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Regulating Blockchain in the EU: Building a Global Competitive Advantage

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Introduction

In September 2020 the European Commission, the executive body of the EU that proposes regulations to the European Parliament and the Council, introduced the legislative proposal "Markets in Cryptoassets" (MiCA).[1] This was part of a wider strategy, called Fintech Action Plan,[2] introduced few years ago. The aim was to help legacy financial institutions as well as newcomers, mainly Fintechs or financial service providers that use enhancing digital technologies, to operate in the internal market within a regulatory framework that ensures a level-playing field for everybody and enables the use of innovative digital solutions in a responsible way.[3]

The initial critique this text received from the market participants was that it excluded an entire part of the market, called Decentralized Finance (DeFi). As cryptocurrencies (try to) provide a decentralized store of value

[1] COM (2020) 593: Regulation on Markets in Crypto-assets (MiCA).

[2] COM (2018) 109/2: Fintech Action Plan: For a more competitive and innovative European Financial Sector.

[3] COM (2020) 591: Communication from the Commission on a Digital Strategy for the EU.

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independent from centrally issued fiat currencies, similarly DeFi, tries to decentralize financial services making them independent from centralized financial institutions. The operations of DeFi, ideally, run with smart contracts in decentralized autonomous organizational architectures (DAO) leveraging decentralized applications (dApps). The "Markets in Cryptoassets" regulation, first, omits any mentioning to the technologically interesting case of DeFi altogether, and, second, it "dissuades" the possibility of this innovative business model to operate in the EU by making clear that the providers of blockchain financial services should be *legally established* entities.

In the moment we write this chapter, MiCA regulation is still under revision and negotiation in the European Parliament and the Council, and it is expected to be enacted in the coming one or two years. The initial (informal) response to the DeFi criticism from the side of the EU is that a financial regulation, by necessity manages risks, and it is there to protect investors and consumers. This requires the allocation of liabilities to a specific natural or legal person in case of failure. DeFi, by design, is an entity that lacks these traditional legal characteristics. A less *imaginative* excuse for this omission is that MiCA is about crypto-assets and not about providers of traditional financial services in blockchain.

The notion of "imagination" is rather instrumental here from a regulatory point of view. Regulators facing technological breakthroughs usually have two paths: either to use old rules to new instruments or to create new rules to new instruments. The first needs creativity. The second needs imagination. Could the draftsperson of this regulatory proposal include DeFi in the first regulatory text? Does the inclusion require more creativity or more imagination? Is the decision of the regulators of the Commission to omit DeFi a smart choice, given the techno-social limitations of blockchain technology today? There are no direct answers to these questions. However, it is not the first time we find ourselves in this situation. Traditionally, a regulator who has to intervene in the occasion of a technological innovation has to answer three fundamental questions: (i) how early should I regulate, (ii) how much detail should I include? and (iii) how much narrow or wide in scope should I be?

The answers the regulator will give to these questions determine the growth of the market, the time to reach this growth and the impact of the regulation to other markets. Moreover, there is another critical element: the global dimension of the regulatory regime regarding a technology. In the new global digital economy the concentration of technological capacity to a very small number of blocks, increases the competition between Asia, Europe and America, and makes denser the technological inter-dependences and dependences between the dominant players and the geographic regions they

control. Digital products and services are not just elements of international free trade; they are "chips" of power and influence with strong geo-economic implications and they generate narratives such as "digital imperialism" or "techno-nationalism".[4] Thus, the regulatory framework that a jurisdiction generates should be a source of national competitive advantage, as it has (a) to generate robust, innovation-friendly, risk-immune markets, (b) it has to attract human capital to sustain innovation, and (c) it has to attract risky financial capital to fund innovation over time. Market robustness, quality and quantity of human capital and abundant availability of financial resources are considered sine qua non-requirements for global competitiveness in the era of the fourth industrial revolution. No global player can ignore the significance of the regulatory framework in creating competitive advantage.

The Blockchain Resolution of the European Parliament: Context and Content

On 3 October 3 2018, the European Parliament voted, with unprecedented majority and the support of all the European Parties, its "Blockchain Resolution". The author of this chapter was the Rapporteur of this Resolution.[5] This Resolution has its own story, as it is the product of a systematic effort of *political entrepreneurship*. The "demand" for a Resolution on Blockchain in the months of the hype of bitcoin and ICOs should not be taken as given or welcome in a House like the European Parliament.

The political pressure for legal action was fierce but the "reputation" of blockchain as the facilitator of fraud, enabler of illicit payments of drag dealers and terrorists in the dark web, and environmentally irresponsible edifice, created many obstacles for any regulatory treatment of the technology. At the end of the day, "*why to regulate something we want to kill*"? Other jurisdictions (including Korea and China) had banned ICOs and cryptocurrencies altogether and the USA and Canada were very reluctant to create any specific framework. Moreover, technological failures like the Etherium's DAO was in the mouth of suspicious policymakers and regulators who were claiming that blockchain is just a fashionable trend among the members

[4] For an interesting account on Techno-nationalism, see at: MIT Technology Review: The techno-nationalism issue, September–October 2020, Vol. 123, No. 5.

[5] EP (2017) 2772: Distributed Ledger Technologies and Blockchain: Building trust with disintermediation.

of (sic) a *semi-legit* community (the crypto-community) and an inefficient "techno-obsession" that *haunts* the imagination of libertarian anarcho-capitalists. Back then (in 2017), only minor jurisdictions like Cyprus, Malta, Gibraltar, Cayman Islands and Singapore where experimenting seriously with blockchain enabling regulations.

If European Union, the most trustworthy regulator in the World, would take steps in giving guidelines for blockchain technology, this would be a bold move from the side of the Union to create legal and, most importantly, *institutional* certainty. It would also give to the EU a considerable first-mover advantage in the new digital economy, as blockchain was already perceived to be, the backbone and the infrastructure of any IoT environment leveraging human-to-machine and machine-to-machine interactions.

The main argument for a Blockchain Resolution was then, that blockchain is not just the enabling technology for cryptocurrencies and crowdfunding tokens. It was the infrastructure for a wide range of applications necessary for Europe to stay competitive in the New Economy. Based on this argument, the Committee of Industry (ITRE) of the European Parliament authorized the drafting of the Resolution: "Distributed Ledger Technologies and Blockchain: Building trust with disintermediation".

This authorization from the side of the European Parliament to draft a resolution on blockchain is of a special significance from a Political Economy perspective. The context around a technology influences a lot the "demand" for a regulatory action. Political entrepreneurship, thus, is of paramount importance to unlock demand for regulation, and the regulator should act as a change-leader when change seems difficult and the appetite of change of risk-averse agents (e.g. of a legacy Institution) is very low.

The Blockchain Resolution of the European Parliament can be seen as a facilitator of demand generation in this techno-regulatory field. The idea of regulation in a technological space can take many different facets; it can be, inter alia, hard regulation, soft regulation, light-touch regulation, smart regulation (Baldwin et al. 2013). As Hacker et al. note, regulation can be used as a *weapon* in the initial "framing struggles" of the supporters and the opponents of the technology to establish regulatory barriers or to curtail the spread of the new technology or it can be used to facilitate the development of the technology. In the second case, the space of regulatory options is really wide and spans from those who support the idea of "discounting" the existing legal norms in order to make space for accelerating the value proposition of a technology, to those who suggest risk-based approaches to regulation and the application of "hard law" (Hacker et al. 2019).

If regulation qualifies as an "embedded technology" per se to facilitate the interactions of the actors in a marketplace (Deakin 2018), in the case of the Blockchain Resolution the priority was wider than that: the aim was to facilitate *the creation of blockchain marketplaces* altogether. This is a detail instrumental to understand, as the requirement here was not just to create a basis of legal certainty but rather a framework of *institutional certainty*.

The Blockchain Resolution, thus, gave the instructions to the European Commission on how to create a framework that could allow the creation of a fertile ground in the internal market for this new technological option to flourish and *make EU the best place in the world to do blockchain*. The most important blocks of the text where the following:

(1) blockchain market places concern many strategic commercial sectors for the EU;
(2) there are many alternative blockchain architectures;
(3) scalability and interoperability of different blockchain architectures is critical;
(4) smart contracts open a wide range of opportunities but also impose significant challenges;
(5) ICOs and cryptocurrencies should be allowed to be used in the internal market and
(6) data privacy is a strategic priority.

The author of this chapter agrees with the view that blockchain is a digital technology of critical strategic importance, because at the same time it touches on three fundamental techno-social aspects: the economic, the societal and the legal (Tasca and Pisseli 2019). The regulator should not fail to take into consideration the opportunities and challenges in all the three aspects and, at the same time, cannot ignore the strong potential of a vibrant blockchain regime in assisting to the transition from a mainly analogue to a mainly digitally enhanced, exponential economy. Blockchain is instrumental in forcing both business and government leaders to imagine:

(i) how the new marketplaces will look like in the coming years;
(ii) what is the appropriate organizational setting in the New Economy; and
(iii) what kind of market structures should we form, in order, not only to survive the economic competition by staying technologically relevant, but also to generate and sustain rates of inclusive growth proportional to the expectations of the society.

What Blockchain Principles the Regulator Should Take into Consideration

The Blockchain Resolution of the European Parliament enjoyed wide support and publicity as it was the first time that a major regulator with global impact and reach made a statement in favour of blockchain, instructing the European Institutions to provide legislation based on specific technology-enabling principles. This text also influenced other major regulators, like the Congress of the United States.

Giving guidelines for regulatory action can be thought of as an *optimization exercise*. Many steps should be taken for a truly enabling regulation. We recommend the following two dimensions to consider:

A. *Define with flexibility the regulated subject*

In mid-2000s, Lawrence Lessig, famous for his dictum that "code is law" (Lessig 2000) introduced his famous "pathetic dot theory", indicating that Internet organizations and service providers (the "pathetic dots") are regulated by four forces: the market, the norms, the architecture and the law. Governments directly affect the legal environment but they use (indirectly) all the four forces to control the behaviour and activities of the internet actors. Lessig also stressed two very important elements: (i) that the architecture of the solution can conflict with the law and (ii) that the higher the level of decentralization, the lower the capacity of the governments to control (Lessig 2006). These two points underscore the regulatory challenge of blockchain as well. In many different blockchain architectures, especially the ones that are based on permission-less blockchains that provide not only disintermediation but also decentralized governance structures with automation properties like the ones we described in the beginning of this chapter (the DeFi case), this "pathetic dot" disappears, as we can see in Fig. 12.1 (De Filippi and Wright 2018).

The left half of Fig. 12.1 shows the Lessig's schema and the forces that regulate the Internet subjects' behaviour. However, in a decentralized environment the entity, natural or legal, that bears the liability in case of misconduct, can be replaced with a network of pseudonymous actors (the right half of Fig. 12.1). Pseudonymity is not compatible with our legal and regulatory tradition. At least not so far. No matter what is the architecture, the design, the process and the characteristics of a product or service, everything and always ends up to a responsible person. The regulation has to be enforced on this person.

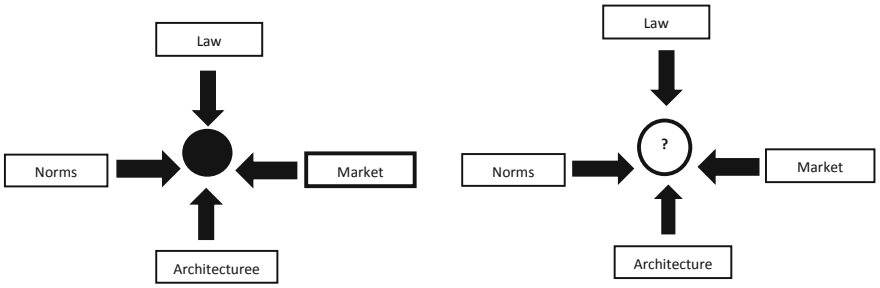

Fig. 12.1 Lessig's four modes of regulation applied to blockchain systems (*Source* De Filippi and Wright [2018])

The DeFi case, reflects exactly this problem. How can we regulate the missing "pathetic dot"? Ruling this problem out does not solve anything in the long-run. In the short-run, indeed, the Regulator has a comparatively easier job. The vast majority of the blockchain applications we experience so far are not *complete*. A *blockchain-complete solution* is one that entails several properties including *distribution*, *encryption*, *disintermediation*, *tokenization* and *decentralization*. This completeness is quite rare and the most use-cases include only the first three or four properties (Furlonger and Uzureau 2019). Decentralization is much more challenging not only for the regulator, but also for the market. Only few technology enthusiasts experiment with purely decentralized governance structures. This rarity is the result of the current limits of the technology. For example, the bitcoin blockchain experiences significant scalability problems. The DAO experiment failed because of the inherent limits of smart contracts to predict everything and the lack of flexibility to make algorithmic changes fast when a problem is spotted. It seems that prediction and scale failures in decentralized architecture designs are solved, at least for the time being, only with painful *forks* (Werbach, K., 2018). However, this is not the way society solves its trust issues and this is something the regulator should not ignore.

In the long-run, though, the problem becomes more pressing. The proliferation of the IoT and the further blending of blockchain with other enhancing digital technologies, like artificial intelligence and hyper-performance computing, will allow new business models to emerge and operate with more clarity. Smart contracts will become smarter; blockchain consensus mechanisms will become more creative and efficient; algorithmic designs will become more resilient to changes and disposable digital identities will penetrate our culture more than today. People will be educated to feel more comfortable in digitally complicated environments and the techno-social environment will be safer and less resistant. In an environment such

this, the further shift to *blockchain-complete* solutions will be perceived not as a choice but as a necessary step forward. The actors making this choice, will be mainstream, risk-averse market players, not *just* technology enthusiasts. The regulator should be ready to provide a legal framework that will allow this transition to happen.

Reaching the point where blockchain-completeness will be mainstream, the regulator will be compelled to introduce into the legal and regulatory tradition the concept of *Lex Cryptographia*. Lex Cryptographia are rules administered through self-executing smart contracts and decentralized (autonomous) organizations. To navigate in these territories there will be an increasing need to focus on how to *regulate blockchain technology* and how to shape the creation and deployment of these emerging decentralized organizations in ways that have yet to be explored under current legal theory (Write and De Filippi 2015). This leads us to our second recommendation.

B. *Combine technological neutrality with business model neutrality*

Should we regulate the blockchain technology per se or only its uses and users? In the Blockchain Resolution of the European Parliament, the guideline given to the EU lawmakers reflected the principles of technological neutrality and the associated concept of business model neutrality. Technological neutrality is a long established concept in the European Union regulatory tradition since the early 2000s and re-appears as the guiding principle in technology-related regulations including the Framework Directive for Electronic Communication Networks and Services (2002),[6] and the General Data Protection Regulation (2016).[7] This principle is also reflected in the OECD's recommendations,[8] and the US's "better regulation" initiative.[9]

Technological neutrality is an instrumental concept that can take three different meanings depending on the context. In the first meaning, technological neutrality is equivalent to "standards setting". The regulator tries to limit negative externalities by *setting the targeted result* but leaves the companies free to choose their technology. The second meaning of technological

[6] Directive 2002/21/EC of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive).

[7] Regulation (EU) 2016/679 of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).

[8] OECD (2011), OECD Council recommendation on Principles for Internet Policy Making (December 13).

[9] Obama, B. (2011), Executive Order No. 13563: Improving Regulation and Regulatory Review (January).

neutrality defines the scope of the regulation. In this case, *the regulator defines the principles* without having technological silos in mind. The third meaning of technological neutrality is that the regulator *does not pick technological winners* and uses the concept rather to nudge the market towards a desired direction (Maxwell and Bourreau 2014).

Technological neutrality is an enabling principle, which on the one hand is intended to mitigate risks while at the same time it allows the experimentation and the growth of an innovative solution. Though it can be used as a nudge to influence market and design behaviours and preferences, as per the regulatory concept of *libertarian paternalism* (Thaler and Sunstein 2009) it is much more than that. It aims to pre-determine what risks are acceptable in the society and what not. I that sense it is much more than just a "light touch" regulatory approach. We can define it as rather a "smart regulation" approach, where at any point the regulator can control and safeguard his/her reputation and reliability. We strongly advise in favour of a "smart approach" to regulation rather than a "light approach". It is of paramount importance for the acceleration of the adoption of any new technology, to keep a regime where the scientist and the engineer will tell what the technology can do, but the regulator will keep his authority in determining what the technology cannot do.

But how far technological neutrality can go? First, technological neutrality does not imply that the changes the technology brings are neutral. Blockchain does not produce neutral changes in the market. Market structures are transformed; the scope and the size of the firm is impacted; the governance and decision-making procedures are affected. Second, technological neutrality does not rule out the idiosyncratic technological risks of blockchain. ICOs have technology-specific risks just like the smart contracts. Stressing specific idiosyncratic risks does not imply discrimination subject to the technology.

But this is not the end. Technological neutrality is a necessary condition for enabling technological and market disruption, but it is not an adequate condition. To achieve a genuine result, technological neutrality must be accompanied by business model neutrality. The regulator, as we mentioned before, should not pick technological winners. Sometimes though, he/she discriminates favouring one business model over another. For example, in the first reading of the MiCA regulation, many of the provisions applied to Fintechs, do not apply to legacy financial institutions. Or, as it is specified in the accompanying DLT Pilot Regime Regulation, creating market places for crypto-assets regulated under MIFID2, requires the facilitators of the

exchange to be regulated as Multilateral Trading Facilities (MTFs), favouring thus a legacy business model over a new one (e.g. DeFi).[10]

The regulator, consequently, faces a short-term/long-term dilemma. In the short run, pushing an innovative instrument into an old regulatory box, may seem easier, or even politically more desirable. But he cannot cover the skeletons into his closet forever. Competitiveness and growth have inter-temporal consequences on the decisions of a short-termist regulator. By pushing new technological instruments into old boxes the regulator inadvertently (or deliberately) picks winners by favouring legacy business models over the innovative ones creating disproportional costs to the innovative start-ups, neutralizing thus their edge over their legacy competitors. This in the long run affects not only the competitiveness of the economy but also hampers the prospects of a sustainable and organic growth.

Conclusion: Advancing Innovation with Regulatory Sandboxes

Regulating blockchain is a dynamic optimization exercise. The technology is still evolving and its impact onto the real economy is expected to be decisive, although it is not easy to predict in which way and under which conditions. The value of the blockchain comes from its ability to improve or disrupt certain economic functions but also from its convergence with other exponential technologies like machine learning, hyper-performance computing and IoT. We expect that the gradual adoption of blockchain technology over time from different sectors will challenge both market and macroeconomic equilibria. The regulator cannot predict what and how, but he/she can understand the trends in advance by creating an enabling regulatory environment that addresses market and operational risks, idiosyncratic technological risks as well as the risks of no-adoption that may bring disproportionally negative effects in the prospects of a sustainable and organic market growth.

Today, the job of the regulator is relatively easier. Blockchain is here already but not complete. We are closer to the edge of disintermediation than to the one of decentralization, so our regulatory culture seems more compatible to the challenges blockchain brings to us. However, the prospect of having more and more decentralized autonomous organizations in the (near) future, especially with the improvement of DLT design architectures and the merging of blockchain with artificial intelligence, requires us to widen our understanding

[10] COM(2020) 594.

of what actually consists a "good regulation". This challenge is not just for Europe but for every jurisdiction in the world. The regulator who will find the solution in the equation between decentralization and regulatory control, will be the one who is going to create for his country a strong regulatory competitive advantage.

However, there are no certainties and prescriptions of how to achieve this end. Markets and scientific discoveries interact in mysterious ways and generate unpredictable dynamics. The unknown-unknowns are many and action in the face of ambiguity (not just risk) requires sometimes an iron feast and sometimes a soft hand. In any case this is a try and error exercise.

We believe that try and error is the most crucial factor to develop internally best practices than to delegate this responsibility to somebody else in hope for "global solutions". Global solutions are uncertain in an environment of ever increasing techno-nationalist trends. Without ruling out cross-border synergies, a vibrant and robust regime of regulatory sandboxes and pilot legal frameworks seems the safest solution in a rapidly changing technological landscape.

A regulator engaged in sandboxes has become strategic partner of the scientist, the startuper and the market participant in accelerating technology transfer from the lab to the market in a most risk-efficient way. Regulatory sandboxes can create a solid but also agile space for innovative creativity, the results of which can be easily trickled down to the low-end of the market in a strongly protected and regulated space. Blockchain is an excellent candidate for such a dynamic framework that will allow both innovators and regulators to build together certainties in an organic way and reduce ambiguity.

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Regulating blockchain is an exciting exercise, first because, in this stage it allows the regulator to build ab initio innovative marketplaces and second, because it makes him build marketplaces having in mind the need for a strong global competitive advantage. This second element is an incentive to be more long-termist and business model neutral. A principles-based approach seems the best recipe as the technology is still evolving and gradually touches more and more industries.

European Union, for the time being is already ahead of the rest in creating an innovation-friendly space, despite the fact that it faces significant market pressures both from the East and the West. In the coming years we expect to see significant changes in the global markets, especially in relation to the decentralization of data that will build new poles of digital power. Blockchain

and edge computing is expected to play a significant role in this transformation of the industry and a solid and enabling regulatory regime is the factor that will determine the winners of the future.

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