using decentralized registry technology or similar technology"**.

When defining the types of cryptoassets regulated by MiCA, we briefly refer to who can issue them and what information must be disclosed when issuing them. At this point it is important to draw attention to the fact that MiCA only regulates the issuance of cryptoassets by legal entities located in the European Union, since it is impossible to regulate other types of issuances or creation of cryptoassets in a decentralized manner, as is the case of Bitcoin. However, even if

the generation or issuance of Bitcoins cannot be regulated, these assets are still subject to MiCA with respect to the provision of services over them.

We move on to analyze the types of cryptoassets regulated by MiCA, which can be divided into three broad categories:

A) CRYPTOASSETS THAT ARE UTILITY TOKENS OR ARE NOT ASSET-REFERENCED TOKENS OR E-MONEY TOKENS

A utility token (or "service token") is a crypto-asset that provides digital access to an application, service or resource available with a DLT and is accepted only by the issuer in order to grant access to that application, service or resource.

The latest MiCA draft clarifies that the rule applies only to cryptoassets that can be transferred between holders. Therefore, cryptoassets accepted only by the issuer or supplier and which cannot be transferred directly to other holders are excluded from its scope of application. Examples of such cryptoassets are those issued by some loyalty systems using decentralized registration technology, analogous to loyalty cards. In addition, this category of utility tokens covers a wide variety of cryptoassets, acting as a "catch-all", and includes the cryptoassets that can be issued with the fewest requirements among those regulated by MiCA. These cryptoassets can be put into circulation without the need for authorization; only a simple notification to the competent national authority of the launch and its white paper is required.

Today in Spain it is the CNMV (National Securities Market Commission) that analyzes this type of emissions and validates that the tokens are not considered as a financial instrument, in which case it confirms to the issuer that it does not have authority over them. At this point, it is to be expected that the competent national authority to verify this type of emissions will continue to be the CNMV, although the division of powers between the Bank of Spain and the CNMV on this point is not yet clear.

B) ASSET-REFERENCED TOKENS

An asset-referenced token serves as a medium of exchange and is designed to maintain a stable value by being referenced to several fiat currencies, to one or more commodities, to one or more cryptoassets, or to a combination of these.

They are often also referred to as stablecoins or stable cryptocurrencies and pose, as already noted, greater risks in the mind of the regulator. Let's remember Facebook's project, Libra, then Diem, which set off all the regulators' and supervisors' alarms in 2019 and provided a trigger to accelerate the regulation of

this type of assets. Today, a multitude of stablecoins referenced to the main fiat currencies are available. To follow the example of Libra/Diem, the project has become for the moment a payment wallet, Novi, which uses an existing stablecoin, Paxos, referenced to the US dollar.

In the case of asset-referenced tokens, the issuer needs to publish a white paper that is authorized by the supervisory authority and meets stricter capital, organizational, asset reserve, and customer service requirements, among others. If an asset-referenced token is considered significant, the capital requirements are even higher and orderly resolution mechanisms are also required.

C) E-MONEY TOKEN

The electronic money token is a crypto-asset that is used as a medium of exchange and is intended to hold value by being denominated in a fiat currency.

Despite their similarities, e-money and cryptoassets differ today in some important respects. Holders of e-money always have a contractual right to redeem their e-money at any time against the official currency that it references at par value with. In contrast, some of the cryptoassets that reference a country's official currency do not provide their holders with such a right over issuers and would therefore fall outside the scope of the above-mentioned e-money Directive 2009/110/EC.

The fact that the holders of these cryptoassets do not have a claim on their issuers or that such claim is not at par with the currency to which they are referenced could undermine the confidence that users have on these cryptoassets.

In order not to circumvent the rules of Directive 2009/110/EC, any definition of e-money token must be as broad as possible to cover all types of cryptoassets that reference an official currency of a country, and must contain strict conditions for their emission, including the obligation for such e-money tokens to be issued by a credit or e-money institution. For the same reason, issuers of these e-money tokens must also grant holders the right to redeem their tokens at any time and at face value against the referenced currency.

We thus note that, of the three categories of cryptoassets regulated by MiCA, the most stringent requirements apply to the last two, which can generate the greatest risk to financial stability, and are often referred to as stablecoins or stable cryptocurrencies. In contrast, utility tokens (service tokens) and others that fall neither in the second nor in the third category are more flexibly regulated. This is

the starting point. However, we will have to keep an eye on how the market evolves.

3.3. Crypto-asset services, and authorization and supervision regime for service providers

Crypto-asset services are reminiscent of MiFID investment and ancillary services (in fact, MiCA establishes their correspondence with the services of that directive which, let us say, become crypto services when they fall on a crypto-asset and not on financial instruments). These are:

- Custody and administration of cryptoassets on behalf of third parties.
- Operation of a cryptoassets trading platform.
- Exchange of cryptoassets for fiat currency.
- Exchange of cryptoassets for other cryptoassets.
- Execution of orders on behalf of third parties.
- Placement of cryptoassets.
- Receipt and transmission of orders related to cryptoassets on behalf of third parties.
- Advising on cryptoassets.
- Management of crypto-asset portfolios.

As far as service providers are concerned, MiCA determines the general rule that a specific authorization is required to be a crypto-asset **service provider**, except for certain entities that already have a financial authorization or license and can integrate their provision within this prior license. In effect, crypto-asset services may only be provided by such entities:

- legal entities that have a registered office in a EU Member State and have been authorized as crypto-asset service providers in accordance with Article 55 of MiCA as referred to below, or
- credit institutions, investment firms, market operators, electronic money institutions, UCITS and authorized alternative investment fund managers that notify the competent authority and comply with the requirements of Article 53 a), to which we will also refer.

It is important to underline that the previous version of MiCA only granted credit institutions and investment services firms the possibility to provide services on cryptoassets with a mere notification to the competent authority. But the updated version expands the number of actors that can provide crypto-asset services, although the scope is not the same in all cases:

- Banks may provide all crypto-asset services.
- Investment services companies may also provide all the services mentioned above, provided that, in their program of activities, they have activated those services on financial instruments. In other words, if an ESI wants to provide advice on cryptoassets, it must already include the service of advice on financial instruments in its business model.
- Investment funds may only provide advisory services, portfolio management and reception and transmission of orders, provided that they are included in their business models.
- Electronic money institutions may only provide the service of custody and administration of cryptoassets on behalf of third parties for e-money tokens issued by them.
- Market operators may provide the service of operating a multilateral trading system for crypto-assets.

Article 55 of MiCA contains the procedure for operators who do not hold one of these financial licenses to obtain a specific license to provide services on cryptoassets. It differs from the notification procedure of Article 53 in a) that it is shorter (40 working days, as opposed to 25 days to analyze the application's submission plus 60 working days to resolve it, with the possibility of interrupting the deadline for up to another 20 days), b) requires less information (they are subjects already known to the supervisor) and c) does not require an express authorization.

Regarding the information to be provided in the notification before authorization, the latest published version provides more detailed information: general information (type of service and cryptoassets, as well as control and security measures) and specific details depending on the service they intend to provide must be provided. In other words, it is a matter of providing the information that a supervisor needs to understand the way in which an already regulated entity will integrate these new services in its offer and control mechanisms.

Those that must apply for a license, must, initially, also provide information on their shareholders, administrators, and capital, and on the solvency of the project, so the level of documentation required is much higher.

Therefore, entities that already have a financial license are in a more advantageous position to deliver services with a shorter time to market than new players.

The authorization regulated by the regulation or notification, for entities already supervised, covers the entire Union, i.e. they have a passport, so that a licensed provider in one Member State may provide its services in the other Member States, either under free provision of services or through a branch following a notification procedure, without the need to acquire an individual authorization in each country.

4. THE URGENCY OF HAVING NATIONAL REGULATIONS TO ANTICIPATE MiCA

As we have been able to deduce, MiCA contains an all-encompassing regime for cryptoassets and is a key element for the industry to develop with the necessary legal certainty. There is no doubt that **MiCA will be the basic regulatory body for the regulation of cryptoassets in the European Union.**

We have seen, however, that although the filing of MiCA is being accelerated, and is expected to be published in the first half of 2022, it also incorporates 12-to-24-month deadlines for the enforceability of its provisions.

The European regulator, knowing that it is key for the EU to move fast, unlike what it asks for other regulations, allows, in this case, the Member States to anticipate MiCA and approve their own national regulations on cryptoassets, inspired by the MiCA drafts.

In particular, Article 123.3 of MiCA states (emphasis added):

*By way of derogation from Articles 54 and 55, Member States **may apply a simplified procedure** for applications for an authorisation which are submitted between the [please insert the date of application of this Regulation] and [please insert the date 18 months after the date of application] by entities that, at the time of entry into force of this Regulation, were **authorised under national law to provide crypto-asset services**. The competent authorities shall ensure that the requirements laid down in Chapters 2 and 3 of Title IV are complied with before granting authorisation pursuant to such simplified procedures.*

In other words, it contemplates a simplified procedure for recognizing approved suppliers in accordance with the specific regulations of the various Member States. By recognizing the possibility of this simplified regime, it is encouraging the enactment of national regulations.

Moreover, Article 123.2 states:

*By way of derogation from this Regulation, **crypto-asset service providers which provided their services in accordance with applicable law before [please insert the date of entry into application], may continue to do so until [please insert the date 18 months after the date of application] or until they are granted an authorisation pursuant to Article 55, whichever is sooner.***

That is, crypto-asset providers with a national authorization will be able to continue to provide the services even after MiCA comes into force, with providers from countries with local legislation being better positioned for these activities.

Spain needs to have a national regulation of cryptoassets inspired by MiCA, beyond regulating their advertising and taxation.

Other countries are already incorporating national regulations in line with the MiCA drafts, without waiting either for its approval or for the deadline it grants for its enforceability. This is what France, Germany and Luxembourg are doing by incorporating national regulations governing the emission of cryptoassets and the provision of cryptoasset services based on the known MiCA draft. Other countries, such as Portugal, have also opted to provide attractive taxation with a view to becoming a hub of attraction for the "crypto industry".

In Spain we have to follow suit, this time we cannot wait for the European regulation to be published, considering that the crypto-assets regulation drafts themselves contemplate and promote, as we have seen, national developments without waiting for the general regulation in the Member States.

The lack of regulation in Spain puts us at a disadvantage, makes issuers and providers look for other jurisdictions and exposes us to losing another opportunity: that of integrating this new reality in our country.

In a situation in which digitalization and sustainability are the two pillars that must support our post-COVID recovery, missing the train of innovation in digital assets may be an irremediable mistake.

ASSET TOKENIZATION: AN OPPORTUNITY AND A CHALLENGE FOR THE LEGISLATOR



ALFREDO MUÑOZ

Commercial Law Professor at the UCM. Expert at the Digital Euro Association.

ABSTRACT

Tokenization has proved, in its first steps, to be a very interesting phenomenon, following the emergence of the underlying technology of cryptoassets and the understanding of its potential. The possibility of issuing, storing, and transmitting tokens, as digital representations of digital or digitizable assets, in DLT registries (such as blockchain technology), brings significant benefits to markets and investors. Token programming offers previously unknown functional and efficiency capabilities. However, in order for these tokenizations to ensure the rights of those who confidently participate in markets based on DLT registries, it is essential for the legislator to act in order to provide legal certainty, recognizing the incorporation of rights to the tokens, with full legal effects.

I. CONCEPTUAL DELIMITATION AND ECONOMIC JUSTIFICATION

Tokenization is a phenomenon whereby any type of security or right, whether on-chain or off-chain, can be represented in a distributed registry (with blockchain technology or not). **A token is a record, a unit of account or a digital unit in a network, an individualized reference to which we can link, if the law allows it, any type of right on an asset.** Because we can use such a digital representation, this allows us to issue, store or transfer such tokens and, as the case may be, the rights to the underlying assets they

may represent. Tokenization can be distinguished from other legal concepts, such as securitization, fractional ownership, or time-sharing, among others.

The benefits of tokenization are numerous, among which we can include: the possibilities of splitting the investment, with improvements for the issuer and the saver; the increase in liquidity, generating viable and secure secondary markets for the tokens; the reduction of intermediaries, causing an increase in process efficiency and simplification, facilitating asset management; incorporating blockchain's own characteristics into the process, such as auditability, transparency, eliminating data fragmentation, etc. If the law allows it, the transmission of the underlying assets and the management of fees and taxes are facilitated and provided with legal certainty, ensuring a proper application of the proceeds, if applicable, etc.; and the important token programming, which can enable very useful and efficient applications on them, determining even the token's attributes. The disadvantages focus on regulatory problems, the need to adapt current infrastructures or the need to integrate tokenization with other systems, making them interoperable.

The economic justification would be found, basically, in the operational efficiency; the reduction of transaction costs, with the facilitation of compliance and supervision; the generation of legal certainty -if the corresponding regulation exists- in the transmission of digital or digitizable assets, with the consequent reduction of financial risks; and the enormous possibilities of economic efficiency and generation of resources that the token's programming can allow.

2. LEGAL REGIME

Tokenization is not specifically regulated in our legal system, requiring legal coverage to give full legal effect to token transactions, which would require the creation, with all the necessary conditions, of a register of rights, where these are embedded in the token and can be transferred simultaneously, not only binding the right and the token, but also by binding the right to the token and placing both in a single DLT registry. The OECD¹² issued a report on regulatory approaches to asset tokenization, in view of the need for special regulatory treatment, as they would entail new risks (asset compensation and liquidation; execution of the delivery/payment agreement, involving stablecoins or CBDC; custody of tokenized assets with problems of availability, restitution of property, forced execution, insolvency; uncertainty surrounding the legal regime of smart contracts or property rights over the tokens and underlying assets; etc.).

In Europe, some states have approved regulations on tokenization, some with a more global approach, and others with a more sectorial approach, focused on financial instruments. Outside the EU, we have Switzerland and Liechtenstein, with more global and innovative legislation. Within the EU, we have Germany and Luxembourg, both with regulations focused on securities markets.

In the case of Switzerland, the registers of rights in DLT are legitimized, with similar legal effects to those provided for in the emission and circulation of securities, under the Law on Distributed Electronic Registers¹³. Through this regulation, DLT markets are allowed, where the debtor only settles its obligation against the creditor identified in the registry, the acquisition a non-domino is protected, providing the right with autonomy, registered transactions are protected against the bankruptcy of the transferor, the constitution of guarantees through the registry is facilitated or the possibility of amortization of the token in case of loss is enabled.

In the case of Liechtenstein, the approved regulation established a legal framework for systems based on distributed registry technology, allowing the digital representation and transfer of rights by means of tokens, which allows the tokenization of rights over assets and enables the token to perform legitimizing functions for the holder and settling functions in favor of the debtor. The transfer of the underlying right is facilitated by means of the representation of the token, with ownership being presumed in favor of the person appearing as such in the registry and making non-domino acquisition possible.

In Germany, an electronic securities law has been passed that allows the replacement of the security's documented record by an entry in a decentralized registry, tokenizing such securities. The tokens issued are recognized as having the same legal effects as documented securities, allowing the transfer of ownership with the transmission of the electronic security.

Finally, in Luxembourg, the approved regulation has enabled the emission of dematerialized securities in DLT devices, allowing tokenization in the securities markets. It is noteworthy, in Luxembourg there has also been innovation in relation to Ethereum standards, ERC 3643, applicable for financial instruments, facilitating regulatory compliance by connecting token availability with already verified investor credentials.

3. SOME OF THE POSSIBILITIES OF TOKENIZATION

Tokenization can be carried out with both fungible and non-fungible assets. In relation to the former, cryptocurrencies are a clear example of the options that exist, but we could also tokenize money or any other financial instrument.

With respect to money, the existence of stablecoins and the regime for asset-backed tokens or e-money tokens envisaged in the proposed European MiCA Regulation illustrate some of the possibilities. In addition, there is the possible issuance of tokens representing fiat money issued by central banks, known as CBDCs, which incorporate a unit of account and are liabilities of the issuing central bank. In this regard, the announced Digital Yuan in China, or the Digital Euro project in the EU common currency area. Also noteworthy are the tokenized bank money projects of the Deutsche Bundesbank, that of the Bank of England, based on an omnibus account or, in Spain, Iberpay's Smart Money project, which includes tokenized bank money as a possible alternative. Recently, in Japan, the possibility of launching stablecoins at the end of 2022 has been advocated, using the bank deposits of its customers, whose balances would be tokenized to create a programmable infrastructure that would use smart contract technology in payments.

Regarding the tokenization of financial instruments, the examples already mentioned of Switzerland, Germany and Luxembourg are illustrative of the growing field that is emerging. In Spain, on May 5, the Draft Bill of the Securities Market and Investment Services Law was published, as well as three royal decrees for its development. In this proposal, the condition of financial instrument is given to all those included in the legal definition, regardless of whether they were issued by means of DLT technology. In addition, transactions in shares or rights over shares, which are carried out using DLT technology, will not have to be cleared by a central counterparty, without prejudice to the provisions of the EU Regulation on DLT-based market infrastructures. This would allow for the pooling of trading and post-trade activities. This should be accompanied by a change in corporate regulation, enabling shares to be represented by tokens, in addition to securities and book entries, as means of representation.

Among the tokenizable assets, those known as NFT or Non-fungible tokens, with unique identification codes and which, by means of metadata, are perfectly identifiable and individualizable, which determines their non-fungibility, are also beginning to gain importance. Their characterization is protected on the platforms on which they are issued, mainly Ethereum, by not allowing the modification of the blockchain record or the addition of a new NFT identical to one already issued. The distinguishing

characteristics of NFTs would be indivisibility, uniqueness, authenticity of the token, although not of the embedded right; the attribution of ownership over the token, but not, necessarily, of the property right over the asset; uniqueness; and the existence of standards specific to these tokens. Thanks to these types of tokens, transparency, traceability, and auditability of transactions are facilitated and, together with the use of smart contracts, certain protection is provided to holders and limited property rights can be tokenized. Its possible use in financial activities should also be highlighted, due to the possibility of collateralizing NFTs to guarantee the fulfillment of financing operations.

Among NFTs on digitizable assets, the possible tokenization of real estate assets deserves a special mention. The absence of regulatory recognition of the registers of rights in DLT, with full legal effects, prevents, *de lege lata*, the transfer of ownership through the transmission of the token, with *erga omnes* effects, as the regulation presumes that the registered real right belongs to its holder in the form determined in the Property Registry.

EUROPEAN DIGITAL IDENTITY



MONTSE GUARDIA

Co-founder and CEO of Big Onion. Academic Advisor of Fide

ABSTRACT

On June 3, the European Commission communicated the progress made to bring about a European Digital Identity for all citizens, residents and businesses in the EU, with an intuitive, simple design that will always be at the user's discretion. A Digital Identity in the evolving distributed digital architecture of the Internet is an enabler of a new vision for financial systems worldwide. In September 2020, the European Commission published the "Digital Finance Package" giving transcendence to the great transformation enabled by Distributed Ledger Technologies (DLTs) and Blockchain. In this chapter we discuss the intertwined evolution of the design and implementation of the Digital Identity with the development of a new framework for Digital Money and Payment Systems, in which the future Digital Euro can be established.

In quantum mechanics, Heisenberg's uncertainty principle¹⁷ states that, when we measure, in intervention, we force one of the quantities position or velocity of a particle to take a value, collapsing its wave function¹⁸, a precise result for one measurement irremediably increases the indeterminacy in the other measurement.

In 2021, in the study and analysis that we carried out in the Digital Money and Payment Systems (DDSP) group of the Fide Foundation, we identified **two closely related elements; the evolving definition and implementation framework of the Digital Identity, and the framework of new Digital Money elements: stable-coins, Central Bank Digital Currency (CBDC) and more specifically the Digital Euro.**

In 2019, the McKinsey Global Institute¹⁹ published a study which showed that Digital Identification has the potential to generate a value between 3% and 13% of GDP by 2030, but will depend on the use cases and on achieving mass adoption by the population. An adoption that we can visualize in the evolution of ID use cases under DDSP and vice versa.

John Maynard Keynes said: "If I owe you a pound, I have a problem; but if I owe you a million, the problem is yours". In the digital space, new business models require greater certainty to determine who's who, in the development of new dimensions of the concept of value and debt.

On November 30, 2021, after a courageous battle with cancer, Kim Cameron passed away, leaving a relevant legacy. On November 5, 2005, he published the "7 Laws of Identity"²⁰. The article elaborates on the fact that the Internet was created without a mechanism to know who and what we connect with, eroding everyone's trust in the network and thus limiting its use. To prevent this loss of trust, the article gathers a group of ideas that come from an open forum of conversations²¹ and that were structured in 7 "laws" that deal with: user control and consent, minimum disclosure for restricted use, justifiable parties, directed identity, pluralism of technologies, human integration, coherent experience in all contexts in the designs of Internet applications. From this basis and since 2007, the European Identity Conferences (EIC) have delved deeper into the specifics of the "laws". In 2018, Kim Cameron held the conference the "7 Laws of Identity in Blockchain"²² on matching the concept of Digital Identity to the evolution of technology and network governance, reflecting a worldwide area of study on how the development of DLT/Blockchain technology is intertwined with the development of a Digital Identity and vice versa.

In May 2016, the UN initiated discussions on digital identity, blockchain, cryptographic technologies and their benefits for the disadvantaged by creating the ID2020 Alliance²³. Similarly, 2016 saw the launch of the Gov.UK Verify initiative. Canada progresses on the Pan-Canadian Trust Framework, a federal digital identity scheme piloted by the Digital ID & Authentication Council of Canada²⁴ and with the national proof-of-concept project "Sign In Canada" launched in 2018. In 2017 Australia launched the first phase of its digital identity program. In 2018 France announced its national eID scheme. In 2020 Germany announced that its citizens could store a digital version of their national ID card on their phone and use it as a digital ID. At the end of 2017 in Spain work began on the "AlastrialD" model, with the first reference framework being published on December 21, 2020, in the UNE 71307-1 standard²⁵.

Considering the history and the current context, last September 23, 2021 in the online session of the DDSP group, "European Digital Identity: a key element of the Digital Single Market", in Fide's usual regime I moderated the participation of Dr. Ignacio Alamillo, Chief Trust Officer at Alastria, José Manuel Panizo, cybersecurity Project Manager at FNMT-RCM, and Carlos Piqueras, Financial Innovation expert at the Bank of Spain who generously clarified concepts and presented the work in progress in the field of research, development, and standardization of the incorporation of the decentralized Digital Identity framework and its relationship with the definition of Digital Money and the evolution of payment systems in the European regulatory framework. The transition from Identity "on paper" to Identity as a digital statement entails implications in the frameworks of administrative and civil law. Being able to consider a new legal object, and the opportunity for the value to be the same in any member state opens up new opportunities to truly constitute a digital single market.

Another relevant aspect is the implications related to the adaptation of current systems, which in the case of Spain correspond to the FNMT-RCM (Royal Spanish Mint) and the impact on the financial system, given the proliferation of business alternatives and the need for compatibility with an identity under the control of citizens, whilst being impenetrable, ductile, and adapted to the requirements of an increasingly digital life.

The implications give a sense of urgency to the development of a collective vision for the management of a unique differentiating opportunity for Europe, thanks to the possibility of creating a robust digital market characterized by a design in the access to digital services and products that ensures that the aspects of security, privacy, transparency, and usability for all citizens with their participation, consensus, and compliance.

The governance of this market would be structured in levels of differential security, associated to accessibility to services according to the presentation of the Digital Identity attributes of the person who chooses to use the service, and which is stored in a digital wallet. The various attributes that make up the digital identity include those related to financial aspects.

Creating a collective vision requires consensus among stakeholders on the issuance of attributes, the consideration of credentials and their verification, and simplifying the deployment and accessibility of digital services and products, facilitating the adaptation and adoption of the new mechanisms by the maximum number of citizens. The realization of agreements between the various governmental, business and academic stakeholders and involving civil society, to

consider the wide range of implementation strategies that can be followed, could require a testing model in a "Sandbox" environment that allows to verify design and implementation options that include definitions already existing in the cases of PSD2, and eIDASv2 for regulated entities and to have the support of the Spanish Data Protection Agency (AEPD) to assess the solvency of the solution. In the testing area, check whether the electronic ledger should be subject to regulation at the level of data, authenticity, or date/time/location for legal purposes, and whether the result could establish a natural bridge in the context of changes affecting the financial system, providing through a well-designed Digital Identity, the guarantees that the future Digital Euro will require. Europe can be a pioneer in establishing an industrial policy framework that avoids additional costs and obstacles between Member States in the public and/or business development of digital portfolios. This is an area of dialogue between academia, public administrations, businesses, and the citizen that will continue in 2022.

Thus, such a transition to the Digital Euro is related to the evolution in the definition and implementation of the financially required digital identity attributes in digital wallets, in the phases of the process of issuance, transmission or presumption of their transmission in chronological order, as enabled by Blockchain technology, which endows public authority and also allows the digital registration of the rated verification process thanks to a new model of implementation of verifiable credentials.

Since last May 5, 2021²⁶ the draft bill on cryptoassets, the progress in the framework of digital wallets and digital identity, combined with the implementation of systems with security features inherent to their design such as distributed technology networks / Blockchain, allow payment gateways to assume a newly designed set of digital financial products that are directly linked to the use of the Digital Identity attributes under the conditions of digital "On-boarding". In 2022 we can apply a similar approach to the uncertainty principle and advance in a formulation of clear legal basis on our digital existence in the new use of the Internet with a network shared by all Member States²⁸, on which to implement the European Digital Identity and the Digital Euro.

THE SPANISH SANDBOX JOURNEY AFTER ONE YEAR



ISABELA DELGADO

Adviser in the Technical and Financial Analysis Office of the Spanish Public Treasury.



ANDRÉS BARRAGÁN

Director of the Technical and Financial Analysis Office of the General Secretariat of the Spanish Public Treasury and Treasury Finance

ABSTRACT

The launch of the financial sandbox in Spain during 2021 has been a notable success that demonstrates the size of the fintech ecosystem in our country and the appetite that exists among companies in the sector for its arrival. The two open calls that have elapsed during this year highlight the wide range of technological innovations that are intended to be launched in the market and the variety of agents involved in the financial innovation process, signifying an important step forward for entrepreneurs, regulators and supervisors in this area

With the entry into force of Law 7/2020, of November 13, for the digital transformation of the financial system, Spain becomes the 55th country in the world and the eighth in the European Union²⁸ to adopt a controlled testing area²⁹. This is an instrument that allows both, companies to test technological innovations in a flexible but controlled regulatory environment, and regulators to verify that these types of innovations do not generate risks for consumers or the market as a whole.

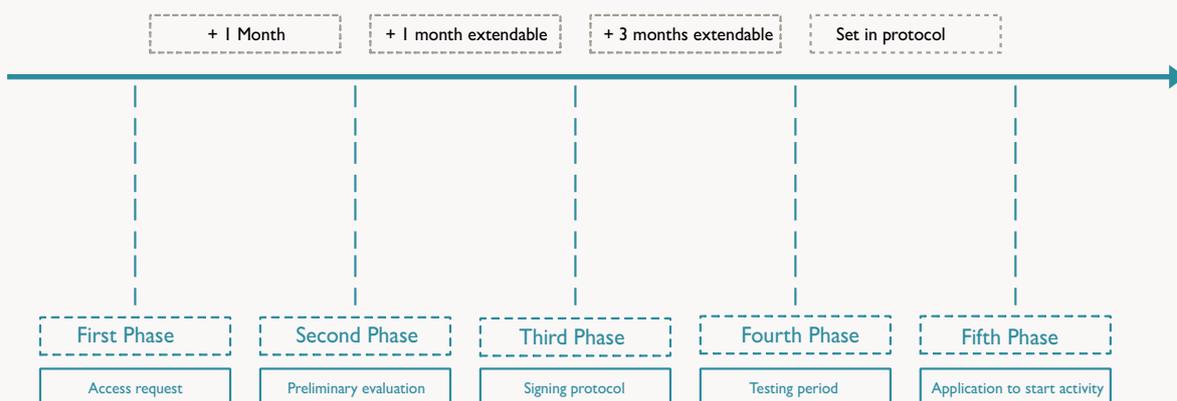
The success of a sandbox depends to a large extent on the maturity of the country's fintech ecosystem³⁰. In countries where this ecosystem is at an early stage of development, the introduction of a sandbox may be inefficient in terms of cost and may divert the attention of regulators from other types of initiatives and economic policy reforms that are more needed at that time. In this sense, the sandbox has arrived in our country at the right time. Covid-19 has boosted unprecedented digital transformation, especially relevant in the case of Spain, which has become one of the main fintech ecosystems, with almost 500 fintech companies in operation³¹. In this context, the two major challenges for the sector continue to be access to financing and regulatory barriers, so the sandbox is presented as an opportunity to position Spain as a benchmark in the field of financial innovation in Europe.

At the international level, no clear and consistent principles have yet been agreed upon as to what should constitute a sandbox, with the result that sandboxes vary from one jurisdiction to another. The most widespread practice is the adoption of sandboxes in the financial sector in which a wide range of technological innovations can be tested. However, not all sandboxes are limited to the financial sector, nor do they all allow the testing of any type of innovation. The UK has implemented such sandboxes in areas as diverse as aviation, healthcare and, more recently, has launched a public consultation to evaluate the introduction of a sandbox in the transport sector³². In Malaysia, the sandbox also goes far beyond the financial industry and allows the testing of innovations in different sectors such as agriculture, energy, medicine, education, and tourism. Beyond the sector of reference, there are thematic sandboxes that seek to develop specific technologies or products. This is the case of the Malta and Lithuania Sandbox, focused exclusively on the development of blockchain technology, or that of Thailand, where the Sandbox has the sole objective of boosting the development of QR codes³³.

In Spain, the sandbox is limited exclusively to the financial sector, but is not restricted to a specific topic, but rather allows the testing of any type of technological innovation applicable to the financial system. The cycle as it is organized involves a total of five phases. The first phase lasts thirty days, during which promoters may submit their applications for access. The second consists of a preliminary evaluation by the supervising authorities of the projects that have been submitted. This phase lasts one month, extendable by an additional month if circumstances warrant it, after which the Secretariat General of the Treasury and International Finance publishes the list of projects temporarily accepted. The publication of this list gives rise to the third phase, during which the supervisory authority and the promoter must sign the protocol establishing the rules and conditions under which the tests will be carried out within a period of three months, which may be extended at the discretion of the supervisory authority.

The fourth phase consists of the testing period, which will begin once the protocol has been signed, the informed consents of the participants in the tests have been obtained, and the planned system of guarantees has been activated. Unlike in other jurisdictions, the testing period does not have a predetermined duration, but will instead be stipulated in the protocol itself, taking into account the particular characteristics of the project. Once the tests have been completed, in the fifth and final phase, the promoter may request authorization from the supervisor to commence operations³⁴.

Sandbox Timeline



Source: General Secretariat of the Treasury and International Finance

During the first year of the Sandbox in Spain, a total of two cohorts have been convened, neither of which has completed the full cycle.

In the first cohort, 66 applications were received, of which 18 have a favorable prior evaluation, representing an acceptance rate of 27%³⁵. The second cohort began on September 1 and is still in the pre-assessment phase by the supervisors. As a full cycle of the sandbox has not been completed, it is too early to draw definitive conclusions about its impact on the development of technological innovation in the financial sector and its effects on consumers. Nevertheless, with the information currently available, it is possible to analyze issues such as the technological profile of the projects presented or of the promoters.

Regarding the technological profile of the projects, there is a preponderance of distributed ledger technology (DLT).

Of the 66 projects presented in the first cohort, 23 are projects that include distributed ledger technology as an innovation, 21 include artificial intelligence, 19 include biometrics and digital identity solutions, 15 include cloud computing software and another 7 seek to develop other technologies, whether related to big data or other types of specific software.

The technologies to be tested in the sandbox will subsequently have specific applications depending on the project in question. 42% of the projects seek to introduce the technologies described above to increase the efficiency of processes of various kinds, from customer identification and authentication processes to product or service contracting or cancellation processes. 24% of the projects intend to apply this type of technologies for the purchase and sale, custody or other types of services related to cryptoassets. 20% of the projects will use this type of technologies to offer investment services, financing or higher quality payments, such as the use of blockchain technology when making cross-border payments. Finally, the remaining 14% claim other types of applications such as facilitating regulatory compliance or risk assessment and analysis processes.

Regarding the profile of the promoters that have presented the projects, technological solutions companies and fintechs stand out.

In fact, 36% of the projects have been submitted by technology solutions companies, including software developers, web pages, biometrics and digital identity solutions, and fintechs, among which those related to cryptoassets stand out. 33% of the projects have been submitted by consulting firms, most of them IT and technology consulting firms. 15% of the projects have been submitted by large banking entities. On several occasions these types of entities have presented projects together with other fintechs, which is evidence of the positive collaboration that occurs within the Sandbox between both types of companies. Finally, 8% of the projects have been submitted by individuals and the remaining 8% by other types of companies ranging from insurance brokerages to non-profit associations and engineering firms.

Once the first cohort has been completed and the tested innovations have been introduced into the market, it will be possible to carry out a more advanced and detailed analysis of the effects of the sandbox. Nevertheless, the above metrics demonstrate the size of the fintech ecosystem in Spain and the existing appetite among companies in the sector for the arrival of the sandbox. In addition, they highlight the wide range of technological innovations that are intended to be launched in the market and the disparity of agents involved in the innovative process, from purely technological startups to traditional banking entities, with the sandbox being **a space for collaboration not only between the public and private sectors, but also fostering collaboration within the private sector itself.**

THE ROLE OF THE BANKING SECTOR IN THE FACE OF THE EMERGENCE OF THE DIGITAL EURO AND CRYPTO-ASSETS



LORENA MULLOR

Policy Advisor, Public Policy
Department at the Spanish
Banking Association (AEB)

ABSTRACT

The important innovations that are taking place in the financial sphere are shaping a new scenario in the way of storing and transferring value. Thus, since the emergence of Bitcoin, distributed ledger technologies have enabled the launch of thousands of crypto-assets and cryptocurrencies, the appearance of stablecoins with functionalities similar to fiat money and, finally, digital currencies issued by central banks. This article develops the role of the banking sector in the new ecosystem that is taking shape, analyzing the opportunities, the new risks and the possible impact on financial intermediation.

Although the technological innovation of the last decades has brought about significant changes in the ways we operate in the economy and make payments, a new wave of technological development has allowed us to go a step further, making possible the creation of new forms of money and providing alternatives to the current banking infrastructure for storing and transferring them.

Since Bitcoin emerged in 2009, distributed ledger technologies (DLT) have enabled the launch of thousands of crypto-assets, especially cryptocurrencies. At first, international authorities analyzed this activity with some interest, noting that many of these new digital currencies could not be considered money - because

they did not meet its characteristics and, especially, because of their high volatility - but a new investment asset in digital format or an alternative form for transferring funds through unregulated channels. They also identified potential problems related to consumer protection, operational security and resilience, and the use of these assets to finance illicit activities.

Their initial conclusion was that the activity was limited relative to the size of the global financial system and with little impact on financial stability, although they recognized the need to monitor its evolution, classify the different types of assets and adopt a regulatory approach in a coordinated manner to avoid potential regulatory arbitrage between jurisdictions, given the digital and decentralized nature of these assets.

In Europe, in the absence of a more forceful global regulatory response, financial authorities issued recommendations to the public on investment risks and sought to protect the regulated financial sector, through the 2014 Opinion of the European Banking Authority on virtual currencies³⁶ that generally advised against banks trading in crypto-assets.

Although European banks' exposures to these assets have been very limited since then, the interest of some of them - or/and their clients- has been growing as this market has been expanding and generating value, especially in the last two years.

For this reason, authorities have had to intensify their analysis and decide in their jurisdictions on a balanced regulatory response that addresses the risks mentioned above, but without undermining the innovation and, therefore, the opportunities that this market generates.

Not only is there great potential in the use of distributed ledger technologies in many financial areas. The authorities themselves recognize that beyond Bitcoin and other "exotic" assets, certain crypto-assets, or at least some of their use cases, may have the potential to bring value to the economy.

In addition, authorities have to decide whether to allow financial institutions to engage in crypto-asset activities and under what conditions. Banks could bring better control and risk management practices to the cryptocurrency ecosystem and provide supervisors with greater observation and oversight capabilities, preventing all activity in this market from being carried out by less regulated firms.

But there is also the risk that facilitating access to this market for certain groups or financial users through financial institutions may be considered by the public as a guarantee of security that reduces the perception of risk. In this sense,

regulatory proposals such as the future CNMV Circular that will set out the requirements and principles to which the advertising activity of crypto-assets must adhere, may help to provide transparency and greater guarantees to this market and to investor protection.

In Europe, the new proposed Markets in Crypto-assets Act (MiCA³⁷) regulation, which is about to enter its final phase of negotiation, is a very important step towards providing regulatory certainty to all market participants, ensuring a level playing field and a harmonized and secure framework in which banks can participate.

However, their future involvement in this market through custody, exchange or other services related to crypto-assets offered to certain financial users **will depend on the appetite of each banking institution, which will have to assess the full spectrum of risks that may be incurred, through intermediation or even direct exposure, and also on the prudential treatment designed for banks' exposures to this market.** The latest proposal of the Basel Committee on Banking Supervision (BCBS) seems excessively punitive and could deter banks from participating in this market, in spite of the fact that MiCA allows it.

The emergence of a second generation of digital currencies issued by global companies in the form of stablecoins - i.e., private digital currencies backed by fiat currency reserves to ensure their stability - led to a change in the intensity and tone of international discussions on the impact of cryptocurrencies.

Especially, the announcement of the creation of Libra, the project spearheaded by Facebook, in July 2019 generated justified concern on the part of all international authorities about the risks to financial stability and to the effectiveness of monetary policy in countries, especially in those with weaker official currencies, in the face of an eventual mass adoption of an unofficial stable digital currency, but with functionalities similar to fiat money.

After the announcement of Libra and subsequently that of the Bank of China, willing to launch its digital currency, the debate on the convenience of issuing digital currencies backed by central banks (Central Bank Digital Currencies or CBDCs) has accelerated and has already ceased to be a theoretical analysis. The most relevant monetary authorities are at different stages of exploration and design of a digital currency as a necessary measure to guarantee monetary sovereignty and access to public money, beyond the possible convenience of having an official cryptocurrency as complementary means of payment to the existing ones.

Among them is the European Central Bank (ECB), which has just begun the exploratory phase for the design of a digital euro for retail use, on which it will make the final emission decision in two years' time.

The banking sector considers it appropriate that Europe should be prepared to introduce a Digital Euro if the need arises and supports this research phase, to which banks are willing to contribute their knowledge and experience.

However, the need to **not lose sight of the magnitude of the risks that this initiative could entail**, and especially its impact on the current model of financial intermediation or on the payments market, among others, is also pointed out.

First, a possible reduction in bank deposits in favor of Digital Euro holdings, especially in times of crisis, could alter the provision of credit to the economy and impact the transmission of monetary policy and, in general, financial stability.

A Digital Euro can also significantly alter the European Payments Market. In this first exploratory phase, it is essential to clarify the authorities' long-term vision and strategy for the payments market: that it does not consider the Digital Euro in isolation, nor is it given an unfair advantage that will eventually crowd out the innovative solutions being pursued by the private sector.

On the other hand, under the two-tier issuance and distribution system outlined in the Digital Euro report, the banking sector is uniquely positioned to provide secure Digital Euro intermediation services, given the advantages of being already integrated into the Eurosystem, regulated by the ECB and with full mastery of issues related to customer registration and anti-money laundering enforcement. However, banks need a full assessment regarding the investment required to enable a Digital Euro ecosystem as intermediaries and more information on the use cases and business models that can be built on top of it.

Finally, design choices for the Digital Euro should start from the recognition of the careful handling of data by intermediary banks to support the provision of secure and convenient financial services that respond to customer needs.

The Digital Euro partially challenges the current banking model, whose fundamental mission is to channel funds to the economy's financing needs based on customer knowledge and rigorous management of customer data security and protection, under very demanding regulations that ensure that the market functions properly and that risks are controlled.

A GLANCE INTO THE NEAR FUTURE



**MIGUEL ÁNGEL
CESTERO**

Managing partner at JB46
Investment Partners

ABSTRACT

Thanks, to a large extent, to blockchain-based technologies, in the coming years we will witness major changes in the financial world. The face of the capital markets will undergo a radical transformation. We will see changes in the way and the channel we use to invest, access to assets today unattainable for most, the provision of easier liquidity to today's illiquid and so-called "alternative" investments, and new investable digital worlds. The universe of opportunities will be several orders of magnitude larger than it is today

I don't know if I like what is coming. Probably because it gives me "vertigo", the vertigo of a world that is no longer hybrid, but mostly online, where the offline experience, "the places and the moments" as Antonio Rodríguez de las Heras used to say, becomes unnecessary, almost a privilege.

Keep in mind that what I will share in these lines is only a very limited and basic approximation of a small part of the future financial world and that I allow myself to adopt a reductionist approach to regulatory, legal, fiscal, etc. issues, assuming (as I believe) that there are no technological limitations.

Until today, as far as investment opportunities are concerned, we have lived in a reality with a very clear division between "listed" and private assets. A border that separates worlds with an evident differential in liquidity, transparency and accessibility. A boundary that blockchain-based technologies will significantly blur, triggering a very powerful movement of convergence between the "liquid" and the "illiquid".

So, without wishing to be exhaustive, in a not-too-distant day this is a part of the financial reality from my point of view:

MY WALLET IS MY BANK

And the usual thing is to have balances in different types of digital currencies, some are public (CBDCs) others are stablecoins where I have exposure to public currencies of other currency areas and thus diversify my monetary assets in a simple and cheap way.

There are also cryptocurrencies in my wallet, some for value preservation, in a world of unprecedented monetary and fiscal expansion, and others for their usability.

With all of them I make instant domestic and international payments and I choose to do it with the monetary asset in my wallet that I prefer at any given moment because I am seeing the real-time exchange rate being applied to my transaction, in addition to the price at which I bought them.

Naturally, in my wallet I hold utility tokens, which integrate the dozens of points and loyalty cards that I used to have in my physical wallet or in different apps. In addition, for many of them I see a conversion price to CBDC, which I can execute whenever I want because there are exchanges where I can trade 24x7x365.

There are also some NFTs, some as investments and others as part of an ecosystem in which I participate, and in addition to the advantages of membership I hope they will bring me a revaluation, because my NFTs have a listed secondary market.

Some of these NFTs are from ecosystems in the metaverse, where my wallet also operates.

Actually, my interaction on the internet is through the metaverse and almost all my activities are hybrid. I hardly access it through my laptop anymore and barely

use my physical cell phone. I have properties in the metaverse, holdings in businesses that only exist in the metaverse, even a house specially designed for me by an architect friend of mine who works exclusively on projects in the metaverse.

My wallet is smart, connected to smart contracts that activate collections and payments according to what is signed in the code that governs them. From micro-payments of cents for the consumption of different services to relevant investments that generate periodic income for me.

It is connected to different marketplaces and executes purchases and sales of goods and services when the conditions I have configured are met.

In truth, my wallet is an integrator of different apps in everything related to my finances, which also looks after my interests by suggesting decisions regarding the services contracted or the assets in my portfolio.

And the spectrum of investments that are accessible to me is much broader than it has been in the past...

Many real assets in the offline world are tokenized and my potential accessible investment universe is several times larger than it used to be.

The fractionation of asset ownership via tokens has made it possible to access investments that were unthinkable before, in a dynamic similar to that of asset securitization in the wholesale financial markets of the 20th century.

I INVEST EFFICIENTLY AND SAFELY IN...

A share in a building overlooking Central Park that I have always liked, with the right to the proportional part of the rental income, which I receive in my wallet every month in Digital Euros because that is how I have configured it in my smart contract.

A fraction of a singular vacation property on the Spanish coast, of which I also receive rents from in my wallet, but not all of them, because I scheduled to be entitled to occupy it for one week a year in spring. My wallet regularly informs me of the price at which I could give up that week in case I decide not to occupy it.

A portion of the income from a photovoltaic plant, which by the way has shielded my bill from the increase in the price per megawatt.

A small part of a Dali, of which I have a physical reproduction at home.

A portfolio of holdings in profitable companies in different sectors that were not listed when I bought them (some were start-ups) and that have enjoyed a reasonable convergence in multiples with the public markets as liquidity conditions have improved due to being tokenized and tradable on the new exchanges that have emerged.

I have financed a musical group that I believe in, and I have a share of their royalties. The world of content has evolved a lot, and it is common for successful series and movies to have been initially financed by early backers who acquired tokens of the rights in the early stages of the project.

And a countless list of opportunities that have arisen that were really hard to imagine.

Of course, in "my portfolio" inside "my wallet" I also have assets in traditional listed markets, which coexist in my overview with the "unlisted" ones. These also have a real time price that takes data from different exchanges where there is liquidity for them. In fact, many of the traditional markets ("exchanges") have opened new exchanges where a multitude of "tokenized" assets are listed.

Obviously, going back to 2021, this will be a gradual process, not a big ban, but exchanges will eventually settle down where bids and offers will be placed on an endless list of tokens, and unique or high-quality assets will undoubtedly have ongoing liquidity.

In a world of negative real interest rates, real income-generating assets, with continuous liquidity and easily investable for affordable amounts will certainly be appealing.

A radical change in the face of the capital markets, a "revolution of real assets", which will become easily investable.

There will be far-reaching changes in different links of the chain: what we know today as official markets because new exchanges will emerge, marketplaces of different classifications that will be absolutely transactional, disintermediation, a much more "liquid" circular economy, peer-to-peer, greatly enhanced with trusted online third parties, and, in short, what we could almost call the metaverse of investments.

PRESENT AND FUTURE OF FINANCIAL INFRASTRUCTURES



JOSÉ LUIS LANGA

Iberpay Deputy General
Manager

ABSTRACT

Although financial infrastructures are key to the proper functioning of the economy, their activity may be somewhat unknown to a large part of society. Regulatory changes, the irruption of large technology companies and technological advances are having an enormous impact on the activity of financial infrastructures, although they have also made it possible to recognize the key role they play as guarantors of economic activity and even of the financial autonomy of states. Within technological advancements, the implementation of instant payments is bringing about a revolution in financial infrastructures by providing new interbank channels that enable the processing of all types of payments and serve different use cases for society, which demands products and services in real time, running every day of the year, to pay for them likewise

Global financial infrastructures have very diverse characteristics, and their functioning depends, to a large extent, on the historical circumstances in which they were created and the characteristics of the financial systems they serve. Their role is essential for the proper functioning of the economy, since they provide security and reliability to commercial transactions, while facilitating the smooth running of financial markets, commerce, and economic activity. For all these reasons, it is not surprising that some studies argue that their efficiency could lead to an increase in countries' GDP of over one point.

SOME COMMON CHARACTERISTICS OF FINANCIAL INFRASTRUCTURES:

Despite the great differences that can be observed among the multiple global financial infrastructures, some common characteristics may be identified, among which are the following:

1. Their creation and evolution respond to the need to resolve specific issues in local financial systems or to respond to the specific regulations of each territory, which is why **they usually offer their services in a single country**. Despite the clear economies of scale that could be obtained if financial infrastructures were regional or global in scope, they are very often domestic in relation to their activity and their roles, characteristics, size, or competences vary substantially from one nation to another.

2. Most financial infrastructures serve a specific operational area of financial institutions, and **their activity is focused on solving, usually in a collaborative manner, the needs submitted by these more traditional verticals or silos of the banking business**. It is common for banking departments involved in the trading, custody, and settlement of securities to be separate from those dedicated to the management of payments; and within the latter, there are different teams dedicated to the management of high value wholesale payments, retail payments, card processing or international payments. It is also common for each of these organizational areas of banking to have some specific financial infrastructure to serve their specific sectoral needs.

3. **The activity of financial infrastructures is usually subject to strict domestic and international regulations**. They are also subject to close supervision by central banks, securities commissions, or other government agencies, which ensure that all their operations are carried out in accordance with industry standards and best practices. This proximity to the supervisory authorities usually gives these infrastructures great strength and security, although it may also become a limitation to offer their services outside the regulated activity.

4. **Most of the world's financial infrastructures, with the most noteworthy exception of the stock exchanges, have been operating within the scope of the so-called "back-office" of financial institutions**, without acquiring a special relevance for their services' end users and even being little known within the institutions they serve, despite the unquestionable importance of their mission.

As a result of these trends, a large part of the financial infrastructures currently has a domestic scope of action and are highly specialized in solving, efficiently and through sectorial collaboration, the needs of each country's entities in each of the business niches of the financial activity.

As an example, the different financial infrastructures operating in Spain could be grouped into the following table:

MAP OF FINANCIAL INFRASTRUCTURES IN SPAIN:

	RETAIL PAYMENTS	WHOLESALE PAYMENTS	CARDS	INTERNATIONAL PAYMENTS	SECURITIES
INSTRUMENTS	<ul style="list-style-type: none"> • Transfers • Debit Transfers • Immediate Transfers • Payment Requests 	Transfers	<ul style="list-style-type: none"> • Payments in physical and electronic commerce • ATMs 	<ul style="list-style-type: none"> • Immediate Transfers • Remittances 	Purchase and sale of variable fixed-income securities, derivatives
USERS	Banks, EP, EdE	Banks	<ul style="list-style-type: none"> • Issuers • Acquirers 	<ul style="list-style-type: none"> • Banks • Remittance Companies 	<ul style="list-style-type: none"> • Banks • Investment services companies
STANDARDS	EPC, Iberpay (ISO 20022)	Proprietary	STMP (ISO 8583)	Banking Correspondent	Proprietary
PROCESSING	Iberpay	<ul style="list-style-type: none"> • TARGET2 • Euro I (EBA) 	<ul style="list-style-type: none"> • Redsys • Cecabank 	SWIFT	BME
SETTLEMENT	TARGET2 y TIPS		Clearing Banks	Nostro/Vostro Accounts	<ul style="list-style-type: none"> • TARGET 2 Securities
OVERSIGHT	Bank of Spain				<ul style="list-style-type: none"> • Bank of Spain • CNMV

FACTORS DRIVING THE EVOLUTION OF FINANCIAL INFRASTRUCTURES:

International financial infrastructures have been operating for a long time within a framework of stability, which has been disrupted in recent years by a series of factors, among which are the following:

1. The main factor that has traditionally driven relevant changes in financial infrastructures is **regulation**. It should be recalled that the launch of instant payments in the United Kingdom, or the foundation of Iberpay in Spain is a response to compliance with the respective domestic legislation.

The creation of a single euro payments area in Europe in 2008, as well as the PSD1 and PSD2 payment services directives, had the aim, among other objectives, of boosting innovation and levels of competition in Europe's financial markets by opening up access to their infrastructures to new Fintech players. Some experts predicted that these EU regulations would also trigger

consolidation among financial infrastructures in Europe, a situation that has not yet occurred due to the differences between domestic financial systems, the lack of a single banking market and the high degree of specialization and efficiency achieved by most financial infrastructures.

2. The **growing interest in and presence of large technology companies** such as Apple, Google, Alipay or Tencent in the financial sphere, and the power granted by the global reach of entities such as Visa or Mastercard in the field of card payments, is an increasingly disruptive factor for financial infrastructures. These large corporations, many of them outside the financial environment and beyond the reach of national supervision, operate from a completely different approach to traditional by focusing their best efforts on providing a greater user experience to many millions of customers, while exploiting valuable information regarding their behavior and habits.

This loss of governmental control over these large global corporations, their growing power, and the increasingly inescapable dependence of economic agents on their services is perceived as a threat by many governments and is behind the European authorities' decision to grant top priority to their retail payment strategy in order to achieve financial autonomy in Europe. Financial infrastructures have thus moved in a short time from being simple rails, more or less efficient, to becoming a competitive and **geostrategic factor** of the highest level to ensure the financial independence of states.

3. Finally, **technological advances** are undoubtedly one of the factors that are having the greatest impact on payment infrastructures, which are becoming increasingly important in the process of accelerated digitization of society as a whole, and particularly of financial services.

The emergence of instant payments is revolutionizing financial infrastructures by providing new ways of channeling all types of payments and serve different use cases for society, which demands products and services in real-time, running every day of the year, to pay for them in the same way. Given the special relevance of this topic, a specific section is dedicated to instant payments at the end of this article.

The possibility of using distributed ledger technologies is another technological factor of great importance, as enabling the decentralization of transactions or information with which financial infrastructures operate, is the technological basis used by cryptocurrencies and facilitates the deployment of solutions for programmable payments through smart contracts.

Finally, the possibility of using all types of cloud services is another technological factor of unquestionable relevance that can, on the one hand,

bring financial infrastructures closer to new players traditionally distant from their services and, on the other hand, offer the infrastructures themselves new processing and user relationship options.

The result of all these forces is that the most relevant issues for financial infrastructures have shifted significantly in recent years, from focusing on operational and risk management issues, to assuming 24x7 availability or cybersecurity as the most relevant concerns at the present time, while in the instant future their focus could foreseeably be oriented towards the exploitation of data and preserving the geostrategic importance that their management provides.

ISSUES OF RELEVANCE TO FINANCIAL INFRASTRUCTURES:

PAST

- Process Capability
- Risk control
- Operational reliability
- Liquidity savings
- Processing schedules
- Efficiency

PRESENT

The aforementioned, plus:

- Regional reach: interoperability
- Real-time processing
- 24/7 availability
- Access to Fintech entities
- Immediate settlement
- Resilience
- Cybersecurity

FUTURE

The aforementioned, plus:

- Geostrategic importance
- Programmability
- Global reach
- Digital money and crypto
- Data mining
- Fraud prevention
- Cloud processing
- User experience
- Invisible payments

THE INSTANT PAYMENT REVOLUTION:

Among the disruptive factors acting on financial infrastructures, it is the technological factors that are most clearly driving their recent evolution and, among them, the potential for change brought about by the recent implementation of instant payments.

The emergence of instant payments is quickly breaking down the traditional silos that separate the different types of payments (wholesale, retail, international and card payments), since they could all be channeled through these new interbank rails that, using the latest technology available, **allow funds to be sent between current accounts at any time of day, any day of the year, so that the beneficiary can dispose of the funds instantly and in a secure and irrevocable manner.**

The fact that Europe is a world leader in the rollout of instant payments with the launch of instant credit transfers in 2017 and the implementation of the request to pay scheme in 2021, justifies the explicit support offered by the European Commission and the European Central Bank to the EPI ("European Payments Initiative") driven by major European banks to create a pan-European payments solution to service different use cases using instant credit transfers between current accounts as the underlying payment method.

Instant payments, in addition to supporting this initiative, may also be used for the implementation of international payment solutions between different currency areas, for channeling wholesale payments, which are more expensive and cannot be processed 24x7, as well as for the deployment of e-commerce or physical commerce solutions. All these options, some still to be explored, allow us to venture a paradigm shift in financial systems that will be able to offer innovative payment solutions based on instant payments between current accounts for all types of use cases offering an excellent user experience to end customers.

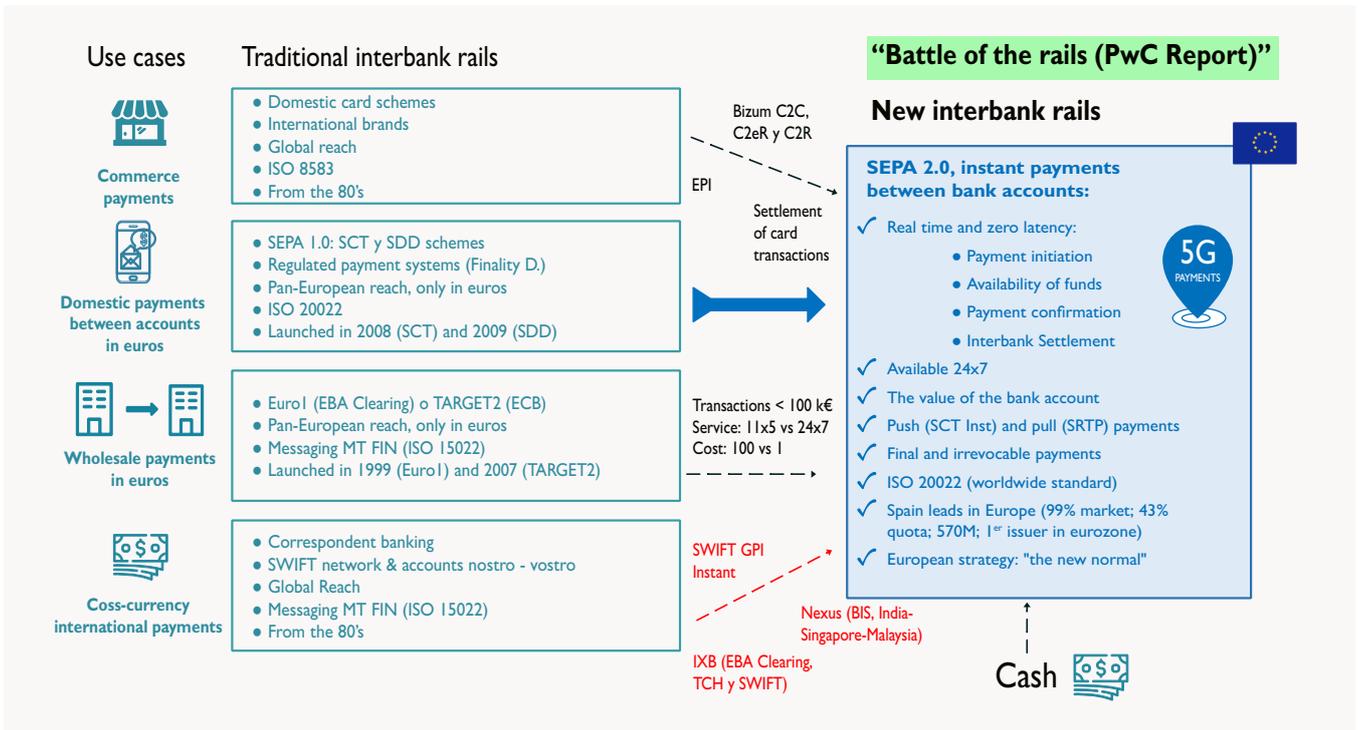
It should be noted that **the Spanish financial community is particularly well positioned** to take advantage of the many opportunities arising from the use of these new interbank channels, since practically all Spanish bank accounts are accessible to process instant credit transfers, representing 45% of all credit transfers processed in the country.

It cannot be overlooked that Spain has highly valued and popular value-added services such as Bizum, a very successful case of innovation and collaboration in Spanish banking which, using instant credit transfers between current accounts

processed through the rails of the Spanish payment system managed by Iberpay as the underlying instrument, already offers a mobile payment solution for multiple use cases and could well become a model for the future EPI solution.

Thus, instant payments are behaving as a great magnet that attracts the processing not only of traditional retail payment transactions, but also of cash, wholesale payments, card transactions or international payments in foreign currencies, as shown in the table below.

INSTANT PAYMENTS BETWEEN BANK ACCOUNTS, THE NEW INTERBANK RAILS:



REGULATING DIGITAL CURRENCIES



**MIGUEL ÁNGEL
FERNÁNDEZ ORDÓÑEZ**

State Economist. Former
Governor of the Bank of
Spain.

ABSTRACT

New technologies have developed in a space of "deregulation", without the intervention of the State. Lately, there has been a shift in favor of regulation. Authorities are proposing measures to regulate Crypto-assets, Stablecoins and digital public money (CBDC). Even new players believe that regulation is essential for their businesses to be sustainable. But the regulation of bank deposits has not yet started to be revised

The debate on the reform of money has accelerated and taken on an incredible dimension. This debate of ideas has run parallel to an explosion of practical applications of new technologies that have developed in a space of "deregulation" under a discourse that preached the role of the State as unnecessary.

However, in recent months there has been a shift towards a positive assessment of regulation. Authorities have started to propose regulatory measures out of concern for some of the consequences of the "crypto" world. Some proponents of the new alternatives have also realized that their businesses can only be sustainable if they operate under state regulation.

CRYPTO-ASSETS

Although China decided to ban Bitcoin, there is a certain consensus in Western countries that Bitcoin is not and cannot be money and therefore, from the point of view of financial stability, it is less of a concern than other proposals that are more likely to be used as a means of payment.

For this reason, proposals for crypto-asset regulation are focusing more on consumer protection issues, market integrity, prosecution of terrorist financing and money laundering, disincentives for ransomware schemes, etc.

In general terms it is understood that, however important they may be, the oscillations in value of these crypto-assets will not be able to have a collapsing effect on money precisely because they are not money, and the damage will be exclusively borne by those who invested in these products. The losses - like the gains - can be very substantial, hence the need for the aforementioned regulations, but they will not be covered by the citizens who did not assume the risks.

This does not mean that, as the Basel Committee has announced, regulators should prevent these crypto-assets from being on the balance sheet of commercial banks, because bank crisis have consequences that everyone pays for. However, there is no problem in allowing banks to improve their bottom line through fees and other income. Just in case, **the effect that a sharp fall in the value of these crypto-assets could have on non-bank institutions is also being studied**, not so much because of the systemic problems this could pose, but because, through interconnection and contagion, they could affect commercial banks and could lead to crises in the flow of money.

STABLECOINS

Stablecoins are a relatively recent product in the crypto-asset world that, if properly regulated, can be an interesting alternative to the money we currently use. **Stablecoins, like deposits in savings banks and banks, are a promise to return money in the official currency and they do so by backing this promise with a set of assets.**

Along with deposits, these coins are considered "private money" because, unlike cash and digital money issued by central banks, they are not a liability of central banks. They are not public money, but a promise to return public money.

Regulators are concerned with some problems that could arise in the event that these currencies become widely used by citizens. And this widespread use is a likely phenomenon if, as has been announced, some Bigtechs were to issue such money. Indeed, these currencies could be very attractive because they would certainly provide faster payment services than those currently provided by banks and at almost no cost to the users. But, above all, as the track record of these companies in other fields shows, their innovative potential would be immense, and it would lead to the provision services that we cannot even imagine today.

The main concern of regulators is that the 1:1 convertibility guarantee with public money is backed by risky financial assets.

Because, however small the risk, this would pose two major problems. On the one hand, there would be the risk that they would not be able to deliver on the promise to return customers their money in the official currency. This could lead to a problem similar to the one that can now occur in commercial banks and could eventually collapse the flow of money. Secondly, there is the problem that these entities could create money and therefore monetary policy would be greatly complicated as the Central Bank would not have absolute control over them.

Regulators, through the Basel payments committee and the international organization of securities market supervisors, have put out for public consultation a regulatory proposal that could reduce the problems created by stablecoins. However, we are at the beginning of this debate and the impact they could have on commercial banking has not yet been fully appreciated and, as a Fed governor has explained, they could even make the introduction of digital public money accessible to all citizens, known as CBDC, unnecessary.

All these problems could be solved if they were to be backed by 100 percent public money, thus it would not be unusual for this proposal to come up in the course of the debate.

CENTRAL BANK DIGITAL CURRENCIES (CBDC)

Numerous studies are examining the various aspects of regulating this digital money. Central banks, some governments, the BIS, the IMF and many public and private institutions are constantly publishing studies on the various regulatory possibilities.

Although there are no unanimous positions, some consensus can be found, such as, for example, that money should clearly be public, while payment services should not be provided by central banks but by private initiative. These services should be open to competition from all types of private agents. All citizens and companies will have access to payment services with public money. The confidentiality of user data is an essential requirement. The State must only be able to know the data necessary to prevent and prosecute criminal activities (money laundering, financing of terrorism, tax evasion, cyber blackmail, etc.) and citizens must enjoy the protection of their data from private companies.

Homogeneity of designs is sought to facilitate cross-border payments. And so on.

There is still no clear consensus regarding the technologies. Nor are there any studies on who should be the recipients of the money created by central banks. As in other sectors, there is debate as to whether traditional antitrust regulation is sufficient, or whether it will be necessary to approve a prior antitrust regulation applicable to the so-called Bigtech.

Yet, overall, the advances in the regulation of this new digital money are extraordinary if one considers that until very recently there was outright opposition to the introduction of public digital money. Although the central banks formally insist that they have not yet made any decisions, no one doubts that, in due course, CBDCs will be in force in the main currency areas of the planet.

BANK DEPOSITS

Deposits in savings banks and banks are the most important form of digital money. In fact, it is the only digital money that is massively used by citizens. However, for the time being, regulators are not thinking about making regulatory changes to this type of digital money. Virtually all analyses and studies of digital money regulation are focused on CBDCs and Stablecoins. There is no study on altering the regulation of deposits. It has even been proposed to impose regulations that discourage the use of the new money, such as volume limitations or the requirement to apply negative interest rates.

This is the current situation but it will not be sustainable for a long time. It makes no sense to study the benefits and costs and risks of new digital money and not to analyze the money we are currently using. After all, bank deposits may be a more problematic and risky form of digital money than Stablecoins and CBDCs.

Indeed, some of the problems detected in Stablecoins (those not backed 100% by public money) are also present in bank deposits. For example, the possibility of a collapse in the flow of money due to not being able to reimburse customers, or the problems of being able to create money, which would force the State (through the central banks) to massively intervene in the financial markets.

It is true that deposits, in order to try to reduce their risks and problems, are subject to extensive regulations that have been accumulated throughout their centenary history. On the one hand, the State grants protection and privileges to these digital currencies (liquidity loans on demand, deposit insurance, budgetary funds to save institutions, etc.) and, on the other, there is a massive set of regulations that curtail the freedom of companies to make such an important decision as risk assumption (Basel III).

All this has been justified in the past because there were no alternatives to deposits. But now there are, and it is not enough to regulate the new alternatives, the regulation of the old ones must also be reviewed. Regulators must do a cost/benefit analysis of bank deposits as thoroughly as they are now scrutinizing the new digital currencies.

This is not the dominant view, but it will eventually become so. Just as regulators and central banks four years ago scorned the idea of CBDCs and ignored the possibility of the emergence of Stablecoins, there will come a time when they will have no choice but to assess the damage that the decision to leave bank deposit regulations and protections unchanged causes to financial stability and competition. The time will come when they will no longer be able to move forward without doing an analysis of the costs and benefits of bank deposits and of the costs and benefits of those mountains of regulations that try to solve the problems of using risky assets as money.

It is understandable that there is a great fear of knowing the diagnosis of our shortcomings. The fear felt by the authorities is understandable when they think that the result of the analysis could lead them to recommend a change in the current regulation of deposits. Because, evidently, the task of revising it and orienting it towards proposals that do not generate money collapses, that allow an effective monetary policy and, above all, that abandon the monopoly and allow competition and innovation in financial services is not a pleasant -nor easy- mission. But it must be faced. And the necessary changes will have to be introduced.

To liberalize any unregulated sector, it is enough to allow new competitors to emerge and make use of new technologies, just as happened with digital photography, hotel reservations or typewriters. But **to reap the benefits of liberalization in a regulated sector, it is not enough to allow new competitors to enter; it is imperative that the regulations that maintain the monopoly and the absence of competition be changed.**

And we already have proven experience of the regulatory instruments needed to liberalize regulated sectors that are closed to competition. The new regulation requires a clarification of the roles of the State and private initiative, the separation of activities, the replacement of monopolistic regulations with those for the defense of competition and the protection of users, the requirement of interoperability, the elimination of privileges and protections to level the playing field, etc.

In addition, regulators must facilitate an orderly transition from monopoly to competition. The benefits of liberalizing and ending monopolies are clear-increasing GDP and employment in the medium term-but the costs of transition in the short term must be avoided. There are reasons of public interest for the authorities to consider an orderly transition of banking activities from monopoly to competition. And there are also social reasons, as there are still almost 3 million workers in the deposit-taking sector in the Eurozone. They deserve to be provided with an orderly transition to this future of money digitization and liberalization of financial services and no longer be seen as a hindrance to the progress and welfare of all.

THE FUTURE OF CASH IN AN INCREASINGLY DIGITAL WORLD



**GONZALO SUÁREZ
MARTÍN**

Analysis and Strategy Director
at Loomis Spain

ABSTRACT

The imminent irruption of new forms of money and digital means of payment, in a new geopolitical context marked by a growing concentration and dependence on large technological corporations, is evolving without an overall idea of their final effects on the functioning of the economy. An uncertainty in which physical money is placed as a controversial element between regulators, financial and technological actors, governments, and society itself, showing an extraordinary resilience in a monetary system run over by an accelerated digitalization of money that promises light and shadows, winners and losers, excluded and integrated, and acting as an anchor of security among so much confusion and game of crossed interests

They have been anticipating the end of cash for decades, failing in their dire predictions, but unlike in the past, the peaceful competition between means of payment that was settled in the traditional banking space has mutated into a zero-sum game in a more complex environment, in which new non-bank players intervene. If anything defines the current debate on money, it is haste, dispersion, insecurity, and uncertainty. The irruption of new forms of money and digital means of payment, in a different context due to a new geopolitical context, conditioned by a growing concentration and dependence on large technological corporations, suggest an abrupt change without an

overall idea of its final effect, in which the absence of a serious and rigorous reflection on an eventual "cashless" society, conditioned by an extraordinary resilience of cash, stands out.

All statistics confirm that consumers use and want physical money. A recent GAD3 survey conducted in Spain shows that 72% of the population, some 25 million Spaniards, say it is necessary, 3 out of 4 consider it a public good, 68% consider it important to have it in their daily lives, 9 out of 10 are opposed to its replacement by digital forms of payment, and more than 80% reject the only option of paying by card. According to data from the Bank of Spain, cash is the most common means of payment for 36% of the population, below the 64.8% who use debit cards as the preferred means of payment, but 88% of the population use it on a daily basis. In the euro zone, 72% of point-of-sale transactions and 83% of person-to-person transactions are made in cash. It is obvious that cash refers to a decentralized network for real-time transactions that enjoys enormous popularity.

In the vast majority of countries, cash is used by virtually the entire population. There is no social demand to do away with the existing legal tender public money, quite the contrary. Moreover, there is no correlation between its use and factors such as digitization of the economy, connectivity, productivity, or growth, even fraud and crime. It is enough to check the high use of cash in countries as different as Japan, Australia, Germany, Argentina, or Brazil, among others. Nor does the generational factor apply, despite general belief, because the most cashless age bracket is between 24 and 35 years old, in contrast to young people between 18 and 24 years old with similar payment habits to the population over 36 years old.

It is true that there is a decreasing use of cash as a means of payment, consistent with the evolution of digital connectivity, and above all with the trend in the banking business, which has significantly reduced the physical points of access to money. In the Spanish case, half of the bank branch network and a fifth of the ATMs in the last decade. A trend that is causing many countries, such as France, the United Kingdom, Canada, Australia, the Netherlands, Sweden, many North American states, and cities, to regulate the access and/or mandatory acceptance of cash, linked to an effective, efficient, sustainable and resilient distribution, acceptance and usability of banknotes and coins, now and in the future. **A growing awareness of the risks of a cashless economy**, which relate to democratic sovereignty, national security, systemic risk, technological dependence, monopolistic concentration, vulnerability of the productive fabric, social and financial exclusion, freedom of choice, privacy, and security of citizens.

In Spain, the annual amount of cash withdrawals at ATMs has grown between 2010 and 2020 by more than 10,000 million euros, showing that the population uses it massively despite its difficult access. A phenomenon that the European Central Bank calls the cash paradox, a historical demand for banknotes accompanied by their declining use as a means of payment. Half of the Japanese population keeps cash at home, as in the United States, Canada, Australia, the United Kingdom, and also in the Eurozone. Cash is seen as a security factor, but not only by citizens, but also by countries, which have regulated the distribution of cash as a critical infrastructure of the country during the most critical moments of the pandemic. Even Sweden, the most cashless country in the world, recommends its citizens to keep physical cash in their homes, in case of an emergency or an essential infrastructure failure due to contingencies such as a cyber-attack, and has recently ruled that banks are obliged to provide adequate levels of cash services. As someone wisely said, when they invented the elevator no one thought of eliminating stairs, just as no one thought of doing away with pencils when the ballpoint pen was invented, or concerts when radio and gramophones were invented, or bicycles when combustion engines were invented.

A cash paradox that confronts another paradox of the financial system, a global growth of electronic payments (which account for 40% of banking revenues in the world) with a progressive deterioration of its profitability. A tension that has been resolved through a strategy of volume growth that is already showing signs of exhaustion, also affected by growing competition, which is diverting the financial industry's appetite towards cash, but which, in reality, demands a review of its business model, with new technology-based solutions.

In connection with this essential strategic shift, the exaggerated agitation caused by the data on the massive use of cash in Japan in 2021, despite the pandemic, has been surprising. A widespread confidence in the banknotes and coins they have been using for decades because they are accepted as a means of payment everywhere, in real time and without commissions, and also because they see no compelling reasons to change their habits now. But the most significant aspect of this news is the reaction of a private consortium of 74 companies and banks, which has rushed to announce a stablecoin linked to bank deposits, together with that of its central bank, confirming the launch of a digital Yen, both for the approaching year 2022.

A coincidence that reflects a general tension between financial operators and central banks, which seem to be running over each other in a race for money-related innovations, as imprecise and rushed as they are uncertain in their effects, with a widespread use of cash as a lucid and uncomfortable voiceless witness to

be avoided. In the absence of an accurate overview of where the present is leading us, there is nothing better than paying proper attention to the user's message, which demands cash accompanied by the conveniences and advances of digital life.

And furthermore, taking into account a context of growing geopolitical tension combined with an increasingly vulnerable internet and also fragmented by territorial factors, as pointed out in an article by the Official Monetary and Financial Institution Forum (OMFIF) published in January 2022, which echoed the problems in Kazakhstan due to the internet blockade decided by its government, as a measure against popular protests, which had led to a collapse of the electronic payment system, highlighting the risks of limiting access and distribution of physical money. But of even greater interest was the reference in that article to a meeting of the Swedish central bank, in March 2021, with all Swedish banks to deliberate on how to prevent a collapse of the electronic payment system, just a few months before the mobilization of Swedish troops on the Baltic island of Gotland for a possible military invasion resulting from the escalation of tension between Russia and Ukraine. At the end of 2021, in a paper on access to cash published by the European Central Bank, a specific reference was made to cash as a "back up" of the payment system.

The future is yet to be written, but as Keynes stated, "I am not ready for a creed which does not care how much it destroys the liberty and security of daily life"; that which today may refer to an ecstatic digital monetary system without physical money, full of vulnerabilities, frictions, uncertainties and problems, on which our nation would depend on with no more certainty than its own weakness. **Money is not only a matter of authority and market, not even of innovation, but above all it refers to the society in which we want to live.**

THE MARKET INFRASTRUCTURE PILOT REGIME PROJECT. BETWEEN INNOVATION AND REGULATORY FLEXIBILITY



**LAURA SACRISTÁN
MARTÍN**

Commercial Director of the
BME Grup. Academic Advisor
of Fide.



**DIEGO GARCÍA
NOVILLO**

Lawyer. Legal Department,
BME Group

ABSTRACT

This article seeks to put into context the European proposal known as the Pilot Regime for Market Infrastructures, as well as to describe the rules that so far shape this specific regime, highlighting the relevance of DLT technologies and the impact they will have on the entire financial ecosystem, from market participants and infrastructures themselves, to investors

I-. INTRODUCTION

Since a few years ago and specifically since the phenomenon of the first appearance of Bitcoin in 2008 attributed to "Satoshi Nakamoto", **the irruption of the Blockchain phenomenon as a disruptive technology in our society, and in particular in the financial industry, is already a reality.**

Some examples of industry studies have yielded very promising projections in terms of cost reduction. To cite

one example, an analysis for Bank of Santander by Olyver Wymman (2015)³⁸ concluded that DLT technologies would contribute to reducing international transaction costs in the range of \$15-\$20 Billion (US). As proof that the benefits listed in that analysis were not misguided, we are already seeing more and more proof-of-concepts in the financial sector exploring the advantages of this technology in different areas.

However, and despite all the progress made, we could say that this technology is still in its early stages, mind you, evolving very rapidly and with the potential to disrupt many industries (although with great preponderance in the financial world, as suggested by the McKinsey study, "Blockchain beyond the hype: What is the strategic business value?" of June 2018). However, we face many technological and legal challenges, as well as certain risks. We need to focus on the opportunity, but also ensure the security and robustness the market infrastructures and financial markets have demonstrated so far. All this is made possible through a collaborative framework between the different actors in the system, including the regulators. In this article, we are going to focus precisely on the European regulation that promotes the use of Blockchain in market infrastructures.

2-. CONTEXT AND PURPOSE

In September last year, the European Commission approved a new set of measures (Digital Finance Package, or DFP) designed to stimulate competitiveness and innovation in Europe's financial sector while ensuring financial protection and stability.

Broadly speaking, the package sets out **how Europe can support the digital transformation of finance in the coming years** while regulating its potential risks, addressing four priorities:

1. End fragmentation.
2. Adapting the European regulatory framework to favor innovation and digitization.
3. Promoting what is known as data-driven finance.
4. Mitigating risks concerning digital transformation while expanding the resilience capabilities of the financial system.

It is precisely within the framework of the PFD that the Pilot Regime Proposal is being processed and is expected to be approved next year. This Pilot Regime has two main purposes: (i) on the one hand, it seeks to eliminate regulatory obstacles to the emission, trading, and settlement of DLT-based marketable securities; and (ii) on the other hand, as it occurs in a regulatory sandbox, the aim is for regulators to gain experience in the application of this type of technology in the financial sector, thus promoting technology neutrality in these new regulations.

3-. SCOPE OF THE PILOT REGIME

The proposal defines "market infrastructures" broadly, using it interchangeably, as it refers to "DLT-based market infrastructures" both to MTFs, as well as to a DLT-based securities settlement system. Thus, in the requirements for so-called DLT MTFs, or multilateral DLT trading systems (hereinafter "DLT MTF" or DLT "MTF"), as well as DLT settlement systems ("DLT SSS"), which will be operated by a central securities depository ("CSD"). In addition to these already known infrastructures, a hybrid infrastructure is emerging, the so-called DLT trading and settlement system ("DLT TSS"), which combines both a trading system and a settlement system in a single entity.

Regarding DLT MTFs, the proposal foresees that they are subject to all the requirements applicable to an MTF under MiFID II and MiFIR, except if the operator requests exemptions from its competent authority, which could, where appropriate, grant them. In this regard, it is worth remembering that entities must demonstrate that the exemptions are proportionate and justified for the use of DLTs. Furthermore, it should be noted that the competent authority may also request the operator to comply with additional conditions to ensure principles such as investor protection, market integrity and/or financial stability. In any case, DLT MTFs would be defined as multilateral trading facilities operated by financial institutions or market operators that support DLT transactions in transferable securities.

One of the most striking exemptions that DLT MTFs will enjoy is the possibility of incorporating individuals or legal entities that are not investment services entities or financial institutions as members. This will happen as long as these persons: (i) have sufficient honorability; (ii) possess financial knowledge and trading skills; and (iii) subscribe to an informed consent, in addition to other additional measures that may be required by the supervisor.

On the other hand, the DLT SSS is defined by the Pilot Regime as a DLT settlement system operated by a CSD, which settles DLT securities transactions

against payment. These infrastructures may also accept individuals and legal entities as members under a series of requirements.

4- ON CASH SETTLEMENT AND THE LEVEL PLAYING FIELD

As mentioned above, an exemption is provided for DLT SSS settlement to be carried out in commercial bank money when settlement in central bank money is not feasible. This point also explicitly mentions that this settlement should be in electronic money in the form of tokens and through the use of e-money tokens, as regulated in the MiCa regulation.

This point is relevant, since in order to take advantage of all the capabilities of Blockchain and carry out operations with the atomicity of DLT technologies within the entire value chain of market infrastructures, the use of electronic money or tokenized money is advisable.

Otherwise, the use of legacy systems could generate bottlenecks to the extent that some of their processes do not make this atomicity of transactions possible. Despite this, it is worth remembering that, to the extent that the electronic money with which some Blockchain projects have been operating was considered commercial bank money, this settlement was possible before the entry into force of the Pilot Regime, provided that the restrictions included in CSDR were applied in this regard.

However, upon analyzing the regulation of the use of electronic or tokenized money in the Pilot Regime, it is necessary to reflect on the importance of an adequate "level playing field" and how the Pilot Regime proposal has been enriched, from its starting point until now, thanks to this concept. In this regard, it is worth mentioning, among the various sources that assessed the original proposal this Pilot Regime and called attention to this aspect, the ECB (2021)³⁹, which in its opinions added that allowing settlement in e-money tokens was not neutral from a technological point of view. The reason proposed by the ECB, perhaps anticipating the advent of the Digital Euro, is that e-money can also be issued through a technology other than DLT. The mention of commercial bank money in a generic sense in the latest version of the Pilot Regime (tokenized form being one of the options available for settlement) and the inclusion of the tokenized form of central bank money seem to bring the wording closer to these approaches, although perhaps less in line with the idea of technological neutrality advocated by the ECB. However, it is worth recalling that the ECB (2021) further cautioned about the need to analyze the effects for monetary policy operations, especially if the use of commercial bank money settlement, or settlement of e-

money tokens, were to increase substantially due to the Pilot Regime, given the importance of these transactions for the functioning of the money market and for conducting open market operations.

Based on this **"level playing field" principle**, the Pilot Regime has also undergone modifications since the original proposal in something as important as the management of possible settlement failures. Specifically, it should be remembered that the original proposal did not envisage a figure such as the DLT TSS, but rather the empowerment of DLT MTFs to admit to trading securities not registered in a CSD, without a very detailed regulation on the measures to prevent settlement fails and without an express mention of the CSDR precepts applicable to this aspect. In this regard, from the outset, it was stressed by the various institutions that reviewed the original Pilot Regime proposal that, in any case, the same regulatory requirements should apply as for CSDs or their participants. Otherwise, the absence of uniform requirements could have resulted in a more favorable treatment compared to CSDs (ECB, 2021). More specifically, on the original proposal, the ECB (2021) indicated that the originally proposed regulation did not ensure a level playing field between DLT MTFs and DLT SSSs, given that DLT MTFs could provide basic CSD services under the Pilot Regime, while the additional requirements for them appeared rather limited compared to those to which CSDs must adhere. In fact, the original proposal stated that DLT MTFs should meet requirements equivalent to those that applied to a CSD in their securities registration duties, but only made explicit reference to a limited list of CSDR standards. It did not highlight, for example, CSDR regulations with respect to settlement discipline, passports, transparency, capital requirements, or commercial and operational risk. These positions have been reflected in the Pilot Regime, so that, in the current version, in the case of MTFs and CSDs, CSDR and MiFID will apply when these infrastructures operate a DLT TSS.

In summary, it is not unreasonable to think that the DLT TSS regulation has been the great instrument for securing the "level playing field". Specifically, the European Parliament, by granting DLT TSS a two-tier character, i.e., achievable for both a DLT MTF and a CSD, has enabled CSDs to obtain all the benefits of DLT technology in the same way, allowing them to experiment and/or develop an integrated trading and post-trade service. In this way, the major regulatory unknowns of the first Pilot Regime proposal were resolved, while guaranteeing the principles of financial stability and investor protection.

5- SCOPE AND MAIN LIMITATIONS OF THE PILOT REGIME

The scope and its main limitations are currently the **main topics of debate**.

Regarding regulated entities, it is convenient to remember that the Pilot Regime states that only legal entities authorized as an investment services firm, or to operate a regulated market under MiFID II, may apply to operate a DLT MTF. Similarly, only legal entities authorized as a CSD under CSDR can operate a DLT SSS.

With regards to **limitations on the number of securities admitted to trading** or settled by a DLT market infrastructure, the proposal sets a threshold on the total market value of securities that can be registered by a DLT MTF or DLT SSS operator, with a maximum of 6 billion €. Secondly, only shares whose issuer has a market capitalization - or a tentative market capitalization - of less than 500 million € will be admitted to trading. For fixed-income securities, such as convertible bonds, covered bonds, corporate bonds, government bonds or other bonds, an issue size limit of less than 1 trillion € is required (where securities of entities with a market capitalization of less than 200 million € will be excluded). In the case of shares in collective investment institutions, this limit will be 500 million €.

It should be noted that, according to the European Commission, these thresholds were chosen to allow only illiquid stocks and bonds. However, it should be noted that, according to the Federation of European Stock Exchanges (2021), these thresholds represent more than 65% of the total number of listed companies in the EU and more than 80% of bond emissions in the fixed income landscape. One may therefore wonder whether the proposed thresholds are not too high for a pilot case.

Among the other questions about potential limitations, it is worth noting that, at the operational level, it is not yet certain whether there will be closing prices, or whether operations can continue overnight as is the case with cryptocurrencies. Thus, it would be advisable that a set of common criteria be established to set certain thresholds or standards, probably, through guidelines or Q&As. Perhaps it would be interesting, in turn, to determine, in these guidelines or Q&As what will happen when prices are not denoted in Euros, and how exchange rate fluctuations should be taken into account in the threshold methodology.

In fact, the ECB (2021) is in favor of the establishment of thresholds, but is of the opinion that, given that the level of development of capital markets diverges within the European Union, national competent authorities should have the option to lower these thresholds. The European Commission did not foresee this option, probably on the understanding that it might be questionable to grant this power to national authorities as it could lead to regulatory fragmentation.

On the other hand, given the need to specify the **transition or exit strategy for market infrastructures** in the event that the corresponding established limits are close to being reached, a little more detail was established in the final proposal of the Pilot Regime, specifically in article 3.3 and also in article 6. However, given that this transition strategy is expected to be prepared by the infrastructure operator itself, it may be advisable for ESMA to publish the corresponding Q&As and guidelines with a little more detail in this regard. On the other hand, it would have been equally convenient to include a "sunset clause", in order to foresee a transition scenario after the Pilot Regime is in force with more detail than the one included in Article 10.

Finally, it should be highlighted that, within the digital finance package, the Pilot Regime focuses on those tokens that are considered tradable securities, leaving the regulation of crypto-assets (utility tokens, asset-backed tokens, and e-money tokens) for MiCA.

6-. FUTURE OULOOK

The European Commission's objective to give the financial sector the opportunity to issue financial instruments using DLT distributed ledger technology is highly positive.

The Pilot Regime is a good example of how EU regulators can accompany technological innovation with regulatory flexibility. However, additional effort will be needed to allow them to evolve to higher levels of market structures, which will be beneficial for financial markets in Europe and contribute to efforts to create a deep and innovative capital markets union.

On the other hand, it is clear that the main benefit of a Pilot Regime is its ability to bring together all DLT initiatives in a supervised innovation or testing center by providing a venue for experimentation and, at the same time, ensuring a customized monitoring and gathering of expertise of the activities, services or products that are eligible in its scope, in particular with respect to investor protection.

As a general observation, we would stress that the principles of technological neutrality and "same business, same risks, same rules" must be applied to uphold the values of transparency, fairness, stability, investor protection and market integrity.

Finally, we note that some national regulators are creating potentially more attractive alternatives to the Pilot Regime itself. While these regulatory initiatives may be understandable, it would be worth reflecting on the need for the European regulator's approach to be perhaps somewhat broader to cover the expectations of the different jurisdictions in which the Pilot Regime will be applied.

CRYPTOCURRENCIES AND DEFI



**SANTIAGO MÁRQUEZ
SOLÍS**

CTO of Clluc

ABSTRACT

Blockchain is one of the technological buzzwords, and one of the most searched in Google along with cryptocurrencies. Behind them are a whole range of enormous opportunities for business models that have begun to take off in recent years and concepts such as DeFi or NFTs, unknown until very recently, present a revolution comparable only to that of the Internet itself

We are often unaware of the passing of time and the changes that occur around us. Most of them go unnoticed, small drops that accumulate and then almost overnight and without knowing very well how, we find something that comes to disrupt the world and the way we live.

Perhaps the most significant example, by proximity, is in mobile telecommunications. The times are not so far behind us when a cell phone was synonymous with executives and yuppies, if this word is still used and means something to millennials, perhaps language is the element that evolves or revolutionizes society the fastest. But back to the cell phone, we have seen how the power of influence that some technologies have had on others, their exponential impact, have made them common use in our pockets and have led us to have our heads down most of the time, in a position so unnatural for the homo-sapiens that will surely provide a basis for future anthropological research. The

fact is that the development of better microprocessors, smaller, cheaper and with lower power consumption, advances in communications networks and battery technologies, together with improved interactivity in screen materials, have brought the long-awaited promise of the Internet to our cell phones and at our fingertips.

When we look at the blockchain, we find ourselves in one of those crucial moments of technological evolution and surely Satoshi Nakamoto was not aware of the revolution that his invention was going to produce.

The arrival of the Bitcoin paper came out of the blue, being born at such a specific moment in time as the 2008 crisis, and it didn't help that it was only originally circulated on a mailing list of a deliberately cyberpunk nature. Be that as it may, it brought to the table a new combination of components, which although they had existed for several decades, such as public key cryptography, consensus algorithms or peer to peer networks, were combined into a new cocktail, giving us the flavor we know today as blockchain or Blockchain.

Blockchain was therefore born in the heat of a unique historical moment, the crisis of trust that the traditional financial system had maintained for a long time almost without significant alterations and where the actors remained the same as always. The advent of **Blockchain meant a new paradigm for doing business**, because it implied several things, first of all, it is required to exchange value, using an insecure channel, and between parties that do not trust using a technological solution that is going to provide such trust. And since trust is the basis of the human relationship, this has caused us to get lost in understanding more on how you are going to get it, rather than on what you are going to apply it, technology becomes the end rather than the means. It's as if in order to explain the email we had to go into the intricacies of SMTP or POP3 and TCP/IP and detail how the application layer data ends up transformed into 0's and 1's at the physical layer. And we only refer to the technological implications, without taking into account the legal, fiscal or any other kind of implications associated with what we could generically say as regulation that makes us move through a minefield.

However, despite these issues that are gradually being overcome, it is true that Blockchain has a very interesting scope of application and is becoming the most suitable solution for specific problems that are financial projects, after all, that is where it was conceived, to provide an electronic medium that represents monetary cash.

With this in mind, we have to distinguish different speeds depending on what it allows. The evolution graph of the technological life cycle starts with a huge enthusiasm and an enormous investment, a peak is reached, interest is lost almost with the same speed with which it rose, companies that grew a lot, die and disappear, others persist and little by little end up becoming part of the new services used by the Society. And this cycle is no different here, being most significant for its importance those associated with:

- **Cryptocurrencies:** With better or worse press, cryptocurrencies have already passed their hype cycle, and we could say, without risk of being wrong, that they are not "trending topic". To a greater or lesser extent, people have heard of them, perhaps someone has ventured to buy an initial amount "just to try", and although they are still in a moment of enormous volatility, partly due to the process of capitalization that is taking place, when they are mentioned in the headlines it is usually because they are associated with a cybercrime, where the headline is cybercrime and not the cryptocurrency. It is still open to debate whether they are money or not, but the money we use is a matter of trust, therefore, where there is trust, there will be money and **we will see if cryptocurrencies are able to solve the problems they face**, which go beyond regulatory issues, and involve scalability, being able to support a growing volume of users. Technologies such as Lightning Networks, Sharding, Bacon Chain or the Raiden network, are some of the examples that are under development and that in the coming months will have to demonstrate their viability for a theoretically exponential growth in the use of Blockchain.
- **Interoperability:** Which blockchain is better? Which model is the most appropriate for my business? Does a private blockchain or a consortium make sense or would a federated database be better? Is this smart contract technology the most appropriate for a DeFi project? In either case, we are facing an implementation war that is ruthless. One only has to look at LinkedIn, at the movements of developers between Blockchain companies, most of them dedicated to the development of DeFi, where they are literally poaching each other's talent. More than three decades ago there was the "Protocols War", when it was being decided which network protocol would be used on the Internet and TCP/IP was the winner. This time, however, there will be no clear winner, and a few implementations will become the de facto standards, with specific applications depending on the sector. And this is where interoperability between blockchains will be key. **Hybrid Blockchain models will become increasingly important and will be one of the drivers of change**, those implementations that are best suited to interact or

facilitate third parties to create layers of interoperability, will be the ones that will survive. Protocols such as multichain, 0x, Hyperledger Besu, are just some of the solutions that are on the table to achieve greater interoperability and allow networks to be able to talk to each other.

- **NFTs:** Probably together with the acronym DeFi, are at the crest of the wave that we are living at the moment because **Non-Fungible Tokens are a very interesting mechanism to digitally represent any physical asset.** It is not surprising that many artists have seen in this technology a way to give an outlet to their works, to be able to represent them virtually through collectibles. Collecting is something that is within human nature, whether it is art, stickers, or toys, human beings like to have our particular trophies. However, NFTs go beyond mere collecting, since the possibilities of the decentralized world allow them to live in those worlds. NFTs can be traded or sold, they can represent the most powerful weapons, costumes or avatars in a virtual world and take on a life of their own in a way that we are beginning to explore.
- **DeFi:** As we said before, it stands for Decentralized Finance. Let's stop at this penultimate word; **decentralization means that there is no central entity, there is no one who can cut off access to our wealth,** because it is reflected in the accounting notes of a book that does not reside in a single computer. In decentralized finance, "tokens" come into play, which are always pejoratively compared to casino chips. DeFi projects allow these tokens to be exchanged without intermediaries, and each project is different, with opportunities, risks and defining characteristics. There are many examples ranging from flash-loans, interest earning, staking and many other terms that open up virtually limitless possibilities for a myriad of new financial products. Why not have a mortgage collateralized by an NFT representing Fernando Alonso's first helmet? Financial purists might say this is an aberration, but the technology to enable this is already here.
- **Oracles:** How does one of the above projects interact with something that lives outside a blockchain? The answer is through oracles, **systems that allow you to return to a smart contract information that is not available within the boundaries of the blockchain.** Who won the game? At what price did a cryptocurrency close? Has this NFT been sold? Oracles provide additional information that would otherwise not be accessible.

- **Zero-Knowledge Proof:** How much information do I provide about myself to interact with these systems? Our parents' names appear on our ID card, is this data really necessary for hotel registration? **Zero-knowledge proof provides an unbeatable opportunity to provide proof of a fact without revealing relevant personal information.**

We could add many other topics to the above points, such as the decentralization of the web (IPFS, for example), level 2 Blockchain solutions such as EOS, sovereign identity (Serto former uPort), etc. What we are doing is creating a new protocol for the new Internet, it remains to be seen if we are able to not only evolve the web, but to revolutionize it and take us to a world where systems that rely on Blockchain use it and the user does not know, as it happens with mail, which is already there.

THE EMERGENCE OF PLATFORMS IN THE FINANCIAL SECTOR: REGULATIONS AND TRENDS

TERESA RODRÍGUEZ DE LAS HERAS BALLELL

Professor of Commercial Law
at the UC3M. Academic
Advisor of Fide.



ABSTRACT

The platform economy has burst into the financial sector, offering new business structures and a new architecture for the provision of banking, payment and investment services. This has led to the entry of new players into the market - crowdfunding platforms, aggregators, comparators, robo-advisors, algorithm providers, social trading platforms, crypto-asset marketplaces - encouraged by the low barriers to entry, promising business opportunities, cost reduction and economies of scale that the platform model provides. They thus pose an interesting regulatory challenge on the need to redefine the perimeter of regulation and supervision to incorporate these innovative models. On the one hand, the various models have been adjusting to existing authorization and registration schemes (social trading, copy trading). On the other hand, the expansion and relevance of models such as crowdfunding have required a specific regulatory response, with hybrid solutions that try to balance market access for new

players and the protection of investors' interests and the stability of the system. Alongside the emergence of innovative and disruptive models based on the intensive use of technology, the financial sector is facing the silent but overwhelming entry of large technology companies (BigTech) which are leveraging their competitive advantages in non-financial sectors to competitively provide and distribute financial products and services. The recent EU proposal known as the DMA (Digital Market Act) is a cross-cutting instrument that represents a marked shift in the regulatory strategy in the face of the dominance of large platforms. Some of its solutions address the most critical points for the financial sector, which are the result of the irruption of large platforms and the provision of financial services under conditions that are difficult to replicate. Their adoption would facilitate market contestability and the competitive provision of financial services under fair and transparent conditions by all market players

I.- THE PLATFORM ECONOMY IN THE FINANCIAL SECTOR

The essential function of financial markets as mechanisms for the efficient allocation of savings to investment can be performed by very diverse structures⁴⁰. Technological innovation has provided the sector with new architectures⁴¹ in a continuum that moves from platform models⁴² based on a centralized structure, to decentralized or distributed models⁴³ - to varying degrees – based on distributed ledger systems (DLT)⁴⁵.

Thus, platforms have burst into the financial sector and constitute the driving force behind the accelerated digital transformation of the sector. Crowdfunding platforms⁴⁶, aggregators and comparators, Alternative Trading Systems (ATS) and Multilateral Trading Systems (MTF) and other models inspired by the principles of the collaborative economy - social trading, copy trading - illustrate the expansion of platforms in the financial sector with projects based on the application of innovative technological solutions. The recent EBA report⁴⁷ of September 2021 recognizes this extraordinary expansion in the use of platforms in the banking and payments sector.

By reducing costs, exploiting economies of scale and centralizing resources, platform models render economically viable and materially feasible the provision of basic financial services or value-added services that would not otherwise be offered. That leads to **an enticing process of disintermediation and reintermediation**. In effect, at the first stage, these innovative models seek alternative formulas for the provision of services without a financial intermediary. Crowdfunding platforms are a very revealing example. But in order to build trust and generate credibility, at a second stage, (re-)intermediation is needed again. The platform operator, in fact, becomes a new intermediary, performing a wide array of different functions, operating under different business models and with its own legal status – that can be assimilated to traditional financial institutions, it may be labeled as hybrid, or it is simply uncertain -.

2. THE EMERGENCE OF NEW PLAYERS AND THEIR IRRUPTION IN THE FINANCIAL MARKET: THE REGULATORY RESPONSE

Changes in market architecture and opportunities for the provision of new services and intermediation in the distribution of new financial assets and products have driven the flourishing emergence of new players in the market - operators of crowdfunding platforms, aggregators, comparators, robo-advisors, algorithm providers, operators of social trading platforms, operators of

multilateral trading systems - encouraged by low barriers to entry, promising business opportunities, cost reduction and economies of scale.

In this new landscape, complex relationships of cooperation and competition are established between entrants and incumbents. The presence of new players in the market, offering complementary or instrumental services, creating new environments and channels of communication and intermediation, and adding value to traditional services and products, challenges the traditional scope of regulation and the classic supervision perimeter⁴⁸.

Three types of players are competing and collaborating⁴⁹ intensely in this profound metamorphosis of the market: Fintech startups, conventional institutions undergoing digital transformation and BigTech.

2.1. First, the new pure Fintech start-ups/firms that are breaking into the financial markets, taking advantage of the low or non-existent barriers to entry and strengthening their position with technology as an amplifying factor, network effects and all the benefits of a platform architecture. These new players identify market niches usually ignored by conventional institutions, peripheral services that technology makes viable or simply narrow spaces to add value to banking or investment services.

This lateral entry of Fintech firms has, in fact, facilitated interaction with conventional institutions in the form of collaboration⁵⁰ rather than direct competition⁵¹, and has facilitated acquisition and merger operations or strategic collaboration. The emergence of these entities does not threaten, in general terms, the consolidated position of conventional entities. But it **certainly raises the question of whether they provide a regulated activity to be exercised, in terms of exclusivity, by supervised entities**. They also raise concerns about their ability to disrupt market stability or aggravate systemic risk.

The document of Questions and Answers addressed to Fintech companies on activities and services that may have a relationship with the CNMV, updated on March 12, 2019⁵², which relies on some of the issues raised in the ESMA/2012/382 document "MiFID Questions and Answers " of June 22, 2012⁵³, addresses these regulatory challenges that question the perimeter of supervision. Thus, for example, it confirms (4.3) that a social trading platform needs to be authorized, registered and supervised by the CNMV just like a copy trading platform, and unpacks the principles that an aggregation and comparison service (of investment projects) must comply with as a mere advertising activity under Law 5/2015 (Art. 64).

This response of subsuming innovative models into existing supervised entities as a strategy to address the irruption of emerging platforms under certain conditions has not been the only legislative policy option. The specific regulation of crowdfunding platforms (Law 5/2015) responds to a strategy of incorporating the new models into the regulatory and supervisory boundary with a hybrid, attenuated regime that balances opening the market to innovation and new players and the protection of investors and the stability of the system.

2.2 Second, traditional financial institutions that respond to these new competitive conditions by incorporating innovative solutions in their usual processes, products and services, **thus redefining their functional and operational profile** to enhance efficiency, reduce costs and improve their positioning in the eyes of the customer⁵⁴.

2.3. Third, the more silent but overwhelming entry of **large technology companies (BigTech)**, operating outside the financial sector, which are transferring their competitive advantages - network effects, very broad user base, economies of scale, global reach, technological capacity, asymmetry and data analysis capacity – in non-financial markets to the provision of services and the distribution of financial products. With "audience" levels that are difficult for conventional financial institutions to reach and supported by the most beneficial side of a profound asymmetry in the access and use of data, BigTech companies are entering the field of regulated activities with an **extraordinarily advantageous competitive position**.

Far from the logic of integration and collaboration that has marked relations between newcomers and incumbents, the entry of BigTechs into the regulated financial sphere has a major destabilizing effect on the conditions of competition - although collaboration and partnership strategies can also be observed⁵⁵- and, in particular, on the comparatively unfavorable regulatory position of conventional institutions. BigTech can easily leverage their dominant position or, at least, their strategic market position⁵⁶ in non-financial sectors and, above all, exploit the large volumes of data they handle between contributed, observed, inferred and resulting from predictive analytics to unprecedented ends.

The proposed Regulation, known as the Digital Market Act (DMA)⁵⁷, represents a revealing shift in the European Union's regulatory strategy to contain and mitigate the effects on market contestability of the growing dominance of large platforms acting as gatekeepers in access to services and products, markets and infrastructures.

Although the proposal is not a sectoral initiative, it addresses some of the most critical friction points for the financial sector, such as the extraordinary asymmetry of data, which provides BigTech with advantages that are difficult to replicate by traditional entities to develop typical financial functions without being subject to the regulatory and supervisory framework or from a privileged position that generates competitive inefficiencies in the sector and market distortion.

DIGITAL ASSETS AND BANK TREASURIES: TOWARDS A NEW MODEL FOR LIQUIDITY MANAGEMENT



JULIO FAURA

CEO of Adhara.io

ABSTRACT

The introduction of tokenized money and digital assets implemented through smart contracts on distributed blockchain-type networks represents a great opportunity for the radical transformation of the operating model of bank treasuries and financial institutions. The accessible nature of these new digital assets, as well as the fact that they operate in real time, will make it possible to strongly reduce funding needs in bank treasuries by adopting a "just-in-time" funding methodology, which today entail financial costs of hundreds of millions of euros per year for each bank in addition to significant operational costs and risks. Tier 2 and tier 3 banks could be the main beneficiaries by significantly reducing the barriers to entry for the development of advanced international payment services for corporate and institutional clients, to date dominated by large global banks

Following the emergence of blockchain technology over the last decade and in particular in light of the tremendous progress over the last 2-3 years towards the availability of enterprise grade blockchain technologies for permissive and regulated uses, the introduction of digital assets has attracted a disproportionate amount of attention within the financial industry. While the original focus was on cryptocurrencies and stablecoins, primarily because of their potential as new speculative asset classes, **interest at the institutional level is now more focused on the various classes of regulated digital**

currencies that are emerging, as they fit much better with the mandate of regulated financial institutions and offer significant opportunities to streamline the various operational processes in market infrastructures. These regulated digital currencies would include central bank-backed digital currencies or CBDCs, bank digital money (so-called bank coins) and other forms of tokenized money that can be accounted for by financial institutions as regulated liabilities, similar to the bank money or electronic money that we use every day in our economic activity. And recently this interest has extended even further to digital securities, both tokenized and natively digital, but in both cases implemented on smart contracts deployed on distributed blockchain networks, whether permissioned or public.

All of these new digital assets, as well as the blockchain ledgers that support them, share two main characteristics:

- First, they are **inherently directly accessible by the counterparties involved**, so that they are easy to monitor and operate without having to rely on access systems managed and maintained by third-party institutions - as is the case for example with bank money, which although electronic is only accessible to users through the various bank channels, or sometimes through APIs or electronic connections that must be very heavily secured given the high (and growing) risk of attacks and cybersecurity breaches. In contrast, digital assets such as tokenized money are directly accessible by users, so that the beneficiary can see in real time the balance of his account directly through the distributed network and can sign and execute transactions atomically and irrevocably without having to send messages or instructions that must be authenticated, interpreted and processed by any intermediate institution.
- And second, they are **programmable**, which means that it is possible to tightly couple business applications that need to settle on digital assets - for example, a payment orchestration and netting scheme that could now settle sets of payments or even individual payments atomically on digital money, without the need for messaging to communicate the two systems and without the need for reconciliations or any other intermediate processing. The corollary is that working with digital assets no longer requires messaging of any kind between different parts of the market infrastructures when using digital assets, as everything can interact programmatically without the possibility of errors or fraud.

While these new possibilities are indeed exciting, the attitude with which financial institutions are initially approaching these new digital assets is proving reasonably incremental - which is perfectly understandable given the status quo and the heavily regulated nature of the industry.

In general, banks have started by trying to understand how to add these new assets to the current portfolios they work with in their treasuries, mostly with the initial goal of making it easier for their clients to invest in these types of assets, rather than trying to see how the new digital assets can help radically transform the operations they currently have. Depending on the size and business mix of each bank, in general, bank treasuries have grown in complexity over the last few years, with a multitude of trading systems and platforms with very different characteristics and complex communication systems connecting them. **The trading and settlement systems are very separate, with numerous layers of messaging in between and with long and complex intermediate reconciliation processes that operate in isolation and in batch mode, usually requiring not inconsiderable doses of manual intervention.** As a result, liquidity management in bank treasuries is complex and suboptimal: it usually relies on a daily forecast of the amount of liquidity the treasurer will need over the next day in the various liquidity pools over which the treasurer will have to settle obligations with other counterparties. The treasurer will then pre-fund these pools with the required liquidity levels, and check that all accounts are able to meet their obligations as the reconciliation windows are executed and settlements are requested. The main problem with this system is that the amounts of liquidity that need to be pre-funded are very high and involve significant costs for banks - in the order of about \$300 million a year in finance costs for a medium-sized bank, according to Oliver Wyman⁵⁸. Hence the interest of banks in improving their intraday liquidity management strategies, aimed at rationalizing the time in which they must settle their obligations (especially those related to customer payments in the case of commercial banks) and trying to improve their forecasting algorithms in order to reduce the amounts of liquidity to be prefunded in their accounts.

Against this backdrop, digital assets present an opportunity of particular interest as they can form the basis for building a new operating model for bank treasuries, rather than adding complexity to the current operating model. Tokenized money in its various forms has the potential to become the new standardized mechanism for settlement between treasuries, offering banks and central banks the ability to issue their balances (their regulated liabilities) in a form that is accessible 24/7 to their beneficiaries, and inherently operates in real time. Funding processes for such accounts could then be done in real time, so that treasurers could fund the amounts they need where they need them and only when they need them, reducing reliance on forecasting cycles and radically minimizing the amount of pre-funded liquidity they need at the beginning of each day. Actual funding needs would also be determined in real time dynamically in the case where trading and payment orchestration infrastructures also operate on decentralized blockchain-like networks, and essentially treasury would operate on a just-in-time funding model similar to how inventory stocks are managed in supply chains today.

The benefits would be substantial for banks, on the one hand, because of the lower financial cost of the lower levels of liquidity pre-funding that would be required, but also because of the much lower cost and operational risk resulting from systems that would not use messaging and would not require reconciliation processes or manual intervention.

As these new possibilities materialize, the consequences and potential benefits will be different for different bank segments:

- **For large global Tier 1 banks** this may present a huge opportunity for efficiency gains, given the high complexity of their internal systems and the strong presence they have in the capital markets. However, the low cost of digital asset-based solutions and blockchain technology will lower barriers to entry and democratize access to advanced treasury functions to smaller banks.
- **Tier 2 banks with a regional or multi-local presence** could be the biggest beneficiaries, as in this case the level of complexity of their treasuries is substantially lower than in Tier 1 banks and, in their case, new technologies and the widespread use of digital assets would allow them to adopt the new real-time operating model from the outset, giving them an opportunity to compete in the global market. In addition, these banks have the opportunity to adopt these new methodologies internally within their banking groups, thus being able to develop international value propositions for their multi-local clients - for example, international payments and treasury management services for corporate clients, so far heavily dominated by a few global banks.
- **For smaller and domestic banks**, it will be possible to participate in sectoral initiatives aimed at offering multi-bank services to their customers, possibly similar in complexity and value to those of Tier 2 banks and even global banks.

The imminent production launch of the first central bank backed wholesale interbank settlement systems, mainly Finality in GBP, EUR, and USD as well as the first interbank tokenized liquidity funding markets and the first business applications using them such as cross-border / cross-currency payment networks and others related to various aspects of capital markets, **will make all these possibilities a reality in the near future.**

REGULATING DIGITAL ASSETS IN THE EUROPEAN UNION: STATE OF THE ART AND OUTLOOK



**GLORIA HERNÁNDEZ
ALER**

Partner at finReg 360.
Academic Advisor of Fide



**TERESA RODRÍGUEZ
DE LAS HERAS BALLELL**

Professor of Commercial Law
at the UC3M. Academic
Advisor of Fide.

ABSTRACT

Este artículo traza la evolución de la regulación de los criptoactivos, desde las primeras reacciones de negación, sobresalto y preocupación, para describir las primeras normas que se han promulgado para contemplar esta nueva realidad, las que se encuentran en curso y las perspectivas de adopción de las que están por llegar. Asimismo, propone avanzar hacia una regulación basada no en el tipo de actividad sino en el tipo de entidad para hacer frente al riesgo que puede suponer la adopción de criptomonedas por las grandes tecnológicas para prestar servicios financieros.

I. INTRODUCTION

Digital assets or crypto-assets are an invention alien to regulators and central banks and, as a financial asset not created or controlled by them, unlike current money in circulation or existing financial products, they raise misgivings and wariness. Moreover, the principles of disintermediation, decentralization, anonymity and no state control, which are at the basis of most crypto-assets, collide with the supervisory premises of current financial authorities.

A particular type of crypto-asset, known as stablecoins or stable cryptocurrencies, is being accepted, and even promoted, by large technology companies to provide payment solutions and other financial services. This reality is of concern to financial supervisors, who see it as a risk to financial stability.

The following sections provide an **overview of the evolution of the regulatory response** to crypto-assets⁵⁹, with a special focus on European regulations, and some reflections on future prospects.

2. FROM DENIAL, SHOCK AND CONCERN...

Since the birth of crypto-assets, some countries have reacted forcefully with a radical prohibitive response. The most recent and loudest ban is that of **China**, which has banned its citizens, under penalty of imprisonment, from operating with crypto-assets. In a similar vein, some supervisors have discouraged their use, holding or transmission. Thus, for example, the **European Banking Authority (EBA)**, in its July 4, 2014 opinion on digital currencies, recommended that national supervisory authorities should discourage credit institutions, payment institutions and electronic money institutions from buying, holding or selling crypto-assets.

International (IOSCO or the FSB, even the SEC), **European** (ESMA or the EBA) and **Spanish** (the BdE or the CNMV) **supervisors** have focused their efforts **from 2012 to around 2018** on warning about the risks posed by crypto-assets. Risks for users, for financial integrity, for the prevention of money laundering and terrorist financing, for payment systems in conventional currencies and for regulatory authorities.

While acknowledging some potential benefits of crypto-assets, such as faster and cheaper transactions or greater financial inclusion, they warn that the risks of these assets outweigh the potential benefits.

A key risk repeated in all the warnings is the potential use for money laundering or terrorist financing. The reasons for this concern lie in the anonymity of cryptocurrencies and the absence of supervision by a public entity. Added to this is the frequent requirement to pay with cryptocurrencies, usually bitcoins, to avoid data loss in cyber-attacks.

3. ...TO THE BEGINNING OF REGULATORY ACTION

3.1. Money laundering and terrorist financing prevention regulations

The beginning of crypto-asset regulation is aimed precisely at controlling and mitigating this risk, the prevention of which is known by the acronym AML/CFT.

Thus, in 2018, the so-called "Fifth Directive"⁶⁰ is adopted, which aims to strengthen the AML/CFT rules already in place in the EU and for the first time tackles the issue of crypto-assets.

The Fifth Directive includes as **obliged parties the providers of services** for exchanging virtual currency for fiat currency (exchanges) and for the custody of electronic wallets for these virtual currencies (wallets). In other words, these players must cooperate with supervisors in identifying and reporting suspicious transactions involving money laundering or terrorist financing. Otherwise, they will not be able to operate or will face heavy fines. Exchanges and wallets must thus observe all measures to prevent money laundering, in much the same way as any other financial intermediary does.

In Spain, the recent Royal Decree Law 7/2021, which amends Law 10/20102, transposes, among other European regulations, the Fifth Directive and creates the registry of service providers for the exchange of virtual currency for fiat currency and the custody of electronic wallets of these virtual currencies at the Bank of Spain. This registry has been operational since October 2021 and any person or entity wishing to provide these services must register in it.

In short, although this area of the AML/CFT is the first to be covered by regulation, it is not exhausted and an increase in regulatory production is expected to continue.

3.2 Years 2019 and 2020, COVID-19 and the digital finance package.

2019 marks a turning point in the regulation of crypto-assets. It was in June 2019 when Facebook announced Libra, its cryptocurrency (stablecoin) with which it intended to revolutionize payments worldwide. This new shock, which could affect financial stability, forced regulators to act and to do so not only to address the risks of crypto-assets, as in the AML/CFT, but to **develop regulation that will channel financial innovation.**

Along these lines, after intense work in 2019 and the boost provided by COVID 19 for digitization, the European Commission published, in September 2020, the so-called **digital finance package**, with the aim - in the Commission's words - of achieving a competitive, innovative and digitally-adaptive financial market, while maintaining consumer protection and financial stability.

This package consists of several strategies and four legislative proposals: **Markets in Crypto-Assets Act (MiCA)**, **Pilot Regime for market infrastructures based on the blockchain technology (Pilot Regime)**, **Digital Operational Resilience Act (DORA)** and **directive to adjust other existing directives** (the so-called Amending Directive).

At the time of writing, the processing of these regulations, including the MiCA proposal, is well advanced and it is foreseeable that they will be approved in the first half of 2022. Bearing in mind that their effectiveness is not immediate, but that they establish deadlines for adaptation, implementation and entry into force, this package will materialize between 2023 and 2025.

Along with the digital finance package and because of the shock produced by the aforementioned Facebook project in 2019, international bodies considered how to address the type of crypto-asset that, in case of being backed by a bigtech, could pose a greater danger to financial stability, i.e. stablecoins.

Thus, in October 2020, the **Financial Stability Board (FSB)** issued high-level recommendations for the regulation of stablecoins. In the same month, the **Bank for International Settlements (BIS)** issued a document on the potential, risks and regulation of stablecoins. The proposals focused on the need for regulation and standards to ensure the solvency of issuers of these assets, especially when their size could be systemic.

4. PENDING REGULATION AND PROPOSALS UNDERWAY IN 2021.

4.1 Prudential regulation of the treatment of crypto-assets on banks' balance sheets

In the summer of 2021, the **Basel Committee publishes a document entitled "Prudential treatment of crypto-asset exposures"**. This body, faced with the growth of the crypto-asset sector and the impossibility of keeping banks out of it, overcomes the EBA's 2014 opinion of inviting a ban and proposes how to deal with the capital consumption of crypto-assets on banks' balance sheets.

In view of this Basel consultation, the EBA is considering reformulating its 2014 opinion. Through the national authorities, during the month of November 2021, it has asked banks for information on what their plans are regarding the provision of services on crypto-assets and on their participation in decentralized finance projects (DeFi), among other matters, as a basis for issuing a new opinion that does not follow a prohibitive approach like the previous one which, as has been seen, has failed to curb the advance of crypto-assets in Europe.

4.2 Money laundering prevention

There is no doubt that regulatory proposals and supervisory recommendations will continue to be published in this area of AML/CFT.

On the one hand, in June 2021, **the European Commission issued a proposal to regulate transfers of funds and certain crypto-assets**. This proposal recasts EU Regulation 2015/847 and creates a new and more coherent AML/CFT regulatory and institutional framework for the cryptocurrency sector (the so-called "travel book").

On the other hand, in July 2021, the **FATF revised its approach to virtual asset service providers (VASP)**. This initiative follows on from the guidance published by this international group in April 2021 on the framework for combating virtual asset laundering.

4.3 The regulation of stablecoins

As we have seen, stablecoins are the crypto-assets that require the most attention, according to financial supervisors. Therefore, beyond the MiCA regulation, the debate continues on how they should be regulated on a global scale.

In October 2021, the FSB published a progress report on the global regulation of stablecoins, which follows on from the high-level recommendations agreed to in October 2020, and **the BIS and IOSCO published a consultation to issue guidance on stablecoins**.

5. CONCLUSION ON THE STATE OF THE ART OF CRYPTO-ASSET REGULATION.

The regulation that is being produced so far in the EU follows an activity-based regulatory approach, like almost all financial regulation. However, the emergence of dominant technology companies with an excessive concentration of market power poses systemic risks that suggest a possible change of approach towards **entity-based regulation**.

Specifically, in addition to posing risks of excessive concentration of market power, large technology companies must be scrupulously examined from the point of view of data governance, an issue to which central banks and financial supervisors are oblivious. Therefore, if these companies are engaged in financial activities, they must, in the authors' opinion, be subject to specific regulation that addresses the specific risks generated by the provision of such activities by these types of entities.

This **entity-based regulatory approach for large technology companies** is beginning to take shape in some jurisdictions such as **China and the US, and also in the EU**, which seems to be moving in this direction with the enactment of its proposals for the regulation of digital markets and services. We feel that this is the right way forward.

2022 DIGITAL MONEY & PAYMENT SYSTEMS

BIBLIOGRAPHY

BIBLIOGRAPHY

1. See https://www.ecb.europa.eu/pub/pdf/other/Report_on_a_digital_euro~4d7268b458.en.pdf
2. Traditionally, public money has been distinguished as that issued by a central bank, while private money is issued as a liability of private entities, such as Banks.
3. Results can be consulted here: https://www.ecb.europa.eu/paym/digital_euro/html/pubcon.en.html
4. A summary of the experiments can be found at <https://www.ecb.europa.eu/pub/pdf/other/ecb.digitaleuroscopekeylearnings202107~564d89045e.en.pdf>
5. To highlight the existence of several international groups in which aspects related to CBDC are discussed in which both the ECB and the Eurosystem Central Banks participate, such as the Future of Payments of the BIS Committee on Payments and Market Infrastructures, the CBDC Coalition of Central Banks, the CBDC Roundtable or the CEMLA Fintech Forum.
6. See <https://www.ecb.europa.eu/press/pr/date/2021/html/ecb.pr210714~d99198ea23.en.html>
7. Although we are aware that this is a colloquial name, we use hereinafter "MiCA" as a way of referring to the "regulatory proposal by the European Parliament and Council for the crypto-asset markets and amending Directive (EU) 2019/1937".
8. The European Commission published, on 24-9-2020, the so-called Digital Finance Package, with the aim of achieving a competitive, innovative, and digitally resilient financial market while maintaining consumer protection and financial stability. This package is composed of several strategies and four legislative proposals. In addition to the MiCA regulation, a second regulation on digital operational resilience (DORA), a third regulation on a pilot regime for market infrastructures (pilot regime) and a directive to adjust other existing directives (amending directive). These regulatory proposals are part of the European Commission's strategy to achieve an innovative and robust financial sector in the EU.
9. We use the Spanish adaptation of the English terms proposed in the latest Spanish version of the draft regulation in the definitions contained in Article 3.
 10. DLT: distributed ledger technology of which blockchain would be the more widely known
 11. Electronic money tokens shall be considered "electronic money" as defined by Article 2(2) of Directive 2009/110/EC and shall be issued and redeemed in accordance with that Directive, unless otherwise stated in MiCA.
 12. OECD, "The Tokenisation of Assets and Potential Implications for Financial Markets", 2020.
 13. Bundesgesetz zur Anpassung des Bundesrechts an Entwicklungen der Technik verteilter elektronischer Register" que, aprobada en setiembre de 2020, requirió de algunas adaptaciones en el resto del ordenamiento para su completa implantación

BIBLIOGRAPHY

14. Gesetz vom 3. Oktober 2019 über Token und VT-Dienstleister (Token- und VT-Dienstleister-Gesetz; TVTG),
15. Gesetz zur Einführung von elektronischen Wertpapieren), de 3 de junio de 2021
16. Loi du 22 janvier 2021 portant modification : 1° de la loi modifiée du 5 avril 1993 relative au secteur financier ; 2° de la loi du 6 avril 2013 relative aux titres dématérialisés.
17. [Heisenberg's uncertainty principle](#)
18. The wave function is a way of representing the physical state of a system of particles.
19. Digital Identification: a key to inclusive growth ([Access the document here](#))
20. [The Laws of Identity \(identityblog.com\)](#)
21. Arun Nanda, Andre Durand, Bill Barnes, Carl Ellison, Caspar Bowden, Craig Burton, Dan Blum, Dave Kearns, Dave Winer, Dick Hardt, Doc Searls, Drummond Reed, Ellen McDermott, Eric Norlin, Esther Dyson, Fen Labalme, Identity Woman Kaliya, JC Cannon, James Kobielus, Gobernador James, Jamie Lewis, John Shewchuk, Luke Razzell, Marc Canter, Mark Wahl, Martin Taylor, Mike Jones, Phil Becker, Radovan Janocek, Ravi Pandya, Robert Scoble, Scott C. Lem on, Simon Davies, Stefan Brands, Stuart Kwan y William Heath.
22. [2018 EIC Conference – Kim Cameron](#)
23. [ID2020 | Alliance & Governance](#)
24. [Digital ID & Authentication Council of Canada \(diacc.ca\)](#)
25. [UNE 71307-1 standard](#)
26. [Securities Market Reform - Preliminary Draft Law](#) (page 4: ... Fourth, Directive xxx/xxx of the European Parliament and of the Council amending Directives 2006/43/EC, 2009/65/EC, 2009/138/EU, 2011/61/EU, 2013/36/EU, 2014/65/EU, (EU) 2015/2366 and (EU) 2016/2341 is also transposed. This Directive accompanies proposals for EU Regulations concerning cryptoasset markets, the temporary regime for market infrastructures based on distributed registry technology (DRT) and digital operational resilience. These Regulations set out the fundamental rules governing (i) cryptoasset service providers, (ii) the conditions of the pilot regime for DRT-based market infrastructures, and (iii) ICT risk management, incident reporting, testing, and monitoring. To achieve the objectives, set out in these Regulations, several Directives also need to be amended, such as Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 to include provisions relating to the continuity and regularity of the provision of services and the performance of investment activities, resilience and sufficient capacity of trading systems, effective business continuity arrangements and risk management. In addition, Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 is amended) with the aim of clarifying the legal treatment of cryptoassets that may be considered financial instruments. To this end, it amends the definition of "financial instrument" in that Directive in order to clarify, without any legal doubt remaining, that

BIBLIOGRAPHY

such instruments may be issued through distributed recording technology.").

27. [EBSI](#) y [ESSIF](#)

28. Within the European Union, the countries that have adopted a regulatory Sandbox before Spain are, in chronological order, the Netherlands (2016), Lithuania (2018), Poland (2018), Malta (2019), Denmark (2019), Hungary (2019) and Bulgaria (2020).

29. World Bank Group (2020). Global Experiences from Regulatory Sandboxes.

30. There are different definitions of the fintech concept. In this article we will rely on a broad definition similar to the one adopted by the International Monetary Fund and the World Bank in the Bali Agenda on fintech (2018), according to which the fintech concept encompasses all those companies that through technology have the potential to transform the provision of financial services by developing new business models, applications, processes and products.

31. See <https://www.finnovating.com/news/mapa-fintech-espana/>.

32. See <https://www.gov.uk/government/consultations/future-of-transport-regulatory-review-regulatory-sandboxes/future-of-transport-regulatory-review-regulatory-sandboxes>.

33. World Bank Group (2020). Global Experiences from Regulatory Sandboxes.

34. Law 7/2020, november 13th on the digital transformation of the financial system, BOE, núm. 300, de 14th of November of 2020.

35. The average acceptance rate of the Financial Conduct Authority (FCA) in the UK Sandbox in the seven cohorts that have been convened to date stands at 30%, similar to the acceptance rate recorded in Spain in the first cohort.

36. [EBA Opinion on virtual currencies, 2014](#)

37. [MiCA, Market in crypto-assets Act](#)

38. "The Fintech 2.0 Paper: rebooting financial services" Oliver Wyman, 2015 page 15 <https://www.finextra.com/finextra-downloads/newsdocs/the%20fintech%20%20%20paper.pdf>

39. OPINION OF THE EUROPEAN CENTRAL BANK of 28 April 2021 on a proposal for a regulation of the European Parliament and of the Council on a pilot regime for market infrastructures based on distributed ledger technology (CON/2021/15) <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021AB0015&from=EN>

40. MOONEY, Charles W. Jr., "Beyond Intermediation: A New (Fintech) Model for Securities Holding Infrastructures", U. of Pennsylvania Journal of Business Law, vol. 22(2), 2020, pp. 386-456.

41. DAPP, Thomas F., "Fintech Reloaded—Traditional Banks as Digital Ecosystems", Deutsche Bank Research, June 9, 2015, p. 5.

42. RODRÍGUEZ DE LAS HERAS BALLELL, Teresa, "The Legal Anatomy of Electronic Platforms: A Prior Study to Assess the Need of a Law of

BIBLIOGRAPHY

Platforms in the EU”, The Italian Law Journal, num. 1/3, 2017, pp. 149-176.

43. CHIU, Iris H-Y, “Fintech and Disruptive Business Models in Financial Products, Intermediation and Markets - Policy Implications for Financial Regulators”, 21 J. Tech. L. & Pol'y 55, 2016.

44. WRIGHT, Aaron y DE FILIPPI, Primavera, “Decentralized Blockchain Technology and the Rise of Lex Cryptographia” (March 10, 2015), <https://ssrn.com/abstract=2580664>.

45. LEWIS, Rebecca et al., “Blockchain and Financial Market Innovation”, Fed. Reserve Bank of Chicago, Econ. Perspectives, num. 7, 2017.

46. A comparative law study of the regulatory responses to crowdfunding in RODRÍGUEZ DE LAS HERAS BALLELL, Teresa, “A Comparative Analysis of Crowdfunding Rules in the EU and U.S.”, Stanford TTLF Working Paper Series, Working Paper num. 28.

47. European Bank Authority, Report on the use of digital platforms in the EU banking and payments sector, September 2021 EBA/REP/2021/26.

48. Spanish Fintech and Insurtech Association (AEFI), White Paper on Fintech Regulation in Spain, <https://asociacionfintech.es/wp-content/uploads/2018/06/AEFI-LibroBlanco-02-10-2017.pdf>.

49. World Economic Forum, Beyond Fintech: A Pragmatic Assessment Of Disruptive Potential In Financial Services (Aug. 22, 2017), en <https://www.weforum.org/reports/beyond-Fintech-a-pragmatic-assessment-of-disruptive-potential-in-financial-services>.

[pragmatic-assessment-of-disruptive-potential-in-financial-services](https://www.weforum.org/reports/beyond-Fintech-a-pragmatic-assessment-of-disruptive-potential-in-financial-services).

50. According to the KPMG-Funcas report, Comparison of banking vs. fintech offerings, June 2018 -. <https://assets.kpmg/content/dam/kpmg/es/pdf/2018/06/comparativa-oferta-%20banca-fintech.pdf> - 48% of national Fintechs are complementary to banks, 32% are collaborative and 20% are competitors.

51. BIGLAISER, Gary, CALVANO, Emilio, y CRÉMER, Jacques. 2019. ‘Incumbency Advantage and Its Value.’ Journal of Economics & Management Strategy, num. 28 (1), 2019, pp. 41–48.

52. <http://www.cnmv.es/docportal/Legislacion/FAQ/QAsFinTech.pdf>.

53. <https://www.esma.europa.eu/sites/default/files/library/2015/11/2012-382.pdf>.

54. Basel Committee on Banking Supervision, Sound Practices. Implications of Fintech developments for banks and bank supervisors, Feb. 2018, en p. 9.

55. An estimated 26% of financial institutions have partnered with BigTech or tech giants and a similar additional percentage plan to do so within the next 12 months - KPMG - Funcas, La banca ante las BigTech, December 2019, presented as part of the Observatorio de la Digitalización Financieras (ODF), <https://assets.kpmg/content/dam/kpmg/es/pdf/2019/11/La-banca-ante-las-fintech.pdf>.

56. BAMBERGER, Kenneth A, y LOBEL, Orly, “Platform Market Power”, Berkeley Tech. L.J., num. 32, 2017, pp. 1051 y ss; BARZILAI-

BIBLIOGRAPHY

- NAHON, Karine, “Toward a Theory of Network Gatekeeping: A Framework for Exploring Information Control”, *Journal of the American Society for Information Science and Technology*, num. 59 (9), 2008, pp. 1493–1512; DIJCK, José van, NIEBORG, David, y POELL, Thomas, “Reframing Platform Power”, *Internet Policy Review*, num. 8 (2), 2019, <https://policyreview.info/articles/analysis/reframing-platform-power>; DUCH-BROWN, Nestor, “The Competitive Landscape of Online Platforms”, JRC Digital Economy Working Paper, 2017; EVANS, David S., “Multisided Platforms, Dynamic Competition, and the Assessment of Market Power for Internet-Based Firms”, University of Chicago Coase-Sandor Institute for Law & Economics Research Paper, no. 753, 2016; FOX, Eleanor M., “Platforms, Power and the Antitrust Challenge: A Modest Proposal to Narrow the U.S.–Europe Divide”, 2019, SSRN Scholarly Paper ID 3476675. The author of this article has been a member of the Expert Group to the EU Observatory on the Online Platform Economy (the “EU Observatory”),- DG GROW, DG Communications Networks, Content and Technology (CNECT) -, since August 31st, 2018 - <https://ec.europa.eu/digital-single-market/en/expert-group-eu-observatory-online-platform-economy> -. The author presents her views in this paper, which do not necessarily represent those of either the Group of Experts or the European Commission.
57. Proposal for a Regulation of the European Parliament and of the Council on contestable and fair markets in the digital sector (Digital Markets Act), {SEC (2020) 437 final} - {SWD (2020) 363 final} - {SWD (2020) 364 final} COM (2020) 842 final.
58. Intraday Liquidity: Reaping the benefits of active management, Olyver Wyman 2018
59. This paper focuses on digital assets that are known in the industry as cryptoassets. That is, those that are not considered securities or financial instruments, nor bank deposits or securitisations. Specifically, those regulated by the proposed European regulation on the market in crypto-assets (MiCA), to which we will refer later, which are: (i) utility tokens (or service tokens, in the terminology of that regulation), which provide digital access to an application, service or resource available on a decentralised logging technology (DLT) network and which are accepted only by the issuer to grant access to that application, service or resource; (ii) asset-referenced tokens, which serve as a medium of exchange and are intended to maintain a stable value by being referenced to multiple fiat currencies, one or more commodities, or one or more cryptocurrencies, or a combination of these; and (iii) e-money tokens, which are cryptoassets used as a medium of exchange and are intended to maintain value by being denominated in units of a fiat currency.
60. Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purpose of money laundering or terrorist financing and amending Directives 2009/138/EC and 2013/36/EU.

2022 DIGITAL MONEY & PAYMENT SYSTEMS

AUTHORS

AUTHORS

In this list of authors we have highlighted the most relevant aspects of each of the professionals who have contributed an original article to the document. The Fide Foundation would like to thank this magnificent group of professionals for their participation* in this document.

SPECIAL ACKNOWLEDGEMENT

PABLO HERNÁNDEZ DE COS

Governor of the Banco de España



ALFONSO GÓMEZ

CEO of BBVA in Switzerland, the international private banking arm of the BBVA Group, a position he has held since July 2014; he is also a member of the Board of the Association of International Banks in Switzerland, a member of the Advisory Board of Cyverse, an Israeli company focused on cybersecurity, and a member of the Board of RFS, a Think Tank focused on the transformation of the financial sector. In the three years prior to assuming this position, he worked as Director of Global Private Banking, based in New York, leading strategic projects in all the Private Banking Units of the geographical regions in which BBVA operates and before that he was Head of Private Banking for Spain and Portugal, in Madrid. From 2004 to 2008 he lived in London, where he was General Manager of Corporate Banking, Global Trade Finance and Global Clients, becoming Country Manager of BBVA UK in 2006. During his first years in the organisation, which he joined in 1994, he led multicultural teams and forged highly successful relationships with clients in the Corporate and Investment Banking business unit, leading the first Infrastructure Project Finance in Latin America. He has a profound disruptive vocation for the financial industry and currently leads projects within his organisation focused on the Crypto space, being the first Bank in the Group with a licence to operate with Blockchain technology. He holds a degree in Economics and Business Administration from the Universidad Autónoma de Madrid and has completed the General Management Programme at IESE Business School as well as the Executive Programme at Singularity University in Silicon Valley.

AUTHORS



JOSÉ MANUEL MARQUÉS SEVILLANO

Head of the Financial Innovation Division at the Bank of Spain. His main responsibilities include analysing the main changes in the financial system and their implications for economic and financial authorities: Big Tech, Fintech, Crypto tokens, CBDC, use of Machine Learning and Artificial Intelligence in financial services, DLT and Blockchain or the incorporation of ESG factors in the financial sector. He joined the Bank of Spain in 1996 and has held various positions in the Research Department and in International Affairs, including responsibility for the International Financial Markets Division. He has written several articles on financial markets, financial stability, macro-financial analysis, asset valuation and sustainable finance. He has participated in the G20 Study Group on Sustainable Finance and represents the Bank of Spain in the secretariat of the High Level Working Group on CBDC, the Eurosystem Financial Innovation Forum, the CEMLA Fintech Forum and the European Forum of Innovation Facilitators. He holds a degree in Economics and Business Administration from the University of Zaragoza and an MSc in Economics from Pompeu Fabra University.



GLORIA HERNÁNDEZ ALER

Partner finReg360. Previously a partner in the Financial Regulatory practice of Deloitte Legal. She has been a member of the Legal Department of the Madrid Stock Exchange and worked as a lawyer in the Banking, Insurance and Financial Entities area of Cuatrecasas Abogados. She has also been a consultant for the Inter-American Development Bank. She is a specialist in capital markets. Her areas of specialisation include stock market trading, banking, collective investment institutions, cryptocurrencies and venture capital. Law degree from the Complutense University of Madrid. LL.M. in Financial & Securities Regulation from Georgetown University, Washington D.C. Fullbright Scholarship. Founding partner and member of the Board of Directors of ASCOM (Spanish Compliance Association), founding partner and member of EJE&CON (Spanish Association of Female Executives and Directors) and member of the Board of Directors of the Spanish Institute of Financial Analysts (IEAF-FEF). Academic Advisor of Fide.



ALFREDO MUÑOZ GARCÍA

Professor of Commercial Law UCM. PhD in Law. Extraordinary Doctorate Award UCM and Doctoral Thesis Award, specialising in Law, from the Congress of Deputies. Director of the Diploma of High Specialisation in Blockchain of the School of Legal Practice UCM. Deputy Director of the School of Cooperative Studies UCM. Expert of the Digital Euro Association. Member of the Digital Transition Working Group, in the Commission of Cooperatives and other Social Economy companies of the Spanish Association of Accounting and Business Administration. Researcher in several competitive projects of the Ministry of Science and Innovation. Researcher in the Research Group "Derecho de Daños. Contract Law" Research Group at UCM. Researcher in the High Performance Research Group on "Digitalisation and Business Law" at the URJC. Lawyer.

AUTHORS



MONTSE GUARDIA

CEO and co-founder of Big Onion, where she promotes collaborative teamwork for the development of digital economy models that give high relevance to ethics by developing the concepts of digital humanism or humanistic technology, digital disruption, and creative ecosystems. President of the Quantum Blockchain Alliance, Member of the Advisory Board of the "Observatori d'Ètica en Intel·ligència Artificial de Catalunya (OEIAC)", co-founder of the ELLIS Alicante Foundation, member of advisory boards and WeRock Capital and co-founder of the Covidwarriors Association. After her position as Vice-president, and being a member of the founding team, she has been the General Director of the Alastria Consortium. Telecommunications Engineer (UPC), Master in Management, executive with more than 20 years of experience in multinationals leading strategic projects of operational transformation and launching new businesses in the sectors of Consulting and Information Systems, Oil & Gas Services, and Banking and Insurance. Specialist in the strategy for ecosystem creation and management of large scale innovative projects based on next generation information and telecommunication technologies (Blockchain and its convergence with AI & IoT), building bridges between Start-Ups and Multinationals, he has led multidisciplinary and multicultural teams living, and embracing the cultural richness of different countries in Europe, South America, North America, Japan, South Korea, South Africa, India, Malaysia, and Arab Emirates. She has been responsible for IT services for 4 Olympic Games, Pan American Games, and several World Championships and UN Summits. She is a regular contributor to social innovation programmes, a lecturer and a speaker.



ISABELA DELGADO

Adviser in the Technical and Financial Analysis Office of the Public Spanish Treasury. Commercial Technician and State Economist. Specialised in fintech issues within the Spanish Treasury, handling all issues related to cryptoassets, cybersecurity, digital euro, Sandbox, etc. Spanish representative in the Council negotiations for the MiCA Regulations.



ANDRÉS BARRAGÁN

Director of the Technical Office and Financial Analysis of the General Secretariat of the Treasury and Treasury Financing. He is a member of the Cuerpo Superior de Técnicos Comerciales y Economistas del Estado (Senior Corps of Commercial Technicians and State Economists).

AUTHORS



LORENA MULLOR

Policy Advisor, Public Policy Department of the Spanish Banking Association (AEB). Focused on digital regulation and international affairs. Responsible for monitoring the regulatory debate and initiatives related to innovation and digital transformation of banks. Analysis of financial regulation with an impact on banks' business. Dialogue with banks, regulators, supervisors, peer organisations and the rest of the fintech ecosystem. Deputy representative in the Digital Committee of the European Banking Federation. Previously, she was Manager at the Spanish Mortgage Association responsible for monitoring relevant issues in the national mortgage market, including the coordination of the special public initiatives: Social Housing Fund and Code of Good Practice for the restructuring of mortgage loans. Spanish representative in the Executive Committee of the European Mortgage Federation (EMF) and in the Steering Committee of the European Covered Bond Council (main topics covered: CRDIV, covered bonds & LCR, Responsible Lending and mortgage market integration).



MIGUEL ÁNGEL CESTERO

Managing partner at JB46 Investment Partners. Former Global Head of Market-making at Banco Santander and Deputy Deputy General Manager of the Group. He has developed his professional career for more than 30 years in investment banking and capital markets. First as an entrepreneur, founding a capital markets brokerage firm (CM Capital Markets), and subsequently joining Banco Santander, where he has managed various treasuries and global businesses within the Group's wholesale banking. He is a Partner and Director of several venture capital and private equity investment vehicles.



JOSÉ LUIS LANGA

Deputy General Manager of Iberpay, in charge of International Affairs, Cash, Business Development and Institutional Relations. Member of the Iberpay Management Committee. Vice President of the European Association of Clearing Houses (EACHA). Member of the European Central Bank's Advisory Group on Market Infrastructures for Payments (AMI-Pay). Member of the European Central Bank's Cyber Resilience Council for Market Infrastructures (ECRB). Iberpay representative in the European Payments Council (EPC). Head of the Bank of Spain's Auxiliary Banknote Deposit Service (SDA). Member of the Banco de España's SDA Coordination Committee.

AUTHORS



MIGUEL ÁNGEL FERNÁNDEZ ORDÓÑEZ

State Economist, he has held the State Secretariats of Economy, Trade, Finance and Budget. He was President of the Court for the Defence of Competition and of the Electricity System Commission. From 2006 to 2012 he was Governor of the Banco de España and a member of the Governing Council of the ECB and of the Executive Committee of the FSB (Financial Stability Board). Most recently he has been working on digital money and the liberalisation of banking activities. His latest book is entitled "Farewell to the Banks. A different vision of money and banking" (2020). He runs Fide's blog on Digital Money (CBDC).



GONZALO SUÁREZ MARTÍN

Director of Analysis and Strategy at Loomis Spain. Previously, Deputy General Manager - General Secretary of Caja Granada, General Secretary of Banco Mare Nostrum (BMN), Chairman of the Social Council of the University of Granada, General Secretary of the International Association of Pledge Credit, Member of the Legal Committee of the Spanish Confederation of Savings Banks (CECA), and of the Boards of Directors of Euro 6000, TINSA, ENCE, Laboratorios Rovi, among others.



LAURA SACRISTÁN MARTÍN

Commercial Director of the BME Group. Executive with global business vision in technology sectors and international financial services with more than 20 years of experience in business development and transformation projects in international environments. Prior to her current position, she worked as General Manager for Saxo Bank in Latin America for 7 years. Prior to Saxo Bank she was Director of Strategy and Investor Relations at Ezentis. She has also worked in international technology companies (Sybase, Reuters) leading multicultural teams in the development of different projects for Spanish banks. Economist by UCM and PDG by IESE. In addition, she frequently collaborates with Spanish and foreign universities and participates in mentoring and entrepreneurship projects as a NED in non-profit organisations. She is a member of different women's associations such as EJE&CON and WEF Latam and Academic Advisor of Fide.

AUTHORS



DIEGO GARCÍA NOVILLO

Lawyer in the legal department of the BME-SIX Group since 2016. His areas of practice include both securities market and regulatory law. As part of his work, he provides legal advice for market infrastructures in their daily operations and in projects for technological adaptation to Blockchain and other technologies. He is also involved in advising the value-added services area of the SIX-BME Group.



SANTIAGO MÁRQUEZ SOLÍS

CTO of Barrabés. Computer Engineer and Master in Artificial Intelligence in the area of Machine Learning. He has been developing his professional activity for more than twenty years. In his career he has participated in projects for large clients such as BBVA, CreditSuisse, Bankia or Ferrovial and for several years he directed the Area of economic applications development and internal management within the General Treasury of the State working for SoftwareAG. In 2011 he came into contact with Blockchain hand in hand with Bitcoin, which has led him to publish several books on the subject "Bitcoin. Checkmate the financial system?", "Blockchain, the industrial revolution of the internet" and "Bitcoin, complete guide to the currency of the future" and create different working groups on the subject. In 2017 he joined the Barrabés Group where he works as CTO of the company Cluc, dedicated to the development of Blockchain and Machine Learning applications for its clients. Additionally, he collaborates as a professor of the UNIR university course in Blockchain Application Development in the testing and auditing part and as a professor of the Digital Transformation II subject at the Francisco de Vitoria University, and leads the QSupremacy group dedicated to the applications of Quantum Computing mainly in the construction sector.



JULIO FAURA

CEO of Adhara, since July 2018. Adhara is a company that seeks to help financial and corporate institutions leverage smart contracts and blockchain to improve international payment execution and optimise liquidity management, in partnership with ConsenSys. His career has spanned over 20 years across the Technology and Financial Services worlds. He worked at Santander, holding many corporate leadership roles in Investment Banking, Consumer Finance, IT and Operations, and Global M&A, for 11 years. He has led Santander's activities around crypto-currencies, blockchain and distributed ledgers for years, and has led the creation of numerous relevant industry consortia. He was founding chairman of the Enterprise Ethereum Alliance and chairman of the Spanish network Alastria, board member of the Wall Street Blockchain Alliance, and advisor to startups, companies, and regulatory and governmental bodies regarding blockchain technology and its implications. Telecommunications Engineer by UPM-Spain.

AUTHORS



TERESA RODRÍGUEZ DE LAS HERAS BALLELL

Professor of Commercial Law at the Universidad Carlos III de Madrid. Currently Sir Roy Goode Scholar at UNIDROIT, Rome, 2021-2022. Chair of Excellence 2017-2018 at the University of Oxford (Uc3m-Santander Programme), affiliated to Harris Manchester College. Previously, James J. Coleman, Distinguished Visiting Professor of Law at Tulane Law School, Visiting Professor at Harris Manchester College, University of Oxford, Fellow at Stanford Law School, TTLF and Marie Curie Fellow at the ZERP of the University of Bremen, among other visiting professorships and fellowships, at Columbia Law School, University of Washington, University of Tokyo or University College London. Arbitrator of the Madrid Court of Arbitration. Member of the Council of the ELI (European Law Institute Council) and of the ELI Executive Committee. Member of the European Commission's Expert Group on Liability and New Technologies and member of the Expert Group of the European Observatory of the Platform Economy. Member of the Advertising Control Tribunal (Autocontrol) 2014-2018. Member of the International Academy of Commercial and Consumer Law. Member of the expert group of the Inclusive Global Legal Innovation Platform for Online Dispute Resolution - UNCITRAL (United Nations) and Department of Justice of Hong Kong. Expert of the UNIDROIT Study Group on the MAC Protocol to the Cape Town Convention on International Interests, member of the Spanish Contact Group of the Aviation Working Group, member of the Rail Working Group. Delegate of Spain to UNIDROIT for the adoption of the Protocol, delegate of Spain and, previously, representative of ASADIP / CEDEP in the UNCITRAL (United Nations) Working Group VI on Chattel Collateral. Expert and Delegate of Spain before UNCITRAL/UNCITRAL and UNIDROIT in the new projects of the work programme on Digital Economy, Digital Assets and Artificial Intelligence and Smart Contracts. Expert in the group on Warehouse Receipts (United Nations-UNIDROIT Model Law on Warehouse Receipts). Expert of the UNIDROIT group on Best Practices on Enforcement. Academic Advisor of Fide.

**All the people who have participated in this Fide working group have done so in a personal capacity and not on behalf of the entities, offices, universities or companies where they carry out their professional work, so these conclusions do not reflect and do not contain institutional positions but rather the individual positions of each of the members of the group.*

DOCUMENT COORDINATION AND DIRECTION



CRISTINA JIMÉNEZ

President of the Fide
Foundation



VICTORIA DAL LAGO

Academic Coordinator of the
Fide Foundation



ENRIQUE TITOS

Director of Fide's DDSP
Working Group and Academic
Advisor of the Fide
Foundation



ÁLVARO ARRIBAS

Marketing and Digital
Development at Fide
Foundation



MANUEL CALERO

Associate, finReg360.
Copywriter of Fide's DDSP
Working Group

ABOUT THE FIDE FOUNDATION



Fide defines itself as a legal-economic think-tank with a clear inclusive, collective and independent vocation. We are convinced that the best solutions are born from the joint work of groups of individuals with diverse experiences and knowledge: this is how we achieve excellence in the analysis we carry out of those issues we consider to be of utmost relevance today.

Today, the national and international economic and legal framework presents a different complexity, requiring an ever greater interconnection between professionals from different areas of activity, and Fide is actively participating in this transformation.

Fide organises Forums and Debate Sessions where legal-economic and business aspects from the broad sectors of today's world are examined, which require special treatment and which are the result of highly topical issues. These forums and sessions are the essence of Fide, our hallmark. They are intellectual meetings of the highest quality and with the greatest freedom. To some extent we can say that we have inaugurated a new way of dialogue.

Every year, Fide organises a series of working groups made up of professionals who are closely linked to the subjects dealt with in the respective areas of analysis, the aim of which is to carry out a continuous and in-depth reflection on some of the major issues which we have considered that, due to their urgency, need for reform or capacity for improvement, deserve to be the object of special reflection by the group of professionals who make up Fide.

In addition, Fide offers professionals, companies, law firms, consultancies and institutions, both public and private, training sessions designed to meet their needs, in each case comprising highly specialised programmes in each of the subjects to be dealt with.

We invite you to get to know us in depth. Discover all our proposals and activities on our website:

[<<< Thinkfide.com >>>](http://Thinkfide.com)



DDSP

**Digital Money
and Payment
Systems**

WORKING GROUP

DIGITAL MONEY AND PAYMENT SYSTEMS

DDSP

The Digital Money and Payment Systems Working Group (DDSP) is the evolution of the Digital Currencies Group that was created by Fide following Facebook's announcement of its intention to launch the "Pound" cryptocurrency in 2019.

The DDSP Group identifies, debates and proposes changes brought about by the arrival of new technologies in the wider world of money, and studies the impacts and developments in payment systems, market infrastructures, financial and banking systems, and their regulation.

Parallel to the current monetary and financial systems, new actors and financial services are emerging around cryptoassets and tokenisation, which provide new ways of transferring or managing value, hand in hand with technologies such as blockchain and encryption. At the same time, tech giants are becoming increasingly important players in payments and other financial fields given their digital dominance.

This phenomenon requires not only an adjustment in the regulatory map but also in the strategy of countries and companies as they respond to the adaptation of the world of money to the inevitable changes in technology. And given the importance of money in the economic life of any country, this adaptation is key to the continuation of economic and social progress.



ENRIQUE TITOS

DDSP Working Group
Director

DDSP STEERING COMMITTEE

In order to achieve the objectives of this working group, we have considered it essential to form a team of professionals who, in a coordinated manner, define the issues to be addressed and the appropriate approach to each of them. Like all working groups in Fide we have formed a multidisciplinary group, professionals with diverse academic backgrounds and professional experience, public and private institutions, etc., but with a common quality, the commitment to offer their knowledge and experience to society. We thank all of them for their participation in the group and we urge them to continue working with the same dedication and devotion.



ENRIQUE TITOS MARTÍNEZ

Independent Advisor. Academic Advisor of Fide



MIGUEL ÁNGEL CESTERO

Managing partner at JB46 Investment Partners



JUAN LUIS ENCINAS

CEO Iberpay



ALBERTO LÓPEZ NESTAR

Director of Technology and Projects at Iberpay



MARÍA PARGA

Honorary President of Alastria



JULIO FAURA

CEO, Adhara



MONTSE GUARDIA

Co-founder & CEO, Big Onion. Academic Advisor of Fide



JUAN JIMÉNEZ

CEO, Alastria



LAURA SACRISTÁN

Commercial Director of the BME Group. Academic Advisor of Fide



ALBERTO GÓMEZ

Blockchain and Open Innovation Specialist



GLORIA HERNÁNDEZ

Partner, finReg360. Academic Advisor of Fide



DIEGO GARCÍA NOVILLO

Lawyer. Legal Department, BME Group



TERESA RODRÍGUEZ DE LAS HERAS

Professor of Commercial Law at UC3M. Academic Advisor of Fide

2022 DIGITAL MONEY & PAYMENT SYSTEMS



Working Group
QOSP
by **Fide**
Law | Economy | Technology