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BLOCKCHAIN BETWEEN LAW AND REGULATION: WHERE DO WE STAND?

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1. Introduction

On 12 May 2022 the seminar «Blockchain between law and regulation: where do we stand?» took place at Roma Tre's Law Department, where renowned experts in fields stemming from commercial to competition and data protection law discussed the impacts and challenges that EU and national legal frameworks will face as blockchain technologies and cryptocurrencies become more and more ubiquitous and widespread.

The event began by the introductory remarks by the Vice Dean of the Law Department, Professor Giorgio Resta, who briefly underlined how much blockchain technology will inevitably affect, and has already affected, Italian and European law on many fronts, and how timely the discussion that was going to take place afterwards appeared to be.

Professor Margherita Colangelo, who together with Professors Noah Vardi and Claudia Morgana Cascione organized the seminar, stressed how the potential use cases and business models powered by blockchain technology not only are almost infinite, but they will inevitably create some clashes with national laws, as soon as those use cases

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will become embedded in real businesses. That is why, for instance, some States have already started, or are on their way, to regulate and shed a light on the rather complex and articulated world of cryptocurrencies and their exchange, be it at national or European level.

2. Zero knowledge proofs and data protection Law

The first panelist was Professor Michèle Finck from the University of Tübingen, who discussed her upcoming research dealing with the implications of zero knowledge proofs (ZKPs) for European data protection law. These could be defined, in general terms, as cryptographic techniques used mainly, but not solely (as they could also be used for example to enhance the security of trade secrets), in blockchains, and whose aim is to minimize the amount of data shared to convey information.

More specifically, borrowing a definition provided S. Micali *et al*. in 1985, a zero knowledge proof could be deemed as «a cryptographic technique whereby one party (the "prover") proves to another (the "verifier") that a statement is true without conveying any additional information apart from the fact that the statement is true»[1]. Given the above-mentioned characteristics, it could be said that a ZKP is clearly helpful in distributed contexts (e.g blockchains like Ethereum) where there are many additional parties, since, thanks to a ZKP, not only there would be no 'data spillover', since the data required to verify the information would be limited to the bare minimum; but also because using ZKPs would entail a much more rapid and efficient process than using a combination of emails and passwords in order to access your digital profile and exchange information.

One of the findings of professor Finck's forthcoming paper is therefore that using ZKPs could arguably be regarded as a data minimisation technique. Looking at Article 5 GDPR, which clearly states that «personal data has to be adequate relevant

[1] S. Micali, S. Goldwasser and C. Rackoff, *The Knowledge Complexity of Interactive Proof Systems*, in «SIAM Journal on Computing«, Volume 18, Issue 1, 1985, p. 186.

and limited to what is necessary in relation to their processing purposes»[2], it could reasonably be inferred that a ZKP might be considered as a compliance tool to be used in order to fulfill the provisions and principles contained not only in the above-mentioned Article, but also in Article 25 GDPR, which instead deals with data protection by design and by default, and according to which: «the controller shall implement appropriate technical and organisational measures for ensuring that, by default, only personal data which are necessary for each specific purpose of the processing are processed»[3].

One more argument that could back up the claim that ZKPs shall be considered as adequate data minimization technique according to the GDPR is that, since in its Article 78 there is also a reference to the «state of the art»[4] mechanisms that must be used in order to minimize the amount of data shared and to protect their flow, this could also mean that ZKPs solutions, in a not-so-distant future, could be preferred to other, more outdated, compliance mechanisms, and considered the correct state-of-the-art technique in order to act in accordance to the GDPR.

Nonetheless, Professor Finck was also adamant in saying that not only there is a consistent number of people arguing that it is paradoxical to even talk about something resembling a data anonymization technique in a data economy like the one we are currently living in, and also that it would be *naïf* to believe that ZKPs are holistic solutions fit to thoroughly comply with the GDPR. In fact, even if they undoubtedly minimize the data shared, those data still remains personal data, and, as a consequence, every other obligation under the GDPR still applies, creating some rather high hurdles to overcome and undeniable trade-offs between equally important principles. To give an example, since one of the key principles addressed and fully protected by the GDPR is the transparency[5] in how personal data are collected and treated, then ZKPs, which

[2] EUROPEAN PARLIAMENT and EUROPEAN COUNCIL, Regulation (EU) 2016/679, *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 (GDPR)*, art. 5.

[3] *Ivi*, art. 25.

[4] *Ivi*, art. 78.

[5] *Ivi*, art. 13-14.

are secured and powered through very complicated cryptographic methods, would then be unfit to meet the transparency obligations contained in the Regulation.

Therefore, Professor Finck concludes that, as good and convenient ZKPs could be as a data minimisation technique, however they shall not be regarded as a panacea to comply with the whole GDPR.

3. Regulatory competition in the digital age: a race to the blockchain?

The following panelist was Professor Florian Möslein from the University of Marburg, whose speech was centered on the rather complex and fascinating topic of how much regulatory power should the law actually possess in regards to digital transformation; and at the same time whether there is a tangible risk of a so called «race to the bottom», should such power be more than what is perceived to be necessary by businesses that operate through blockchain technologies.

The starting point of his argument is in fact that platforms mostly self-regulate their digital ecosystems, and blockchain networks are no exception, as they operate according to coding rules: therefore, the question is which role the law should play in this new environment, and also whether digital regulatory regimes should compete with state laws (bipolar regulatory competition), or be embedded in the latter (two-tier regulatory supply).

There is no question that the digital transformation we have been witnessing in the last twenty years has also raised many legal questions, and this unavoidable circumstance has convinced politicians and administrations around the globe to proceed with a radical update of their respective laws. This, however, is far from being something radically new, that has been solely the consequence of the development of blockchain technologies: one could in fact just look at how much the advent of the internet has compelled states all over the world to adapt their legislations accordingly, to understand how this process has been unfolding.

Nonetheless, what differentiates the case of blockchains and digital assets is that they are arguably emerging at an incredibly fast pace, and smaller states such as Malta, Gibraltar or Wyoming in the US are already on track to be considered pioneers regarding

crypto and blockchain regulation, aiming to become, specially thanks to particularly favouring tax benefits, safe havens for crypto entrepreneurs and a sort of Delaware for digital assets law[6].

The reference to Delaware is not casual: as such state still today prizes itself with very a liberal and advantageous corporate law, which during the years has proven to be a magnet for many corporations within and outside the US that wanted to either start a business or move from a country where the tax burden was considered to be too high; states around the world seem to be trying to replicate Delaware's approach, albeit in the field of digital assets. This situation then seems to bring up the idea of a competition between legal systems, a «race of laxity»[7] that ultimately favourites smaller states whose tax benefits would be unmatchable for bigger ones.

In more specific terms, the above-mentioned race could be defined as 'theory of institutional competition', which, although controversial – since still today is one of the most debated topics in the field of law and economics –, states that there are some prerequisites that should be met in order to talk about a possible regulatory competition between legal systems:

– Material differences;
– Choice of law;
– Incentives for legislators.

However, even if these conditions are met, regulatory competition does not necessarily lead to a race to the bottom, but it could very well result in a race to the top: as it can serve to satisfy consumers' preferences, prevent mistakes and provoke legal innovations across the globe.

Unlike corporate law though, crypto assets' law is far from being clearly defined yet: but, notwithstanding the heterogeneity and confusion surrounding crypto-

[6] See for example: M. Byhoff and B. Ford, *This State is Becoming America's Crypto Capital*, Bloomberg, 2022, <https://www.bloomberg.com/news/articles/2022-02-02/wyoming-is-trying-to-become-america-s-blockchain-capital>; D. Steinbeck, *Malta: Blockchain's Island Haven*, 2018, Crypto Law Insider, <https://cryptolawinsider.com/malta-blockchains-island-haven/>; K. Makortoff, *Blockchain Rock': Gibraltar moves to become world's first cryptocurrency hub*, in «The Guardian», 2021, <https://www.theguardian.com/technology/2021/dec/27/blockchain-rock-gibraltar-moves-to-become-worlds-first-cryptocurrency-hub>.

[7] This expression comes from justice's Brandeis dissenting opinion in the case Louis K. Liggett Co. *v.* Lee (1933).

currencies, there is nonetheless one specific characteristic that could be found in all of them: they depend on digital systems (blockchains) that can enforce legal rules, therefore acting in a way akin to that of 'private legislator'. Given that, it would not be excessive to state that 'code is law', as the obligations and contracts that take place on every blockchain are automatically regulated through strings of code written in different programming languages.

Because of this functional equivalence to law, some fear the end of classic contract law is looming. The fact that digital systems can enforce rules, and that agreements can be implemented on the blockchain thanks to smart contracts, creates in fact an understandable sense that these digital systems are regulated through different digital jurisdictions that vary from blockchain to blockchain, and even offer an alternative dispute resolution mechanism should any controversy on property rights emerge.

However, if we were to assume that there is such competition between a digital and an ordinary jurisdiction, we should then ask which one we should be preferred: and in order to do that, it is necessary to dig into the pros and cons of both systems.

As far as the advantages of digital jurisdictions, the following seem to be the most straightforward and appropriate ones to list: i) they are more cost effective; ii) they provide an high degree of freedom; iii) they have an inherently global reach; iv) they provide an effective self-execution of contracts and rules.

While the elements listed above are definitely tempting and may lead us to prefer a digital jurisdictions, there are nonetheless very good reasons to prefer the state offer, since the latter: is based on experience and traditions; has the potential to differentiate; comes with the possibility of fair enforcement; bears no restriction to the digital sphere, as opposed to the digital jurisdiction which is limited to the digital world.

Having a look at where things stand nowadays, according to Professor Moslein, it is possible to observe that there are constant interactions and a coexistence between the two systems, but no such things as a 'race to the code' yet, and will probably never happen in the near future, since the statutory law is still to be largely preferred for the reasons listed above, hence making it impossible to have the best of both worlds condensed either in the digital or in the ordinary jurisdiction. Given the interplay between the two jurisdictions, the state could then choose among a variety of regulatory strategies, which often overlap with one another, that could inform its approach towards

the digital sphere: an hegemonic strategy (which is mainly used in non democratic countries such as China), self-regulation and a more specific enabling of the platforms[8].

4. The Upcoming MiCAR-DLT-DORA Regulations: Opportunities and Shortcomings

The next speaker was Professor Filippo Annunziata from Bocconi University, who focused his presentation on his forthcoming paper, which critically assesses the upcoming MiCAR-DLT-DORA Regulations, underlining their strengths and weaknesses. In his speech Professor Annunziata focused on the first Regulation, which specifically deals with cryptocurrencies.

Generally speaking, Professor Annunziata believes that, thanks to MiCAR[9], the EU could truly become a single market where crypto assets are uniformly regulated: a unique feature and a rather positive one to celebrate appropriately, as it will undoubtedly make the European Union not only a first-mover in regulating crypto, but also the only true global market for crypto assets in the world. At the same time, nonetheless, it must be noted that there are some critical shortcomings and problems that could arise from the Regulation that must be addressed, in order for MiCAR to unleash its full potential.

The first problem is the taxonomy contained in MiCAR and the relationship between MICA and EU Capital Markets Law, especially the MiFID Regulation. The former adopts a negative definition[10] when it comes describing its scope of action, meaning that instead of defining in a positive way the areas and practices that it will cover – except for the specific definition of asset-backed and e-money tokens it expressly contains – it simply declares that it will regulate the rest of the tokens that do not already

[8] I. Chiu, *Decrypting the Trends of International Regulatory Competition in Cryptoassets,* in «European Journal of Comparative Law and Governance», Volume 7, Issue 3, 2020, p. 297.

[9] EUROPEAN PARLIAMENT and EUROPEAN COUNCIL, *Proposal for a regulation on Markets in Crypto-assets, and amending Directive (EU) 2019/1937*, COM/2020/593 final.

[10] *Ivi*, art. 2 par. 2, according to which it «shall apply to tokens that do not fall within the scope of existing EU Financial Legislation».

fall in the current financial legislation, hence thwarting the very reason MiCAR was created: namely providing legal certainty when it comes to regulating crypto assets.

This approach is then rather troubling, and an example could clarify why it would be wise to review this strategy. Since one of the core elements of the definition of a financial element under EU Capital Markets Law is in fact the concept of negotiability, we then shall ask ourselves what would happen if a token could fall within the meaning of «financial element» according to MiFID Regulation, but it is not negotiable. Would it fall under MiCAR? The answer is not yet self-evident, especially considering the fact that 'negotiability' is still a very much unclear concept to date; therefore one would have to look at national company laws to try to find a satisfactory answer, which however, by definition, are different from one another and therefore ultimately provide little help in finding an appropriate answer to the above-mentioned question; and equally insufficient and extremely cumbersome solution would be to simply rely on *ex post* intervention in order to clarify whether a crypto asset falls under the provisions of MiCAR or not.

A second problem that arises when looking at MiCAR's wording is its approach towards DeFi (decentralized finance), which seems to be already outdated by now, especially when considering the part dealing with stablecoins: it appears to be too biased and to solely reflect the need to provide response to bad past experiences, rather than addressing how the market actually works and would evolve in the future. Moreover, it seems unclear whether MiCAR truly follows a decentralized approach in regards to DeFi, as it actually appears rather centralized, given that it does not cover truly decentralized tokens and assets such as bitcoin, to name the most important one of all.

Should the MiCAR remain in the current form and the taxonomy as well as relationship between MiCAR and DeFi would not be sufficiently clarified, a consequence that would inevitably follow is that national legislations could find themselves in contrast with MiCAR. As a result, since in Italy we currently have national legislation according to which we are bound to apply national rules also to crypto, but not to all of them, it would be foreseeable to end up having a token issued in another member state classified as not falling into MiCAR according to its national provisions; differently, if it were to be issued in Italy, it would then be subject to such provisions, even more so since in 2021 the Italian Supreme Court classified bitcoin as a financial product, hence outside the

scope of the current MiCAR. This, clearly, is a situation that must be avoided and that would completely nullify the scope and aim of MiCAR regulation.

The third aspect that deserves to be addressed according to Professor Annunziata is whether the provision of MiCAR should also apply to 'pure' utility tokens such as NFTs (non-fungible tokens), which do not perform any financial function, or that start performing it only after some time. In order not to impair a genuine competition in the field of NFT in fact, it might be reasonable for the Commission to act in a more nuanced and proportionate way, and to come up with special provisions aimed at addressing NFTs specifically, thereby making it possible for start-ups and entrepreneurs operating in that field to flourish within the EU and attract talents from all over the world.

5. Market power in the blockchain

The seminar then turned to a completely different topic: namely the concept of market power in the blockchain. The speaker that offered his contribution on the matter was Professor Konstantinos Stylianou, University of Leeds.

In order to fully grasp the topic, it is essential to begin by stressing how much the concept of market power is central for competition law: as it is a fundamental parameter taken into account by competition agencies all over the world not only to solve cases of potential abuse of dominance, albeit they represent the most common hypothesis, but also whenever anticompetitive agreements, cartels or a merger whose result could impair genuine competition in a given market are concerned.

More specifically, market power could be deemed to be present whenever a firm has the ability to:

– Raise prices;
– Exclude competitors;
– Act without regard to competitors and consumers[11].

Moreover, in order to determine whether a firm actually holds market power,

[11] EUROPEAN COMMISSION, *Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings*, (2009/C 45/02), par. 10-11.

the European Commission uses an array of various legal and economic tests, that could briefly be summarized in: the SSNIP test (also known as the hypothetical monopolist test); a large market share; the presence economies of scale and scope; the absence of countervailing buyer power[12].

With this in mind, then the question to be asked, and to which the speaker tried to give an answer, is whether in the market of blockchains there are already firms that could be considered dominant, or possess substantial market power.

As of today, it could be said that blockchain markets are much more competitive than most 'traditional' markets, and not entirely dominated by Bitcoin as many commentators wrongly argue. For instance, since blockchain technologies have appeared, it has been possible to register a situation similar to an oligopoly only for a couple of years, but that was lost in a relatively short period of time due to vast and ever-growing competition.

Furthermore, it is also worth remembering that when Facebook planned to launch its currency *Libra*, financial authorities closely monitored it and the European Commission opened an investigation[13] for leveraging of market power in social networks in the crypto assets market or crypto assets transaction market, and that ultimately forced the Big Tech to roll back its plan.

Nonetheless, even if we arguably find ourselves in a relatively new market that seems to be working perfectly, we shall not forget that this situation is greatly resemblant to what the internet market looked back in the day, something that twenty years later did not prove to be the case. Therefore, since we should be aware that it could only be a matter of time until dominant firms will emerge and try to monopolize also blockchain markets[14], competition agencies should be ready to fend off such attempts using

[12] *Ivi*, par. 13-18.

[13] REUTERS STAFF, *Facebook's Libra faces EU antitrust probe: Bloomberg*, 2019, Reuters, <https://www.reuters.com/article/us-facebook-libra-idUSKCN1VA1Z3>; E. Dwoskin and G. De Vynck, *Facebook's cryptocurrency failure came after internal conflict and regulatory pushback*, in «The Washington Post», 2022, <https://www.washingtonpost.com/technology/2022/01/28/facebook-cryptocurrency-diem/>.

[14] See, on the matter, for example: G. Huberman, J. Leshno and C.C. Moallemi, *Monopoly without a Monopolist: An Economic Analysis of the Bitcoin Payment System*, in «The Review of Economic Studies», Volume 88, Issue 6, 2021, p. 3011; W. Gottsegen, *The first NFT monopoly*, Coindesk, 2022, <https://www.coindesk.com/layer2/2022/03/14/the-first-nft-monopoly/>.

appropriate, and possibly new, regulatory tools.

In order for the European Commission to pre-emptively figure out whether there is an attempt to monopolize a blockchain market, Professor Stylianou has so far been able to identify a behaviour that could lead to an increase of market power, namely an «installed base». To have a glimpse of what that means in practice, it is worth mentioning how Cardano's blockchain has been operating lately. The latter is in fact not only a blockchain whereby its users have an incentive to stick with it since they are rewarded a certain number of digital assets for every transaction they validate; but at the same time Cardano has also a smart contract embedded in it that allows it to become a multi-purpose application suited to build DAPP (decentralized applications) on it, one of them being for example Pavia, which is focused on the metaverse.

Therefore, according to Professor Stylianou, if there are no incentives to abandon Cardano, the platform will keep attracting people, and as a consequence its market share will not be transeunt. In fact, it could be said that the more a blockchain is able to retain people, the more unshakable it becomes, while its market power becomes more solid.

Professor Stylianou then concluded by mentioning, on the other hand, some elements that according to his opinion may hint to a decrease in market power, and therefore must be taken in due consideration by the European Commission when trying to the determine the effective degree of market power held by a firm operating in blockchain markets. Namely: a change in design choices; forking; bridgecoins; token effects; L2.

6. The Lex Mercatoria in the age of blockchain

The following topic that was addressed, this time thanks to the contribution of Professor Cristina Poncibò (University of Turin), was the relationship between *Lex Mercatoria*[15] and blockchain, and more specifically whether the former could serve as

[15] Which according to professor F. GALGANO could be defined as «a national body of legal rules and principles, which are developed primarily by the international business community itself based on custom, industry practice, and general principles of law that are applied in commercial arbitrations in order to govern transactions between private

an ideal framework in order to evaluate whether blockchain technologies can be regarded as the foundation of a truly bottom-up system, as envisioned by many blockchain professionals and scholars. In order to do so, Professor Poncibò elaborated on some aspects that could be deemed as essential for the success and development of the *Lex Mercatoria* during time: spontaneity, universality and autonomy from national law or justice.

In regards to the first point, the *Lex Mercatoria* can in fact be considered as a law beyond the state, as it has always been freely combining elements from national and non national laws, merging them together. If we then turn to blockchain technologies, we could observe a similar pattern, since coding – exactly like the *Lex Mercatoria*, which has been subject to a process of legitimation without recognition from the state, thanks to the community of merchants that in itself had decided to regulate its activities according to it – has been undergoing a very similar transformation, and it could be said that the role that merchants played back in the day for the *Lex Mercatoria*, is now held by developers all over the world, that progressively shape blockchain technologies. The same holds true if we look to the universal reach of *Lex Mercatoria*, which seems to be present also as far as coding is concerned, especially thanks to the ubiquitous nature of the internet.

One difference that would nonetheless be possible to enumerate between the Lex Mercatoria and blockchain is the fact that, while the former was essentially developed thanks to a rather homogenous group of people such as merchants, in the case of blockchain not only there are, albeit in a much smaller number, private blockchains that do not allow any external participants to be part of it and modify it, but also so called 'core developers', who play a preponderant role in shaping current and future blockchains.

Finally, as far as the last point is concerned, it could be said that while it was true that at the beginning, thanks to its radical novelty, blockchain technologies were very much independent from regulation, as of today, inevitably, there is a much more institutionalized community.

parties in transborder trade, commerce and finance».

The final question Professor Poncibò then posed is how we can understand the customs that govern blockchain, especially since, as opposed to the process that led to the creation of the *Lex Mercatoria*, there are no social norms traditionally speaking derived from technology itself, but simply some rules that are created through the various smart contracts that are run on blockchains. Therefore, in blockchain communities it could be said that while there is digital trust, the same is not true for social trust: hence it is worth asking whether, absent that crucial feature, one could possibly envision a blockchain community in itself, given the fundamental role that social trust played in shaping the *Lex Mercatoria*.

7. Nft amid property and financial law challenges

The final speaker of the conference was Professor Giulio Sandrelli (University of Roma Tre), who has provided an overview of the possible legal challenges that NFTs, whose entire market capitalization now exceeds approximately 15 billions euros and are becoming more and widespread across the globe, could entail.

To give a bit of context, the Professor remembered that the ancestors of NFTs were the so called *colorcoins* of 2013, which indeed were an evolution of bitcoin. Then, five years later, in 2018, *cryptokitties* followed suit and finally, in 2021, the tokenization and sale of the first tweet started the 'new-wave' of NFTs we currently live in.

NFTs areas of growth have constantly expanded over the years, the most relevant and lucrative ones being: art, collectibles, videogame, fashion, real estate and smart properties, and in order to properly understand how NFTs actually work, it is necessary to describe their structure.

The latter is in fact composed of a token, which could be defined as a digital information registered on a blockchain via a smart contract, attesting that a certain user has a right to either deliver an object or perform some activities; then we have the metadata, which is unique to the token and sometimes incorporated directly in the smart contract (so called on-chain metadata) or stored somewhere else (off-chain metadata). Finally, it is necessary to distinguish two set of possibilities: either there is no 'minting' service on the blockchain and in this case the platform produces the NFT,

or a minting service is present, therefore we will have an author that asks the platform to tokenize the NFT produced by him, and then users might buy it.

Turning to NFTs' functional characteristics, they could be summarized in the following: non-fungibility, as they are unique samples; rivalry; transferability; interoperability, as they may be used or traded outside their native platform.

After this necessary introductory part, Professor Sandrelli approached the central topic of its presentation, namely the legal issues that NFTs pose and will inevitably pose, especially as far as IP law, AML (anti money laundering) and private law are concerned.

The first legal question to address is whether the owner of an NFT is for real or not. While for instance, according to the NBA Top Shop terms and conditions «because each Moment is an NFT, when you purchase a Moment in accordance with these Terms… you own the underlying NFT completely» and therefore it would be possible to use an NFT as an owner, Professor Sandrelli disagrees, and believes that the actual state of things is different and more complicated, and that we ought to split the above-mentioned question in two parts, asking ourselves whether we would be able to assert property on the token or on the underlying asset.

In order to understand what the implications would be in the former case, it is worth starting by saying that there seems to be a functional analogy between the token and the property, and they have been treated as such so far. Nonetheless, there is an objection according to which, by following this approach, the result might the violation of the *numerus clausus* principle: however, Professor Sandrelli believes that it would not ultimately be concerning, since NFTs have their own autonomy, non fungibility and more importantly a technological and not a legal nature, hence making them inevitably fall outside a *numerus clausus*. If we were to believe in the other option, on the other hand, according to Professor Sandrelli, this would practically mean that, for example, in bankruptcy situation the receiver could include also an NFT, and that it would also be possible to start an *in rem* claim of NFTs if they are deposited in a third party wallet, as well as *in rem* remedies such as proprietary injunctions or a worldwide asset freezing in case of theft of keys or fraud. Moreover, even if it could be possible to consider the underlying asset as a form of property as far as on-chain NFTs are concerned, for many more of them such as *cryptokitties* this possibility does not seem to exist, since rather than owning those form of tokens, one may simply win a contractual relation, and the

same goes for tokenized real world assets, as they follow the law governing those real world assets.

The next question to which Professor Sandrelli attempts to answer is then whether the transfer of an NFT also implies the transfer of the underlying asset. A first way to look at the issue is by relying on the so called 'theory of the incorporation'. However it does not seem convincing in the case at hand, because NFTs' primary function and NFTs' rules of transfer are in accordance to DLT (Distributed Ledger Technology) standards, hence not compatible with securities rules.

It is nonetheless correct to say that a reduced form of incorporation still exists in the fact that the owner of the NFT is entitled, depending on the single case, to either obtain access to data, the delivery of an asset or some performance of activities.

Another topic that Professor Sandrelli briefly discussed was how NFTs could cope with Rome I regulation[16] of contractual obligations, as while it excludes negotiable documents from its scope, it would still be applicable to NFTs-related agreements such as parties' choice of law.

More specifically, whenever there is an owner claiming delivery of an NFT, so far it is possible to register a tendency according to which it would be preferable to apply the *lex rei sitae* principle (especially UK courts are making this point), relating the token to a physical territory either based on the location of the off-chain assets or where private keys are located. However, as Professor Sandrelli promptly pointed out, these are rather partial criteria and not only could possibly exacerbate conflicts, but more importantly they would be almost impossible to apply for public blockchains.

Finally, Professor Sandrelli concluded stating that there are also many financial implications that derive from NFTs, especially since they are undoubtedly sliding into the investment area. Considering in fact that investment funds are starting to invest in NFTs, and NFTs creators have also begun to gather resources through crowdfunding initiatives, it seems likely that those kind of NFTs will be considered either akin to financial instruments in the latter case, therefore possibly triggering MiFID regulation;

[16] EUROPEAN PARLIAMENT and EUROPEAN COUNCIL, *Regulation (EC) No 593/2008 (Rome I) applicable to contractual obligations*.

or similar to an investment product in the former, thereby triggering domestic regulation.

8. Conclusive Remarks

Finally, Professor Claudia Morgana Cascione from the University of Bari concluded the seminar by thanking all the participants for their insightful contributions, and hoping to replicate the event very soon, as she is sure the topics addressed will only grow bigger and more complex over time.