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«They say things are happening at the border, but nobody knows which border» (Mark Strand)

Technological innovation in creditworthiness assessment

by **Antonio Davola**

Abstract: *Consumer scores describe individuals or groups in order to predict, on the basis of their data, behaviors and outcomes. Scores use information about consumer characteristics and attributes by means of statistical models that produce a range of numeric scores, and they proliferate in day-to-day interactions: in the US only, roughly 140 scoring algorithms are implemented for a wide range of services, and the most advanced of them can elaborate up to 8.000 individual variables.*

In particular, credit-scoring systems are used to evaluate individuals' creditworthiness for access to finance. Credit scores are implemented by both institutional operators and emerging P2P lending platform: a positive credit score represents an essential means for access to credit, and therefore as a tool for individual and social development.

At the same time, not everyone can be allowed to access to credit under the same conditions: individuals and businesses shall be distinguished based on predictions regarding their likelihood to repay loans, and the characteristics of their credit shall be determined accordingly. When effective, good evaluations enable lenders to respond promptly to market conditions and customer needs: both lenders and borrowers stand benefits.

These new forms of scoring provide an opportunity to access credit to transparent and unbanked individuals without a consistent credit history, promoting forms of inclusion. Nevertheless, they entail significant risks: lenders should be attentive to avoiding disparate impact and unfair outcomes, while at the same time considering how to comply with the obligations of disclosure and transparency towards consumers. Lastly, how these new systems (e.g. scores implementing aggregated data and scores based on indirect proxies for sensitive factors) fit in the current European regulatory framework is still largely uncertain.

Striking the balance between conflicting interests and reaching the optimal level of access to credit poses a fundamental challenge for regulators.

In order to provide a normative response to these concerns, the paper provides an overview of credit scoring algorithms and their role in order to promote access to credit and financial inclusion, comparing them with the already existing tools (such as the FICO score). Then, it investigates the similarities existing between the consumer-scoring systems and the activity conducted by credit

rating agencies – subject to careful examination by regulators in the US and in Europe following the 2008 financial crisis) to develop a regulatory proposal.
In particular (arguing in favor of an intervention by analogy), the research illustrates a tentative regulatory model taking advantage of the framework delineated by the Reg. EU/462/2013 for credit rating agencies as a matrix to develop specific obligations for companies involved in the development and use of consumer-scoring algorithms, ultimately allowing for information on credit scoring methodologies and relevant data to be monitored and audited by consumers and supervisory agencies.

Summary: 1. Prelude: tales of consumer scoring. – 2. Some preliminary considerations on *Fintech*, access to credit and innovation as a tool for promoting financial inclusion. – 3. Traditional scoring systems and their shortcomings: the FICO score. – 4. Credit scoring 2.0 – 5. Risks and opportunities in the use of credit scoring 2.0 – 6. The normative framework for creditworthiness assessment, and the uncertainties it unfolds. – 7. Looking for true novelty in soft-data analysis, and the analogy between Consumer Reporting Agencies and Credit Rating Agencies. – 8. A tentative regulatory proposal. – 9. Conclusive Remarks.

1. In 2014, the People's Republic of China officially started the implementation of its Social Credit System (社会信用体系, *shehui xinyong tixi*, "SCS"): each Chinese citizen is classified in a national database and – on the basis of the information available to the government – she is assigned a "social credit score".[1] Despite being recently implemented, the idea of using a social credit system to represent the social and economic condition of citizens (as a parameter for attributing benefits or exclusions)[2] dates back to the early '90s.[3] In 2018, 40 Chinese local governments had already introduced piloted – privately or publicly managed – versions of the SCS under their jurisdictions, and a full implementation of the SCS program on national scaled is expected to be completed by 2020.[4]
On the other side of the ocean, during the 2017 international conference *Money 20/20*, PayPal President and CEO Dan Schulman made a passionate speech to thousands about the globe's working poor and their need for access to banking and credit. Schulman underlined the role of algorithmic credit scoring, where payments and social media data coupled to machine learning are exploited to make lending decisions, as the primary tool for lending activity in the future, given the capacity of these technologies to promote access to credit for those individuals who lack traditional assets and guarantees, being therefore excluded from investments.[5]
These episodes are symptomatic of the growing attention that credit scoring algorithms for the assessment of individuals' creditworthiness are receiving in the contemporary society.
The creditworthiness assessment is defined, in general terms, as the probabilistic evaluation that a professional operator in the credit sector operates in order to predict the applicant's future conducts, with particular regards to her future solvency perspective. Such evaluation is preliminary and prodromal to the concession – or denial – of a loan.[6]
When automated tools are used in this process, the assessment of creditworthiness is performed by decision-making algorithms, elaborating different variables (depending on the specific model considered) in order to classify the applicants in tiers, provide a numeric score, or even to state a binary answer regarding her suitability for a loan.[7]

The ultimate goal of this process is to offer effective resources for the identification of the risk of insolvency, to assess the probability of repayment, and to provide the credit institution information in order to better discriminate loans rate and conditions amongst applicants.[8]
Consumer credit scoring constitutes one of the most significant areas of *Fintech*: between 2014 and 2017, global investments in the use of *IoT* and *ICT* for the customization and provision of financial services grew from 19.9 to 39.4 billion dollars, and they exceeded 41.7 billion dollars in the first half of 2018.[9] In this field, a major amount of the investments is directed towards the improvement of services connected to retail consumer credit.[10]
If, on the one hand, algorithmic scoring is a resource for credit institutions, it nevertheless creates new risks for individuals: an unfortunate example of such occurrences happened in 2009 to the businessman Kevin Johnson, whose was unilaterally subject to a forced reduction of his credit limit (around 65 percent) by his bank due to the outcome of his profiling.[11] It goes without saying, that Johnson was unaware of these tracking and elaboration activities being performed on his account.
The use of algorithmic technologies for the elaboration of credit scoring lies at the crossroads of different principles and interests: critical assessment of the various *facet* of the issue are therefore needed in order to contextualize and address both the microeconomic (e.g. consumers' autonomy, freedom and privacy) and macroeconomic aspects (e.g. the duality between responsible borrowing/lending, and financial inclusion) of this heterogeneous phenomenon.

2. In order to properly investigate the implications technological innovations for consumers' access to credit, it is first and foremost necessary to operate some preliminary considerations on the wider topic of financial inclusion.[12] Such a necessity arises from the fact that the concept of financial inclusion is at the very own interpretative core of the role that operators in the credit market play in contemporary market economy and, therefore, constitute a major guideline in balancing their rights and duties towards debtors.
On one side, promoting access to credit represents a fundamental resource to ensure individuals' economic citizenship; on the other one, it is widely acknowledged that an equally relevant goal lies in ensuring a responsible access to finance and (then) repayment: an excessive relaxation of the system would undermine the stability of professional operators with a substantive detrimental effect over the general welfare, exacerbating public debt.[13]
Empirical studies widely demonstrated that financial inclusion represents a pivotal resource in developing countries, reducing social inequality and local poverty; in addition, numerous studies suggest that beneficial effects arising from major financial inclusion can be experienced also in more advanced economies.[14] This is likely to happen, in particular, in those countries where – despite the general sophistication of the economic framework – significant groups of individuals are nevertheless not fully integrated in the financial system: in such situations, introducing alternative modes of access to credit and savings usually increases investments levels, level of consumption, employment rate, and (more in general) allows for a better management of market shocks.[15]
These researches prove themselves particularly significant in light of the profound re-interpretation of the main European normative *corpora* that was conducted after the 2008 financial crisis – and the subsequent stiffening of the credit offer over the Union territory:[16] amongst the main regulatory novelties, particular reference shall be made to the enactment of the Directive 2008/48/EC on credit agreements for consumers[17] and the Directive 2014/17/EU on credit agreements for consumers

relating to residential immovable property.[18] These changes were, as a matter of fact, symptomatic of the will to introduce a set of expected conducts both for consumers and creditors, by embracing an amphibious perspective apt to reach a high-level of consumer protection and stimulate the credit market.[19] In a 'co-responsibility framework', creditors are required to check the creditworthiness of their clients on an individual, casuistic, basis, operating a thoughtful evaluation of all the information that might be relevant to predict the applicant's (in)solvency.

As a consequence of the joint effect of normative efforts and technological developments, operators in the credit market stared to consider and implement alternative models of calculation: in particular, scoring algorithms based on big data analysis machine learning and other forms of predictive modelling offered a valuable opportunity to introduce in the creditworthiness assessment new – previously unconsidered – variables, related to consumers' behavioural, environmental, and social characteristics.[20] These innovations were initially employed by emerging private actors in the credit market, such as *P2P* lending platforms, and progressively met the favour of institutional creditors.[21]

Scoring algorithms are supposed to overcome the shortcomings that traditional assessment mechanisms present, considering both the precision of the issued consumer rating, and the capacity of allowing "transparent" individuals to access credit.

3. A major divide existing between the "new" scoring systems and the old ones is related to the kind of data they elaborate: traditional information used by credit institution in order quantify and supply loans is based – ever since the first calculation tools began to operate[22] – on *hard data*, that are objective, quantitative in nature and easily verifiable.[23] Amongst software using hard data for the creditworthiness assessment, the most popular one is the *Fair Isaac Corporation* (FICO) score.[24] Despite the long-lasting persistence of trade secret agreements on the characteristics of the calculation algorithm, nowadays it is publicly disclosed that the FICO score operates a classification of the information related to the applicant into five categories (payment history; amounts owned; length of the credit history; new credit; type of credit used); each category has its own individual value and a specific weight in the overall score: the combination the different values contributes to the calculation of an overall score ranging between 350 and 800. Lastly, the score collocates the applicant within one of five "creditworthiness levels".[25]

Despite being widely used in the professional practice, significant critics invest (on the one hand) the lack of transparency of the FICO algorithm and (on the other one) its difficulty to adequately assess the creditworthiness of individuals with short credit history.

It was noted, first and foremost, that the generic mention of the five categories contributing to the overall score is inadequate to properly inform applicants (and supervisory entities) regarding which specific information is considered in the assessment, and how it is actually processed by the algorithm.[26] As a counterargument, representatives of the industry stressed the need to protect the secrecy and industrial value of the scoring algorithm;[27] in recent times, the debate was further exacerbated in the light of the sub-prime crisis.[28]

Secondly, empirical studies observed that the use of the FICO score embodies an intrinsic risk of systematically excluding some areas of the population from access to credit:[29] reliance on FICO parameters as proxies to evaluate creditworthiness ends up creating economic "credit deserts", where individuals are precluded from investments and financial services.[30] This issue is further aggravated

by the uncertainties surrounding the effective correlation between FICO score and individuals' solvency, due to the chance of erroneous inferences operated from the applicants' data.[31]
Further risks of exclusion due to the use of FICO arises from the potential absence of traditional data for specific groups of a community. Due to the changes that invested consumption dynamics and socioeconomic relations in the contemporary society, many consumers (e.g. gig-economy workers, immigrants or young professionals) cannot be properly evaluated through the FICO categories: they do not have a long-enough credit history, conduct atypical businesses, and obtained economic resources outside traditional credit channels.[32]
As far as these cases are concerned, using quantitative data as the sole proxy to determine individual's creditworthiness might be misguiding and determine unfair refusals or unjust conditions for a loan, since the outcome has no real connection with the applicants' solvency or welfare status.[33]
Against this background, it shall be defended that reliance on hard data entail significant benefits for both credit institutions and applicants: as far as the firsts are considered, credit history still represents an extremely reliable information and, since quantitative hard data are usually detained by operators themselves (e.g. banks), using them as main proxy for the creditworthiness assessment creates a significant competitive advantage for traditional operators and constitutes a major entry barrier for competitors. [34] From the consumers' perspective, the main advantage of relying exclusively on hard data – given that this sort of information usually pertains to the applicants' financial activity – is that no sensitive data on personal or social habits are acquired nor elaborated their counterparties. Furthermore, the use of (relatively) simple calculation algorithms with few, known, variables, allows consumer to monitor – up to certain extent – the fairness and accuracy of the evaluation, in order for them to pinpoint and correct errors, and eventually to react to privacy violations.
Still, the persistent existence of groups who are unable to access credit due to traditional quantitative credit scoring systems, and the growing availability of behavioural and environmental data, pushing towards the inclusion of alternative systems for the creditworthiness assessment, leading to significant normative uncertainties.

4. As it was preliminary underlined, the availability of a vast amount of information in the digital environment introduced new opportunities for credit operators, reshaping their relations with consumers and promoting significant changes in the modes of access to finance.
In the s.c. data society, individuals operate as "informative agents", and digital technologies are exploited in order to gather and process the information that consumers furnish – through their use of ICTs and IoT – on the different channels to identify features that are relevant to the users, and to develop personalized commercial strategies based on individuals' preferences.[35]
In particular, through ICTs, social media analysis, wearable devices and app tracking, credit institutions can collect and connect psychological, environmental, behavioural, and social data, profile people (being even capable of deducing their emotions by means of affecting computing analysis) and modify their commercial strategy and product offering through algorithmic elaborations.[36]
This phenomenon had pervasive implications in all the areas connected to B2C transactions and, in the field of credit scoring, led to the utilization of creditworthiness algorithms based on big data analysis and techniques such as the Knowledge Discovery in Databases as resources to overcome the shortcomings of traditional decision-making protocols.[37]

Scoring algorithms “2.0” promise to improve the analysis of loan applications and to effectively profile consumers, using data from the social media or other sources of information: this data (usually acquired by a third party operating as a data broker) range from consumption habits to buying preferences, and more in general exploit the social ecosystem of individuals as proxies to evaluate their solvency expectancy. By creating a virtual image of the applicant’s personality, these new tools jointly use hard and soft data; they profoundly alter the assessment methodologies, going past the mere historical analysis of consumers’ economic resources and transactions.[38]

These systems exploit different and heterogeneous types of data related to consumers: currently, on the market, credit scoring algorithms analysing consumers’ scrolling rate of apps terms and conditions, or their presence on different social media platforms, are present.[39] Other systems monitor the purchase rate for high-tech products, the number and characteristics of the apps that the user has on her smartphone and its device’s operative system;[40] relevant information might also be inferred from location data obtained by GPS tracking, habitual relationships and encounters, use of sanitary and energetic services,[41] and even by the applicants’ physical appearance.[42] Recently, some credit operators introduced assessment systems based on the simultaneous elaboration of historical and present data – e.g. by requesting candidates to register a short video-interview to acquire their psychometrics, or to take an online test in order to evaluate their probability and calculation skills, self-control and capacity to take choices under pressure.[43]

Besides these very sophisticated strategies, experimental studies underlines that some sets of generic data – e.g. the analysis of the consumers’ digital footprint (that is, her access and registration to websites) – are already useful to significantly increase the creditworthiness assessment’s predictive power.[44] Ultimately, by processing these data, credit scoring algorithms are able to develop and identify previously unknown meta-variables, i.e. sets of decisions that can traced to specific aspects of the applicant’s personality and consumption attitude. Based on these elements, the reliability of the quantitative information provided by the consumer can be re-evaluated, and the conditions for granting or denying a loan determined.[45]

5. According to the vast majority of scholars who analysed the use of innovative data for credit scoring, it is highly unlikely for purely soft data-based algorithms to grow as dominant on the market, and to entirely replace hard, quantitative data: soft data will, most reasonably, provide complementary information to be elaborated in conjunction with traditional elements.[46]

Yet, in such correlative fashion, these elements are going to radically impact on the dynamics of access to credit; therefore they call for a normative effort in order to assess their impact on the existing regulatory framework and on financial intermediaries’ operative protocols.

Scoring algorithms based on soft data (as stand alone or combined resources) entail opportunities and risks for the credit market, both in micro and macroeconomic perspectives.

In addition to the benefits that we already suggested in the previous sections of this work,[47] the use of soft data for credit scoring purposes can improve the stability of the financial system overall, offering additional information to effectively prevent and react consumers’ indebtedness; at the same time, soft data are significant to promote wider access to credit and financial inclusion.

The availability of environmental and behavioral data – as long as it proves effective to ensure a high predictability of insolvency conditions – is useful to tailor offering conditions for loans and investments, and to allocate the risk of default efficiently amongst applicants, therefore reducing the likelihood of

systemic crisis; all these aspects are particularly significant in the light of the debate on product governance in the financial market.[48]

Soft data might play a pivotal role in reducing existing entry barriers for private agents in the credit market as well: by indirectly tackling the information oligopoly that institutional credit operators built overtime, alternative assessment methodologies reduce the concentration in the credit market – and its subsequent costs for consumers – allowing the new P2P lending platforms to offer credit to previously excluded groups.[49]

The utilization of algorithms that are able to discriminate amongst clients and predict insolvency with significant precision is also likely to result in a reduction of transaction costs for credit operators and, therefore, in more favourable conditions for (virtuous) consumers, considering both the *an* – i.e. the ability of evaluating the creditworthiness of "transparent" individuals – and the *quomodo* of a loan.[50]

As a counterbalance for these opportunities, the unregulated use of scoring algorithms exploiting soft data as well.

Firstly, innovative credit scoring systems raise significant questions in terms of (potential absence of) transparency in the creditworthiness evaluation.[51] Using data that are not directly connected to an individual financial sphere as proxies for the assessment, they entail the risk of making the whole operation "opaque" for applicants, providing a mere "acceptance or refusal" answer to their request. This problem, on more general grounds, exists for every form of creditworthiness assessment.[52] Yet, the proliferation of big data and the increasing availability of behavioural and psychological information further exacerbate this issue: in traditional systems, the use of data that are related to consumers' properties and financial activity (especially when the weighting rate is made public) provides a general understanding of the dynamics behind the elaboration of a score. On the opposite, the introduction of multiple new variables and the exploitation of algorithmic training techniques based on deep learning protocols and non-linear neural networks[53] offers few or no clarification to the applicants, who are exposed to the outcome of the elaboration.[54]

In such cases, the transparency principles is undermined both in its substantive and procedural function: if consumers are radically unable to understand how a score is determined, as a necessary consequence they have no opportunity to challenge an outcome that they deem discriminatory or unfair.[55]

The lack of transparency in automated decision-making is also problematic in terms of monitoring the significant variables which have been used for the assessment, in order to avoid disparate impact amongst applicants. Many elements that are used for profiling purposes (e.g. geographical and demographic data, or information on interactions or social media activities) can operate as indirect proxies for sensitive data, which shall not constitute the basis for decision (e.g. religious opinion, race, etc.).[56] Along with this aspect, the risk of observing biased algorithms is present: erroneous scoring might be either determined by a biased dataset, by the imposition of biased directives in the algorithms' design, or be the outcome of unsupervised training, and even emerge from the machine's progressive interactions with users.[57] Considering all these potential causes and variables, it is extremely arduous (even for software developers) to reverse-engineer the elaboration and identify the problem that caused the unfair outcome, and this is even more true for a public power or an individual consumer subject to the decision.[58]

A persistent verification over the quality of the dataset, and on the appropriateness of the elaboration protocol is significant also in order to ensure that – given the reticence (or even the inability) of

professional operators to disclose the characteristics and methodologies of their assessments[59] – using too many data do not hinder the rigor of the system, leading to systematic errors. Despite the (abovementioned) idea that soft data increase the algorithm's precision, they currently lack a standardized procedure allowing for the control of their robustness. Furthermore, since soft data are usually purchased by credit operators from third parties (e.g. the social media platform), it is difficult for them to directly appreciate the quality of an externally provided dataset.[60]
In the absence of stringent legal obligations regarding the characteristics that soft data must have, and on how they shall be evaluated, the major predictive power of algorithms using qualitative information could be counterbalanced by the inner uncertainty in the quality of the information itself. It should be considered, as well, that soft data are often determined and created by those same subjects, who will lately apply for credit (e.g. by operating declarations on social networks): an inner risk of manipulation is therefore existent and should be taken into appropriate consideration.
Lastly the risk of potential unfair exploitation of credit scoring algorithms by private operators should be considered: since there is not, currently, any substantive control systems to ensure fairness in the software elaboration, developers might use these tools (not to offer better conditions to the best applicants, but rather) to identify those consumers, who show tendency towards major expenditure and indebtedness.[61] Such a conduct would contrast with the responsible lending principle and undermine the robustness of financial markets in general.

6. In order to evaluate whether the existing regulatory framework is appropriate to address the challenges, that the use of soft data credit scoring algorithms raise for consumers' protection and market's stability, an overview of the main European law on creditworthiness assessment and its general provisions is opportune.
The most recent document on the issue is the 2018 European Central Bank *Guide to assessments of fintech credit institution license application*:[62] according to the *Guide* (when conducting the suitability assessment of the governance structure of the credit institution) national banking authorities and the European Central Bank are required to verify the feasibility of the applicant's credit-scoring model, considering both in-house credit-scoring models and models using data to validate credit scores obtained from third-party providers.[63]
Note that the Guide constitutes a soft law initiative, and this is consistent with the general trend of the EU Institutions in the regulation of Fintech, waiting for the phenomenon to further develop before enacting binding acts.[64] Furthermore, the Guide affects just a minor part of the entirety of actors in the credit market: according to the Guide, rules on Fintech banks apply to credit institutions as defined in Article 4(1)(1) of the Capital Requirements Regulation (CRR) only.[65]
In the lack of specific rules, the main binding provisions regulating algorithmic credit scoring are to be found in the Directive 2008/48/EC on credit agreements for consumers and in the Directive 2014/17/EU on credit agreements for consumers relating to residential immovable property. According to Art. 8(1) of Directive 2008/48/EC, before the conclusion of a credit agreement, "Member States shall ensure that [...] the creditor assesses the consumer's creditworthiness on the basis of sufficient information, where appropriate obtained from the consumer and, where necessary, on the basis of a consultation of the relevant database". If the credit agreement is related to an immovable property, then Art. 18 Directive 2014/17/EU mandates similar obligations. As for the main differences between the two provisions, Art. 18 qualifies the creditworthiness assessment as "thorough"; in addition, Art. 18

explicitly underlines that “the creditor only makes the credit available to the consumer where the result of the creditworthiness assessment indicates that the obligations resulting from the credit agreement are likely to be met in the manner required under that agreement”, therefore creating an ontological relation between the favourable outcome of the creditworthiness assessment and the provision of the loan. This aspect is not present in the Directive 2008/48/EC.

None of these provisions explicitly refers to the characteristics that algorithmic methodologies for the creditworthiness assessment should have, and neither offers clear indication on the quality of the data. These aspects in the regulation have not been addressed by the follow-up activity of the European Banking Authority either, since the most recent *Guidelines on creditworthiness assessment* merely identify some factors (e.g. servicing obligations; evidence of any missed payments; relevant taxes and insurance) to be kept in consideration throughout the assessment.[66]

Art 9 of Directive 2008/48, regulating the “database access”, might offer some indications: the main goal of the rule is to promote the non-discriminatory access to cross-border databases by EU creditors; yet, Art. 9(2) states that “if the credit application is rejected on the basis of consultation of a database, the creditor shall inform the consumer immediately and without charge of the result of such consultation and of the particulars of the database consulted”. By embracing an evolutionary interpretation of Art. 9(2), then it might be possible to encompass the features of the big and soft data set within the notion of “particulars of the database”, setting the ground for stringent control over the characteristics of the algorithmic elaboration.

Despite these (indirect) inferences, though, rules on the creditworthiness assessment do not provide clear indication nor requirements for conducting the scoring activity, and therefore lack significant prescriptive force.

Besides the loans and mortgages regulation, interesting elements can be inferred by the recent General Data Protection Regulation (GDPR): Art. 22(1) of the GDPR regulates automated individual decision-making phenomena, providing that “data subject shall have the right not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects concerning him or her or similarly significantly affects him or her.” This provision was one of the most debated amongst scholars and professionals, given the uncertainty of establishing a proper level of supervision for the automated processing to be lawfully operated.[67] Furthermore, the problem of regulating automated decision-making has been heightened by the recent indications provided by the High-level expert group on artificial intelligence created by the European Commission: in its recent *Ethics Guidelines For Trustworthy AI*,[68] the Group defended the idea that human agency and oversight represent two fundamental principles that should guide the implementation of artificial intelligence technologies. With regards to human agency, it was clarified that “users should be able to make informed autonomous decisions regarding AI systems” and that “they should be given the knowledge and tools to comprehend and interact with AI systems to a satisfactory degree and, where possible, be enabled to reasonably self-assess or challenge the system”. As for the oversight principle, the Guidelines state that “oversight may be achieved through governance mechanisms such as a human-in-the-loop (HITL), human-on-the-loop (HOTL), or human-in-command (HIC) approach. HITL refers to the capability for human intervention in every decision cycle of the system, which in many cases is neither possible nor desirable. HOTL refers to the capability for human intervention during the design cycle of the system and monitoring the system’s operation. HIC refers to the capability to oversee the overall activity of the AI system (including its broader economic, societal, legal and ethical impact) and the ability to decide

when and how to use the system in any particular situation. This can include the decision not to use an AI system in a particular situation, to establish levels of human discretion during the use of the system, or to ensure the ability to override a decision made by a system".

In such an uncertain framework, a comparative overview over the main relevant provisions of the U.S. legislation does not provide clear solutions either. The debate over the opportunity to permit automated credit scoring systems in the United States has been vigorous – especially considering the high-level of individual debt and oligopolistic nature of the American credit market.[69] – In addition, it is currently unclear how emerging credit scoring systems should operate in accordance with the American regulation, and if the elaboration of aggregated data by means of indirect proxies is susceptible to be regulated under the existing law.

Under the *Fair Credit Reporting Act*, consumer-reporting agencies are required to "adopt reasonable procedures for meeting the needs of commerce for consumer credit, personnel, insurance, and other information in a manner which is fair and equitable to the consumer, with regard to the confidentiality, accuracy, relevancy, and proper utilization of such information";[70] furthermore, they – as well as any potential third party involved in the acquisition, furniture, or processing of information used in the assessment reports – shall retain negative information about an applicants' solvency for a maximum of seven years.[71] Upon these foundations, the *Equal Opportunity Act* introduced an express prohibition of discrimination on the basis of the applicant's race, color, religion, national origin, sex or marital status, or age.[72] Companies operating in consumer credit scoring are also subject to the obligations set in the *Gramm-Leach-Bliley Act* ***[73]*** and to the periodic reporting obligations arising from the *Fair and Accurate Credit Transactions Act*.[74]

It should be noted that, after the Equifax scandal[75] the Consumer Financial Protection Bureau inaugurated a process of rethinking and redefinition of the obligations concerning the use and acquisition of data for credit reporting and credit scoring: in light of a renovated interest in improving the three areas of (a) data accuracy, (b) dispute handling and resolution between consumers and credit institutions and (c) general reporting,[76] integrations and amendments have been introduced through the *Economic Growth, Regulatory Relief and Consumer Protection Act* in 2018.[77]

Lastly, in March 2019 the reform bill *Fair Lending for All Act* was presented to the House of Representatives:[78] amongst its main innovations, the Bill introduces some specifications to existent class of data present in the *Equal Credit Opportunity Act*[79] and identifies new types of data (that were unknown to the previous legislations), such as the ones related to the applicant's geographical location.[80]

Despite these efforts, both the US framework and the European one lack a systematically critical overview of the phenomenon of automated credit scoring, and do not tackle its most controversial implications – e.g. the use of indirect proxies or aggregate data for the individual assessment. With regards to this aspect, identifying types of data or information to be qualified as protected looks like a flawed solution, without any substantive effect in terms of consumer protection. This is, in particular, significant in light of a consideration: in the classifying society, the use of personal identification or the distinction between normal and "sensitive" data as main criteria to impose diligence obligation is meant to disappear, since big data-based algorithms operate their inferences using clusters of consumers' information, and therefore do not need to relate the datum with the individual person it refers to.[81]

7. In order to manage the risks that the emerging methodologies for credit scoring create for consumer protection while, at the same time, preserving the incentives and potentials of these technologies in the credit market, some considerations are necessary.

First and foremost, an historical analysis of the credit rating phenomenon reveals that the use of soft data for the creditworthiness assessment has way deeper roots than the Fintech phenomenon, being even older than the normative concept of credit scoring itself.

Consumer credit began to diffuse in a structured form since the late middle age, and the loan system was based on local monitoring conducted within each community: creditors obtained information about the debtor's diligence and reputation from her family or from other members of the village. Lenders looked for data regarding her personal reliability, which was considered more significant than the economic one:[82] in other terms, qualitative and soft data had been used way before than the econometric system of data elaboration developed in the credit sector.

We might deduce that the main critical aspect in the development of new methodologies for assessing consumers' creditworthiness is not strictly related to the use of applicants' personal, behavioural, or environmental data (as long as this information is not used for purposeful discriminatory purposes): what is relevant is that in the digital environment the amount of data available to creditors has significantly increased. Information is elaborated in massive and aggregate form, and then circulates amongst sector operators and software developers. These elements are at the core of the difficulties consumers face in understanding which information is relevant for their solvency and, therefore, in drawing causal inferences regarding the outcome of the assessment in order to challenge it – if deemed unfair – or to change their conduct and improve their rating in the future.

The problem is, once again, intertwined with the scope of the transparency principle. Yet, any regulatory proposal should consider that the risk is technology- rather than quality-related: it does not arise from the characteristics of the data, but from their modes of elaboration and aggregation.

Along this line, it has been empirically observed that the absence of transparency in the credit sector constitutes the main factor for consumers' distrust towards access to retail credit.[83] This is particularly acute in those countries where the population exhibits low levels of financial literacy, and represents a major obstacle for the development of the market economy: even an extremely efficient credit system will not be able to properly operate if consumers are not willing to request loans in the first place.[84]

Lastly, in order to develop a policy proposal to regulate the phenomenon, the existence of similar experiences should be taken into consideration, in order to verify whether a comparative approach might lead to significant improvement of the system.

In embracing this perspective, we considered the similarities and differences existing between the activity of consumer rating operators (agencies, institutional entities, etc.) and credit rating agencies (CRAs): these companies, in fact, assign credit ratings, which measure a debtor's ability to pay back debt by making timely principal and interest payments, as well as her general likelihood of default. CRAs play a pivotal part in the allocation of monetary assets, and rating have a significant impact on public operators and governs' policies.[85]

The role that CRAs had in the *Lehman Brothers* collapse – and, earlier, in the 2001 *Enron* case – leading to the 2008 financial crisis pushed regulators in Europe towards the adoption of innovative regulations in order to hold CRAs responsible for erroneous ratings.[86] Before 2009, the main set of obligations regulating CRAs' actions was found in the International Organization of Securities

Commission (IOSCO) *Statement of principles regarding the activities of credit rating agencies*:*[87]* after the financial crisis, the European institutions addressed the topic by enacting the s.c. First Regulation No 1060/2009 on *credit rating agencies.[88]* The Regulation was later followed by two amending Regulations respectively in 2011 (s.c. First Reform)[89] and 2013 (s.c. Second Reform).[90]

These modifications[91] shift the balance in the allocation of rights and obligations of CRAs by embracing a precautionary perspective: whereas, in the past, CRAs mostly relied on self-regulation and institutional *ex post* supervision, the new strand of regulation stresses how processing and assessment activities should be conducted according to the principles of quality, transparency, and integrity of the data. Furthermore, a constant exchange of information between CRAs and supervisory entities is requested as essential to ensure the responsible elaboration of ratings.

CRAs' rating activity and credit institutions' creditworthiness assessment are similar, under both an operative and a substantive perspective: both entities assess the robustness and reliability of market agents in order to predict their solvency and provide information to potential investors, and both are considered essential in order for the financial market to properly operate.[92]

Relevant differences are present as well: the most intuitive one pertains to the nature of those who are subject to evaluation and assessment (companies and their financial products for CRAs, individual retail consumers for credit institutions). In addition, the specific characteristics of the different subjects have an impact on the methodologies that market operators exploit, and on the weight that qualitative and quantitative data have in the rating – e.g. it is traditionally defended that behavioural and environmental data have less significance than quantitative ones in CRAs' assessment.[93]

Furthermore, some regulatory concerns in the governance over CRAs are not equally relevant – or not present at all – when consumer credit institutions are considered: for example, conflict of interests is fundamental for CRAs, while it is less prominent when consumer scoring is considered.[94]

Still, these two types of entities show common functional features: they both aim at promoting sustainable equilibriums between the allocation of offer and demand of monetary resources and they both do so by providing assessments that – due to the high level of reliability of their issuers – can reduce transaction costs and allow for the rationalization and efficient allocation of assets. In both cases, this reliability is supposed to be grounded in the robustness and transparency of the criteria and protocols used for the elaboration of the ratings: by abiding to these principles, these entities qualify themselves as worthy of investors' trust, and as essential operators to promote economic initiative, savings and responsible investment that are instrumental to the general social welfare.

8. Moving from the abovementioned considerations, we can conclusively hypothesize a normative model in order to regulate consumer-scoring activities based on algorithms exploiting big and soft data.

What I suggest is, in particular, to develop a regulatory proposal based on a neutral model (that can be virtually applied to any scoring activity) compliant to the principles of reliance, fairness, and transparency. The matrix to identify the obligations for this model shall be developed moving from the rating agencies existing regulation.

It is, first and foremost necessary to evaluate which aspects of the current CRAs regulation could (and should) be adapted to (and adopted in) the consumer scoring activity. In particular, some provisions of the Regulation 1060/2009 – in its current structure, as drafted after the Second Reform – are of particular interest.

The first provision is Art. 14, according to which each company, willing to obtain the status of credit rating agency, shall apply to the *Committee Of European Securities Regulators* (CESR) for registration: the application shall include information regarding the company and its activity,[95] and the approval automatically makes the Agency subject to the whole Regulation.

Such a duty is not unknown to the financial sectors, and a similar provision also applies to Fintech banks;[96] even though the subjective qualification of Fintech banks is a major *vulnus* of the regulatory body in the field: in our hypothesis, on the contrary, the rules would apply *inter alia* to non-Fintech banks and to P2P lending platforms, who are currently operating in an uncertain regulatory condition:[97] the tentative regulation would, in fact, focusing on the activity (creditworthiness assessment) and not on the subjective characteristics of the operator (Fintech banks or other operators).

A second significant provision is Art. 10(2) on "Disclosure and presentation of credit ratings": according to the rule, CRAs are required to indicate, when a rating is issued, "(a) all substantially material sources, including the rated entity or, where appropriate, a related third party, which were used to prepare the credit rating [...]; (b) the principal methodology or version of methodology that was used in determining the rating [...], with a reference to its comprehensive description [...]; (c) the meaning of each rating category, the definition of default or recovery and any appropriate risk warning, including a sensitivity analysis of the relevant key rating assumptions, such as mathematical or correlation assumptions [...]; (d) the date at which the credit rating was first released for distribution and when it was last updated". Furthermore, any agency is required to inform the rated entity at least 12 hours before publication of the credit rating and of the principal grounds on which the rating is based, in order to provide the opportunity to draw attention of the credit rating agency to any factual errors.

In addition to the information that credit rating agencies must provide when a rating is issued, according to Art. 12 of the Regulation, CRAs shall publish an annual Transparency Report illustrating the supervision mechanisms implemented to ensure and safeguard the rating quality.

Throughout this process, the European Securities and Markets Authority (ESMA) has the power to verify that methodologies used by credit rating agencies are rigorous, systematic, continuous and subject to validation based on historical experience, including back-testing.[98]

Lastly, according to Art. 11a of the Regulation, ESMA shall publish the individual credit ratings on a website (European Rating Platform): through the presence of a centralized platform, it is possible for any investor, issuer, or financial market operator, to compare the ratings issued for a relevant company and evaluate its historical performances.[99]

By modifying adapting these rules to the specific characteristics of consumer credit scoring, it seems possible to lay the ground for a first, general, operational framework: these rules would result in a) the creation of a public register; b) the identification of an authority provided with a general supervision power (and, therefore, not limited to institutional banks); c) the introduction of periodical disclosure and communication duties on credit operators towards consumers, and in d) the creation of an open platform with information related to the rating and (in the specific declination we hypothesized) data regarding the protocol to determine consumer scoring.

Even though, the introduction of these new rules constitute just one part of the proposal: it is, as a matter of fact, equally significant to look for technological solutions that would make these obligations not only legally, but also concretely binding.

Amongst existing tools, an effective solution in order to promote both reliability and transparency in the set up of the platform, and in its interaction with the consumer is represented by the set up of a semi-

permissioned blockchain system[100] (or also a centralized database) by the supervisory authority: the platform would allow, on one side, the introduction of score-related data by supervised entities and, on the other one, a constant and effective monitoring by the public administration.

Within a tentative regulatory framework for credit scoring activities, a blockchain platform could be structured according to three following levels of permission.

– Level 1: general management and supervision of the platform, to be entrusted to the public supervisory authority.

– Level 2: granted to credit operators (banking institutions or P2P platforms). After the approval of the application, credit operators are assigned a Legal Entity Identifier (LEI) code.[101] By using the LEI code, they can enter the platform and enter all information required on the typology and characteristics of the data that are used for the issuance of creditworthiness ratings. These data are not visible to competitors – in order to safeguard competition and operators' confidentiality; in particular, credit scoring entities will be asked to provide information regarding: (a) classes and categories of data gathered pertaining to consumers, including, but not limited to, details of existing credit accounts, credit status and activity, salary and employment data, retail purchase data, location data, and social media data; (b) the types of sources from which each data category is obtained and the collection methods used to gather such data, including the collection methods used by any third party data vendors; and (c) complete list of all individual data points and combinations of data points that a credit score or credit assessment tool treats as significant.[102] Data are then grouped in clusters based on their source – e.g. data obtained from social media, apps, etc. – and relative weight in the assessment, in order to draft simplified outlines for consumers to consult.

– Level 3: access and monitor the information on the platform (permission for consumers). Consumers are allowed to inspect the categories used by credit operators: when an assessment regarding their creditworthiness is made, they will be able to evaluate which dataset have been considered, use this information when making their choices, and assess the consistency between the calculation algorithm and their score.

By implementing such a system, the platform would be updated in real time, and the supervisory authority could monitor continuously the conducts of credit operators.[103] Given the different level of permission, the public authority could access and investigate the entirety of information provided by market operators on their methodologies and data, whereas consumers would be allowed to examine the categories of data and – eventually – their relative weight. This, in order to allow for a sufficient level of data sharing without prejudicing credit operators' proprietary interests, safeguarding both consumers and competition.[104]

9. Designing the best regulation for consumers' creditworthiness assessments requires a careful account of multiple, intertwined, and concurring (public and private) interests: on the one hand, access to credit is essential for effective economic citizenship and to incentivise consumption; on other one, if the system is opaque or excessively unbolted, then the stability of institutional operators is undermined, entry barriers for vulnerable groups emerge, and unlawful and unconstitutional effects related to the use of soft and big data by automated algorithms ultimately arise.

In such a context, the joint use of technological tools and legal reforms can stimulate P2P commerce and introduce original operative paradigms in the credit sector; when they operate in accordance with the principle of substantive transparency, these tools are likely to facilitate access to information by

consumers and supervisory authorities, without hindering progress in credit-scoring systems. As a consequence, they create the conditions for operators to improve their analytic methodologies in the creditworthiness assessment, reduce transaction costs, promote responsiveness by professional operators and create trust in the retail credit sector.[105]

We hold true that a revision or the existing regulatory framework based on: a) the reinterpretation of credit rating agencies' law and b) the responsible technological integration in the operative praxis of credit scoring agencies, can efficiently mediate amongst the conflicting interest insisting in this area, with the ultimate result of promoting socially responsible lending with personalized conditions for each applicant. In order for this to happen, though, normative argumentations and reform of legal *corpora* should converge together with the implementation of technological resources, as two essential, complementary aspects of the Fintech phenomenon.

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[48] See Troiano V.- Motroni R. (eds.), *LA MIFID II. Rapporti con la clientela – regole di governance – mercati*, Cedam, 2016, 213.

[49] See Bonini S.- Dell'acqua A.- Fungo M.- Kysucky V., *Credit market concentration, relationship lending and the cost of debt*, in *International Review of Financial Analysis*, 2016, 45, 172–179; also Lemieux C.- Jagtiani J., *Fintech lending: Financial Inclusion, Risk Pricing, and Alternative Information*, in *Federal Reserve Bank of Philadelphia Working Papers*, 2017, 17, 19.

[50] Policy And Economic Research Council, R*esearch Consensus Confirms benefits of Alternative Data*, 2015, http://www.perc.net/wp-content/uploads/2015/03/ResearchConsensus.pdf; DEMYANK Y.- KOLLINER D., *Peer-to-Peer Lending Is Poised to Grow*, 2014, https://www.clevelandfed .org/newsroom-and-events/publications/economic-trends/2014-economic-trends/et-20140814-peer-to-peer-lending-is-poised-to-grow.aspx.

[51] See European Banking Authority, *Consumer Trends Report 2017*, https://eba.europa.eu/ documents/10180/1720738/Consumer+Trends+Report+2017.pdf.

[52] Citron D.K. – Pasquale F., *The scored society*, 10.

[53] See West D., *Neural network credit scoring models*, in *Computers & Operations Research*, 2000, 27, 1131-1152. Recently, v. Nazari M., *Measuring Credit Risk of Bank Customers Using Artificial Neural Network*, in *Journal of Management Research*, 2013, 5, 2; Munkhdalai L.- Munkhdalai T.- Namsrai O.E.- Lee Y.J.- Ryu K.H., *An Empirical Comparison of Machine-Learning Methods on Bank Client Credit Assessments*, in *Sustainability*, 2019, 11, 699.

[54] It shall be noted that this issue is significant for supervision authorities as well. See e.g. U.S. Congressional Research Service, *Consumer Credit Reporting, Credit Bureaus, Credit Scoring, and Related Policy Issues*, 28 marzo 2019, https://fas.org/sgp/crs/misc/R44125.pdf; also Baer G.- Prakash

N., *Machine Learning and Consumer Banking: An Appropriate Role for Regulation*, http://www.bpi.com, 2019.

[55] Note that this is a general problem existing for any automated decision-making algorithms, which was considered also by the recent Art. 22 of the EU General Data Protection Regulation (GDPR). See *ex multis* Pasquale F., *Restoring Transparency to Automated Authority*, in *Journal On Telecommunications & High Tech Law*, 2011, 9, 235–236; Selbst A.- Powles J., *Meaningful information and the right to explanation*, in *International Data Privacy Law*, 2017, vol. 7, iss. 4, 233–242; Brkan M., *Do algorithms rule the world? Algorithmic decision-making in the framework of the GDPR and beyond*, in *Terminator or the Jetsons? The Economics and Policy Implications of Artificial Intelligence*, Technology Policy Institute, Washington, 2018; Mendoza I.- Bygrave L., *The right not to be subject to automated decisions based on profiling*, in *EU Internet Law*, Springer, 2017, 77–98; Almada M., *Human Intervention in Automated Decision-Making: Toward the Construction of Contestable Systems*, *International Conference on Artificial Intelligence and Law (ICAIL 2019)*, forthcoming and currently available at https://ssrn.com/abstract=3264189; Burrell J., *How the Machine "Thinks": Understanding Opacity in Machine Learning Algorithms*, in *Big Data and Society*, 2016, 3, 1.

[56] Barocas S.- Selbst A., *Big Data's Disparate Impact*, in *California Law Review*, 2016, vol. 104, 671; Selbst A., *Disparate Impact in Big Data Policing*, in *Georgia Law Review*, 2017, 52, 109; Leese M., *The New Profiling: Algorithms, Black Boxes, and the Failure of Anti-Discriminatory Safeguards in the European Union*, in *Security Dialogue*, 2014, vol. 45, iss. 5, 494–511.

[57] In general, on algorithmic bias in computer systems, see Friedman B.- Nissenbaum H., *Bias in Computer Systems*, in *ACM Transactions on Information Systems*, 1996, iss. 14, 3; also Pedreschi D.- Ruggieri S.- Turini F., *Discrimination-aware data mining*, in *Proceedings of KDD*, 2008. On the specific topic, see Angelini R., *Intelligenza Artificiale e governance. Alcune riflessioni di sistema*, in Pizzetti F. (ed.), *Intelligenza artificiale, protezione dei dati personali e regolazione*, Turin, 2018, 295; Kuner C.- Svantesson D.J.B.- Cate F.H.- Lynskey O.- Millard C., *Machine learning with personal data: is data protection law smart enough to meet the challenge*?, in *International Data Privacy Law*, 2017, 7, 1; DANKS D.- LONDON A., *Algorithmic Bias in Autonomous Systems*, in *Proceedings of the 26th International Joint Conference on Artificial Intelligence*, 2017.

[58] *Amplius* Havard C.J., *"On The Take": The Black Box of Credit Scoring and mortgage discrimination*, in *Public Interest Law Journal* 2011, 20, 241; SOLOVE D.J., *Data Mining and the Security-Liberty Debate*, in *University of Chicago Law Review*, 2008, 75, 343.

[59] Zarsky T., *Transparent Predictions*, in *Illinois Law Review*, 2013, 1503, 1512; Id. *Transparency in Data Mining: From Theory to Practice*, in Custers B.- Calders T.- Schermer B.- Zarsky T. (eds.), *Discrimination and Privacy in the Information Society. Studies in Applied Philosophy, Epistemology and Rational Ethics*, vol 3. Springer, 2013, 301-324.

[60] Citron D.K., *Technological Due Process*, in *Washington University Law Review*, 2008, 85, 1249.

[61] Libertini M., *La tutela della libertà di scelta del consumatore e i prodotti finanziari*, in Grillo (ed.), *Mercati finanziari e protezione del consumatore*, Milan, 2010, 21.

[62]https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.201803_guide_assessment_fintech_credit_inst_licensing.en.pdf

[63] Guide, 9.

[64] Cfr. Financial Stability Board, *Artificial intelligence and machine learning in financial services*, 2017, http://www.fsb.org/wpcontent/uploads/P011117.pdf; European Banking Authority, *Eba Report On The Prudential Risks And Opportunities Arising For Institutions From Fintech*, 2018, https://eba.europa.eu/documents/10180/2270909/Report+on+prudential+risks+and+opportunities+arising+for+institutions+from+FinTech.pdf; Esma, Eba, Eiopa, *Joint Committee Discussion Paper On The Use Of Big Data By Financial Institutions*, 2018, https://www.esma.europa.eu/press-news/consultations/joint-committee-discussion-paper-use-big-data-financial-institutions.

[65] As a consequence many operators, such as P2P lending platforms operating as mere intermediaries, are not subject to the Guide.

[66] European Banking Authority, *Guidelines on creditworthiness assessment*, EBA/GL/2015/11, 2015, https://eba.europa.eu/regulation-and-policy/consumer-protection-and-financial-innovation/guidelines-on-creditworthiness-assessment#, 5.

[67] *Ex multis* see Wachter S.- Mittelstadt B.- Floridi L. *Why a Right to Explanation of Automated Decision-Making Does Not Exist in the General Data Protection Regulation*, in *International Data Privacy Law*, 2017; Malgieri, G.- Comandé, G., *Why a Right to Legibility of Automated Decision-Making Exists in the General Data Protection Regulation*, in *International Data Privacy Law*, 2017, vol. 7, iss. 3; Wachter S.- Mittelstadt B.- Russell C., *Counterfactual Explanations Without Opening the Black Box: Automated Decisions and the GDPR*, in *Harvard Journal of Law & Technology*, 2018, vol. 31, iss. 2; Kamarinou D.- Millard C.- Singh J., *Machine Learning with Personal Data*, in *Queen Mary School of Law Legal Studies*, Research Paper No. 247, 2016, https://ssrn.com/abstract=2865811; Brkan M., *Do Algorithms Rule the World? Algorithmic Decision-Making in the Framework of the GDPR and Beyond*, in *International Journal of Law and Information Technology*, 2019, https://ssrn.com/abstract=3124901; Zarsky T., *The Trouble with Algorithmic Decisions: An Analytic Road Map to Examine Efficiency and Fairness in Automated and Opaque Decision Making*, in *Science, Technology, & Human Values*, 2016, 41, 118-132. Mendoza I., *The Right Not to be Subject to Automated Decisions Based on Profiling*, in Synodinou T.E.- Jougleux P.- Markou C.- Prastitou T. (eds.), *EU Internet Law. Regulation and Enforcement*, Springer, 2017.

[68] https://ec.europa.eu/futurium/en/ai-alliance-consultation).

[69] See Weiss E., *The Equifax Data Breach: An Overview and Issues for Congress*, in *Congressional Service Report Insight* IN10792; Jentzsch N., *The Economics and Regulation of Financial Privacy: An International Comparison of Credit reporting System*, Physica-Verlag, 2006, 88.

[70] See15 U.S.C., §1681(b).

[71] Consumer Financial Protection Bureau, *How long does negative information remain on my credit report?*, 4 Aug. 2016, https://www.consumerfinance.gov/ask-cfpb/how-long-does-negative-information-remain-on-my-credit-report-en-323/.

[72] See15 U.S.C., §1691.

[73] According to § 501(b) they are required, in particular, to establish appropriate standards for the financial institutions subject to their jurisdiction relating to administrative, technical, and physical safeguard—(1) to insure the security and confidentiality of customer records and information; (2) to protect against any anticipated threats or hazards to the security or integrity of such records; and (3) to protect against unauthorized access or use of such records or information which could result in substantial harm or inconvenience to any customer.

[74] Pub L. No 108-59, 11Stat 1952.

[75] See Hao K., *The complete guide to the Equifax breach*, in *Quartz*, 2017, https://qz.com/1079253/the-complete-guide-to-the-equifax-breach/.

[76] Consumer Financial Protection Bureau, *Supervisory Highlights Consumer Reporting Special Edition*, 2017, 14, https://files.consumerfinance.gov/f/documents/201703_cfpb_Supervisory-Highlights-Consumer-Reporting-Special-Edition.pdf.

[77] P.L. 115-174.

[78] The bill can be examined at https://www.congress.gov/bill/116th-congress/house-bill/166.

[79] E.g. the add of sexual orientation and gender identity as classes protected against discrimination with respect to credit transactions.

[80] H.R. 166, §3. "Prohibition On Credit Discrimination".

[81] Comandé G., *Regulating Algorithm's Regulation? First Ethico-Legal Principles, Problems, and Opportunities of Algorithms*, in Cerquitelli T.- Quercia D.- Pasquale F. (eds.), *Transparent Data Mining for Big and Small Data*, Springer, 2017, 182; also Purtova N., *The law of everything. Broad concept of personal data and future of EU data protection law*, in *Law, Innovation and Technology*, 2018, vol. 10, iss. 1, 40-81; Schwartz P.- Solove D., *The PII Problem: Privacy and a New Concept of Personally Identifiable Information*, in *N.Y.U. Law Review*, 2011, 86, 1814; Zuiderveen Borgesius F., *Singling Out People Without Knowing Their Names – Behavioural Targeting, Pseudonymous Data, and the new Data Protection Regulation*, in *Computer Law & Security Review*, 2016, 32, 256–271.

[82] See Calder L., *Financing the American Dream: A Cultural History of Consumer Credit*, Princeton University Press, 1999 Also Lipartito K., *The Narrative and the Algorithm: Genres of Credit Reporting from the Nineteenth Century to Today*, 2011, https://ssrn.com/abstract=1736283.

[83] Cfr. Salvatore A.- Franceschi F.- Neri A.- Zanichelli F., *Measuring the financial literacy of the adult population: the experience of Banca d'Italia*, in *Questioni di Economia e Finanza della Banca d'Italia*, 2018, 435

[84] Cfr. Reifner U., *Responsible Credit in European Law*, in *The Italian Law Journal*, 2018, vol. 4, n. 2, 432.

[85] Chiu I., *Regulating Credit Rating Agencies in the EU: In Search of a Coherent Regulatory Regime*, in *European Business Law Review*, 2014, vol. 25, iss. 2, 269–294.

[86] See Coffee J., *Understanding Enron: It's About the Gatekeepers, Stupid*, in *Columbia Law School Working Paper* No 207, 2002.

[87] IOSCO, Technical Committee, *Statement of principles regarding the activities of credit rating agencies*, 2003, http://www.iosco.org/library/pubdocs/pdf/IOSCOPD151.pdf. In 2015, a new version of the IOSCO code of conduct was enacted: see IOSCO *Code of Conduct Fundamentals for Credit Rating Agencies, Final Report*, 2015, https://www.iosco.org/library/pubdocs/pdf/IOSCOPD482.pdf.

[88] Regulation (EC) No 1060/2009 of the European Parliament and of the Council of 16 September 2009 on credit rating agencies, OJ L 302, 17 Nov. 2009, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2009.302.01.0001.01.ENG.

[89] Regulation (EU) No 513/2011 of the European Parliament and of the Council of 11 May 2011 amending Regulation (EC) No 1060/2009 on credit rating agencies, OJ L 145, 31 May 2011, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32011R0513.

[90] Regulation (EU) No 462/2013 of the European Parliament and of the Council of 21 May 2013 amending Regulation (EC) No 1060/2009 on credit rating agencies, OJ L 146, 31 May 2013, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013R0462.

[91] A general overview of the reform of the CRAs regulation is present in Deipenbrock G., *Trying or falling better next time? – The European legal framework for credit rating agencies after its second reform,* in *European Business Law Review,* 2014, vol. 25, iss. 2, 207-225.

[92] Further developing on this path, some legal scholars argued that these entities should be considered "semi-public" ones in terms of obligations towards the general public, in the light of the general trust that communities and governments have in the quality and reliability of their assessments. The topic has been developed, more in general, with regards to social media platforms: see Balkin J., *Information Fiduciaries and the First Amendment,* in *UC Davis Law Review,* 2016, vol. 49, iss. 4, 1183 ss.; Id., *Free Speech in the Algorithmic Society: Big Data, Private Governance, and New School Speech Regulation, ibidem,* 2018, 51, 1151. Critically, on this theory, Khan L., Pozen D.E., *A Skeptical View of Information Fiduciaries,* in *Harvard Law Review,* Vol. 133, 2019.

[93] Recently, though, this perspective have been reexamined under a critical view: see Tor A., *The Market, the Firm, and Behavioral Antitrust,* in Zamir E.- Teichman D. (eds.), *The Oxford Handbook of Behavioral Economics and the Law,* Oxford University Press, 2015, 532; Armstrong M.- Huck S., *Behavioral economics as applied to firms: A primer*, in *Competition Policy International*, 2010, 6, 3–45; Engel C., *The behaviour of corporate actors: How much can we learn from the experimental literature?*, in *Journal of Institutional Economics*, 2010, 6, 445–475.

[94] Crockett A.- Harris T.- Mishkin F.- White E., *Conflicts of Interest in the Financial Services Industry: What Should We Do About Them*?, London, 2003, 41 ss.; also Bai L., *On Regulating Conflict of Interests in the Credit Rating Industry,* in *New York University Journal of Legislation and Public Policy*, 2010, 13.

[95] According to the Annex II of the Regulation 1060/2009, the application shall include 1. Full name of the credit rating agency, address of the registered office within the Community; 2. Name and contact details of a contact person and of the compliance officer; 3. Legal status; 4. Class of credit ratings for which the credit rating agency is applying to be registered; 5. Ownership structure; 6. Organisational structure and corporate governance; 7. Financial resources to perform credit rating activities; 8. Staffing of credit rating agency and its expertise; 9. Information regarding subsidiaries of credit rating agency; 10. Description of the procedures and methodologies used to issue and review credit ratings; 11. Policies and procedures to identify, manage and disclose any conflicts of interests; 12. Information regarding rating analysts; 13. Compensation and performance evaluation arrangements; 14. Services other than credit rating activities, which the credit rating agency intends to provide; 15. Programme of operations, including indications of where the main business activities are expected to be carried out, branches to be established, and setting out the type of business envisaged; 16. Documents and detailed information related to the expected use of endorsement; 17. Documents and detailed information related to the expected outsourcing arrangements including information on entities assuming outsourcing functions.

[96] See the European Central Bank *Guidelines,* Note 89.

[97] Cfr. European Banking Authority, *Opinion of the European Banking Authority on lending-based crowdfunding*, EBA/Op/2015/03, 2015, https://eba.europa.eu/documents/10180/983359/EBA-Op-2015-03+%28EBA+Opinion+on+lending+based+Crowdfunding%29.pdf); Linciano N.- Soccorso P., *FinTech e RegTEch: approcci di regolamentazione e di supervisione*, in Paracampo M.T.:

(ed.), *FinTech. Introduzione ai profili giuridici di un mercato unico tecnologico dei servizi finanziari*, Torino, 2017, 42; Naidji C., *Regulation of European peer-to-peer lending Fintechs Regulatory framework to improve SME's access to capital*, in *KU Leuven Working Paper*, 2017, 38.

[98] Regulation 462/2013, Recital 27.

[99] The European Rating Platform has been introduced in August 2017, and the register can be consulted at

https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_radar.

[100] See Peters G.W., Panayi E., *Understanding Modern Banking Ledgers through Blockchain Technologies: Future of Transaction Processing and Smart Contracts on the Internet of Money*, in Tasca P.- Aste T.- Pellizzon L.- Perony N. (eds.), *Banking Beyond Banks and Money. A Guide to Banking Services in the Twenty-First Century*, Springer, 2016, 239-278.

[101] See Esma. *Brief on Legal Entity Identifiers*, ESMA70-145-238, 2017.

[102] The set of relevant variables for disclosure obligations in credit scoring is presented in Hurley M.- Adebayo J., *Credit Scoring in the Era of Big Data*, 204.

[103] A similar solution has been already hypothesized for financial intermediaries' reporting duties: see Peters G.W.- Vishnia G.R., *Blockchain Architectures for Electronic Exchange Reporting Requirements: EMIR, Dodd Frank, MiFID I/II, MiFIR, REMIT, Reg NMS and T2S*, in Kuo Chuen (ed.), *Handbook of Blockchain, Digital Finance, and Inclusion, Volume 2: ChinaTech, Mobile Security, and Distributed Ledger*, Academic Press, 2017

[104] See Jappelli T.- Pagano M., *Public Credit Information: A European Perspective*, in Miller (ed.) *Credit Reporting Systems and the International Economy*, MIT Press, 2003, 81-114. See also De Almeida A.M-. Damia V., *Challenges and prospects for setting-up a European Union shared system on credit*, in *IFC Bulletin*, 2014, 37, 7-10.

[105] See World Bank Group, *Cryptocurrencies and Blockchain*, 2018, http://documents .worldbank. org/curated/en/293821525702130886/Cryptocurrencies-and-blockchain, 21, 34-36.

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«They say things are happening at the border, but nobody knows which border» (Mark Strand)

The regulation of fintech banks: questions and perspectives

by **Valerio Lemma**

Abstract: *This analysis concerns the regulation of fintech banks, having regard to the possibility of a business model in which the production and delivery of banking products and services are based on technology-enabled innovation. We will go deep into European Central Bank's definition of 'fintech bank', in order to understand the role and the scope of supervision.*

Indeed, this paper highlights the possibility that the software of fintech banks will unbundle banking into its core functions of settling payments, performing maturity transformation, sharing risk and allocating capital. Hence, we will consider both the benefit of machine-learning techniques in respect of credit scoring, and the risk of using self-executing software that may affect the supply and demand.

1. The direct effects of innovation on banking are catching the attention of the European policymakers, and they are challenging the choices of the EU regulators, as the rules of the EU capital market provide for the public intervention in the real economy and financial market (having regard to Articles 41 and 47 of the Italian Constitution, as well as Article 127 of the Treaty on European Union).

In the banking industry, there are evidences that the application of the fintech innovations interacts with the business model of a credit institution, and therefore it requires assessing and managing the risks that could arise because of the use of algorithms, software and platforms designed and run by third parties.[1] To this end, obviously, the policymakers are called to prevent that the benefits (of fintech) will resolve to the detriment of the overall financial stability or the common welfare.

As a preliminary remark, we set a boundary of this analysis with respect to the awareness on opportunities and benefits that may arise from the application of mechanisms able to drive the credit institutions both towards the maximization of their outcome and away from the most dangerous transactions. In this respect, it is worth beginning from the micro prudential aspects of the application of algorithms and of the use of big data, as their impact on financial processes, procedures, and services may reduce their operational risk profile (being it dependent on the type of technology underlying the business model). However, this would result in a new kind of risk, due to the capacity of software to reach the aforesaid goals, as well as in a combination of outsourcing risks and cyber-security issues.

2. European Central Bank's definition of 'fintech bank' goes beyond the identification of a new type of market player that falls within the scope of its special guidelines, and suggested that this player presents the features of the credit institution set forth by the Regulation (EU) no. 575/2013 and the fintech firm provided by the Financial Stability Board.

The material effects of this definition refer to the identification of a new phenomenon, due to the possibility that technological evolution and financial innovation allow a greater efficiency in the circulation of capital, as well as the convenience of services alternative to banking, financial services and insurance.[2]

In this respect, it is worth considering that the monitoring of this phenomenon suggests the existence of "a business model in which the production and delivery of banking products and services are based on technology-enabled innovation", and this leads to the identification of a decentralized network, in which supervised entities and other firms may satisfy a portion of the demand for investment, credit, or risk mitigation. [3] Thus there is the need to focus on the role of law in the implementation of minimum standards and the development of supervisory remedies.

Up to date, scholars have made empirical observations of fintech firms able to supply financial services supporting lower (operating) expenses and transaction costs, due to the flexibility of their organizational structure. [4] Therefore, our research concerns a comprehensive assessment of the applicable regulatory framework, in order to verify the opportunity to extend the scope of supervision and the tasks of the national and supranational authorities.

Any economist may argue that in capital markets the parties are fungible, however, from a policymaking perspective any regulator shall consider that, in dealing with savings, individual rights do matter. In this respect, we have to assume that the role of private law will continue to refer to the safeguard of transparency, having regard to the protection of the good faith from the bargaining power. This implies the responsibility of individuals and the use of contractual sanctions able to avoid that a transaction jeopardizes the welfare. Nowadays, we are facing a new phenomenon that recognizes specific value to certain attributes of the personality (that can also be shared or traded without being a direct and immediate burden for the person), and promotes both the 'objectivation' and the 'contractualization' of such attributes. Moreover, there are problems of the individuals' capacity to be in the position to negotiate them, to understand what they are negotiating, and to withdraw from such negotiations (or the relevant agreements). So, policy makers are called to set up a system of safeguards and backstops able to protect the weak parties from such shortfalls as the exploitation of fintech tools, misconduct in managing personal data and abuse of power due to profiling. In this situation, we cannot accept the thesis that reduces the relevant shortfalls to data limitations only, nor to the mere incapacity of analyzing all the data collected. Accordingly, it is not efficient a system that is based on the consensus, as the weak party may provide his/her acceptance without understanding the actual implications of such act.

As the presence of many tech-fueled firms operating in the capital markets is an outstanding evidence, we are assuming that the mere application of software does not have effects on the qualification of the activity, as banking or finance refers to the exploitation of an organizational structure of people and own funds,[5] and therefore to a license related to the reserve of activity provided by the current regulatory framework.[6] On the contrary, we would consider that these firms cooperate through networking web-based platforms,[7] and they satisfy the demand of capital, maturity transformation and risk mitigation, usually by means of special purpose vehicles (SPVs) or contracts that directly connect demanders and

suppliers. This cooperation would lead to new areas of competition and to the systemic importance of certain providers (with respect to cloud, business analytics and interface programming), and the use of common approaches to decentralization could imply pro-cyclicality (that should be regulated).
Because of the above, our preliminary remark considers that, within the internal market, any entity needs a license to collect savings or grant credit,[8] so that we are going to investigate the regulatory effects of a software that creates a network of independent companies able to replicate the activity of a credit institution. As it has been stated that «to its advocates, this wave of innovation promises a fintech revolution that will democratise financial services»,[9] the regulatory analysis of fintech must identify the backstops and the safeguards able to protect individual rights within a rapidly expanding environment where certain firms perform activities (outside the boundaries of the traditional supervision) that concerns savings, credit and money.[10]

3. Policymakers are in front of a turning point: promoting the deregulation of banking or applying the traditional principles to regulate fintech, and then to set the obligations of fintech firms vis-à-vis the individuals and any other supervised entity. In other words, the need for an inclusive market cannot jeopardize the competitive design of an industry that includes both traditional and high-tech businesses.
In this respect, the analysis of the scope of the prudential supervision may include any combination of transactions that can be executed by means of a platform and a software in order to let the capital circulates. Indeed, there are no doubts that such way of execution can be considered as any alternative to banking, and as such might be part of the same relevant market. In this respect, any asymmetry in regulation jeopardize the level playing field that ensure the fair competition for banking and financial services.
This leads this part of the research to consider the juridical difference between in-house performing of banking and the new opportunities due to networking, provided that the latter would require a set of parties and enterprises, whose responsibilities can be placed out of the subjective perimeter of the fintech bank.[11]
In considering the relevance of networking (as a way to non-bank financial intermediation), we focus on the importance of the bilateral agreements that lies under any link of these networks. over both the right to audit (for the supervised entities' internal and external auditors) and the duty to provide 'own funds' to cover the expected losses (calculated on the basis of the relevant operational risks). Hence, our suggestion to update the current schemes provided by private law, which rely on assets and liabilities that are not virtual (and so cannot exploit the possibility offered by digitalization with respect to sharing, common usage, duplicability, intermediation, etc.).[12]
This also highlights that the current challenge in the banking industry is occurring – not only for capital, but also – for technology and connections. In this perspective, the functioning of the financial markets may be influenced by fintech goods (e.g. cryptocurrencies), information (e.g. big-data) and services (e.g. analysing, programming and coding). Furthermore, in this context, the web-based platforms would be the competitors and the territories where such competition occurs, as they are able to support the trading of big-data, application programme interfaces (APIs), algorithms, and decision-making software. It follows the need for disclosure and transparency, as well as the oversight of any form of the firms' delegation of their decision-making process to artificial intelligence (programmed by third parties).

It is clear that fintech is based on networks that allow the wide-spreading of big data and technology, and this is the way to cross jurisdictions and offshore of activities substitutional to banking and finance.
From this perspective, even if all the above is suggesting that a new form of capital circulation arises, there are no reason to avoid the supervision of this sort of 'open banking' has to be supervised (as a part of the wider definition of banking). Thus the need for questioning the assumption that an intermediary (having a legally protected interest in funding and lending from the people) is the only firm that has an incentive to develop the organizational structure required for assessing the creditworthiness and managing the relevant risks of lending.
All the above emphasizes the need for regulating the innovations in banking, as this trend goes straight to the development of fintech bank.[13] In this respect, regulators cannot neglect the importance of any huge aggregate amount of data, as well as any third party owning or managing data processing services (art. 4, paragraph 1, point 18, of EU Regulation no. 575/2013, as amended by EU Regulation no. 2019/876 and art. 3, paragraph 1, point 17, of Directive 2013/36/EU).
It is worth recalling the advice of the European Banking Authority (EBA) with respect to the necessity of regulating the use of high-tech tools by credit institutions, obviously according to the general principle of proportionality (with respect to the size, structure and operational environment of the institution, as well as the nature, scale and complexity of its activities).[14]
From a regulatory perspective, the use of high-tech tools arises the risks associated with 'cloudy chains' and the 'cooperation among providers'.[15] Indeed, a decentralized organization may exploit the application of fintech solutions, and this may lead to the use of business analytics able to improve the rational decision making process and the possibilities for correct behavior and safe management.[16]
We are not considering how the transaction costs enter into this analysis. It is sufficient to assume that the impact of technology on the negotiation of demands and supplies is relevant. This means also that the application of fintech to such combination has to achieve an economically significant scale, with respect to risk-taking, decision-making and record-keeping.[17] In this respect, we would also assume that the leveraging of digitalization would promote a change in the operational structure of firms, and the questions would refer to the way that the regulator will choose to go straight to this point.
A significant remark on this point refers to the possibility of setting up new regulatory standards for firms involved in the functioning of cryptography, blockchain applications and distributed ledgers used in the market for capital. Indeed, regulatory standards should ensure gains in the accuracy, efficiency and security of processes across payments, clearing, and settlements.
4. It is worth investigating whether there are new ways for (dis)intermediation. This analysis would not refer to the possibility of escaping from the prudential supervision, but to the opportunity of reaching an equilibrium able to sustain the wealth, the growth, and the stability of the financial market, as well as to safeguard individual rights and the common welfare. We are going to continue what was anticipated above with respect to the role of regulators in seeking to ensure that standards provided for protecting individual rights are effective.
In addition, it is useful to highlight that in March 2018 the EBA published its 'Fintech Roadmap', setting out the priorities for further work on financial innovation.[18] The content of such publication confirms that the European approach still considers innovation an important separate matter, ***[19]*** as it established the relevant supervisory authorities providing for the institution of a Committee as an integral part of these authorities (and, in addition to the ESMA's Committee, it also required the

Committees of EBA and EIOPA, as stated in article 9, paragraph 4, of both Regulation (EU) no. 1093/2010 and no. 1094/2010).[20]

Notwithstanding the above, we may observe that the role of supervision is still limited to observing the organizational structure and the business program designed by including certain self-executing activities that are available in the banking sector (and this observation occurs mainly when granting authorisation under Directive 2013/36/EU, Directive (EU) 2015/2366, and Directive 2009/110/EC). In this context, the supervisors may not be able to control the work that is behind the structuring of such self-execution tools, which is the reason for the risk that supervisors will delay their intervention on the new, developing industry of software developers and device manufacturers. [21]

In particular, we recall the EBA's analysis of the national regulatory status of innovative business models or self-executing delivery mechanisms.[22] A close look at EBA's methodology suggests that national regulators are not in the best position to consider high-tech activities and services (including the ones of an ancillary/non-financial nature), and global supervisors are still involved with the mere monitoring of fintech.[23]

In brief, the analysis of fintech is showing that the financial system is wider than the markets that are supervised. The possibility to identify a 'market for fintech' refers to the demand made by credit institutions, financial firms and insurance companies. The focus on this demand suggests the need for regulating internal controls over fintech providers, designed to avoid that a business model (drawn on certain machinery management mechanisms) allows the use big data and advanced analytics to collude. Thus, our interest leads us to the possibility of supervising programmers and coders, which cannot be considered as mere third-party, but as the professionals able to support the execution of the core reserved activities. This helps in recognising the rising of a new industry, whose radical innovations challenge the capacity of the current supervisory authorities to regulate and control this high-tech business.

We are aware that the traditional models of transactions and the basic rules of private law do not consider the sustainability of development and financial stability as duties of the party. Hence, we cannot deny that regulation and control would result in losses (of efficiency) and an increase in the level of the systemic risks (despite the relevant public intervention). This does not cast the doubt that the harmonization of all rules across EU countries is delayed by the practical difficulty of setting regulatory standards concerning technology, given their different economies, judicial systems, social, and cultural backgrounds.

However, regulatory differences in private law (and its enforcement) can not only suggest a sort of 'forum shopping' (in choosing the jurisdiction and the law applicable to the contracts), but also delay technology diffusion as in the case of conflicting competition, financial, and intellectual property laws. These elements create uncertainties and raise transactional costs, as public or private remedies should avoid that the outcomes of a single transaction jeopardize the common welfare. This does not undermine the enforcement of private law but highlights it. Indeed, the alternative would drive individuals within a hierarchy with a regulation of the juridical relations of the groups based on pure orders and their executions.

5. Above and beyond, it is important to highlight the possibility that the software of fintech banks will unbundle banking into its core functions of settling payments, performing maturity transformation, sharing risk and allocating capital. Because of this unbundling, a chain may be weaved and a new

sequence of non-bank financial intermediation is activated. Therefore, the industry may lead to a structure that promotes the outsourcing of each function to an independent fintech firms, such that they are able to act as innovative trading platforms alternative to payment service providers, aggregators and robo-advisors and lenders.

According to the above, however, the need for new form of supervision over programmers and coders arise. Even if the current EU legal framework provides the principles of proportionality and flexibility, the regulation of fintech banks cannot retrain from consider the innovative business model and delivery mechanisms.[24] Otherwise, there will be doubt about the effectiveness of any supervisory methodology that considers only the capital and organizational adequacy, without taking into account the role of algorithms, software, platforms and big-data (with respect to article 12(4) od CRD IV).

Obviously, our conclusion will focus on the prudential regulation and in particular on the broader ongoing digital transformation across institutions' credit risk management functions. We are aware that the fintech banks will exploit also machine-learning techniques in order to improve their capabilities in both credit scoring and monitoring of quality of existing debtors, however this may imply that all the banks using the same software may align their offering, so that the effect may be similar to the one of certain unfair market practices aimed at reducing competition. In order to confirm this risk, we can rely on 'best practices' regarding innovation facilitators, intended to provide indicative support for supervisors and to promote convergence in the design of the fintech tools and the operation of innovative mechanisms. However, at current stage of the supervisory practices, it may not be possible to perform a comparative analysis of the innovation facilitators, which would identify the premises required for establishing the safeguards useful to ensure a competitive approach to the market.[25]

In this respect, the innovative use of technology by supervised entities may lead to a close relationship between micro-prudential supervision and the protection of competition, which can be put at risk by a misuse of big-data and business analytics too.[26]

In conclusion, the role of the supervising authorities seems to be fundamental for ensuring the functioning of a safe and competitive market for capital. In particular, we cannot exclude that the current trends would lead to dependencies on fintech providers, such as device manufacturers, programmers and coders. Indeed, all the above leads us to highlight that banking and finance requires specific backstop in order to set up business models able to promote an efficient use of the fintech innovations, as it is the use that maximize anyone's position without reducing the wellness of the other market participants. Indeed, it seems necessary to extend the supervision to the logic behind the software used by fintech banks, and then to the humans that lie under the design of algorithms, the evolution of big data and the intertwining of the networks.

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[2] See FSB. 2019 "Implementation and Effects of the G20 Financial Regulatory Reforms. 5th Annual Report" highlights that "the global financial system has continued to grow and the supply of financial services has also become more diversified, including through the expansion in NBFI and through financial technology (FinTech) innovations".

[3] See Guide to assessments of fintech credit institution licence applications 2017 p. 4

[4] As was highlighted before, we are in the presence of a system in which a process takes place that can provide further (and additional) funding than that allowed by banking (subject to the constraints of prudential regulation); together with the possibility of increasing the resources available to meet the needs of the real economy (without undermining the global financial stability); see Lemma, V. 2016, "The Shadow Banking System. Creating Transparency in the Financial Markets". London. p. 38

[5] See Belleflamme, P. and Lambert, T. and Schwienbacher, A. 2013. "Individual Crowdfunding Practices". "Venture Capital: An International Journal of Entrepreneurial Finance", p. 313

[6] See ECB. 2018. "Guide to assessments of licence applications. Licence applications in general" that expressly clarifies that "Licensing of credit institutions is essential for the public regulation and supervision of the European financial system. Confidence in the financial system requires public awareness that banks can only be operated by entities that are licensed to do so. ... At the same time, licensing should not hinder competition, financial innovation or technological progress. ... This Guide applies to all licence applications to become a credit institution within the meaning of the Capital Requirements Regulation (CRR), including, but not limited to, initial authorisations for credit institutions, applications from fintech companies, authorisations in the context of mergers or acquisitions, bridge bank applications and licence extensions."

See also ECB. 2018. "Guide to assessments of fintech credit institution licence applications" whose background refers to the fact that the ECB considers fintech banks to be those having "a business model in which the production and delivery of banking products and services are based on technology-enabled innovation".

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[15] See Mülbert, P. O. 2010 "Corporate Governance of Banks after the Financial Crisis – Theory, Evidence, Reforms" *ECGI – Law Working Paper No. 130/2009*.

[16] See Schelling, T. C. 1980, "The strategy of conflict", Cambridge-London, p. 3

[17] See FSB 2019, “Fintech and market structure in financial services: Market developments and potential financial stability implications”, February, pp. 4 and 17

[18] See EBA. 2018. “The EBA’s fintech roadmap. Conclusions from the consultation on the EBA’s approach to financial technology (fintech)”. 15 March

[19] See Capriglione, F. “L’unione bancaria europea”, Torino, 2013; Ibrido, R. 2017 “L’unione bancaria europea. Profili costituzionali” Roma, 2017. See also Babis, B. 2014 “Single Rulebook for Prudential Regulation of Banks: Mission Accomplished?” *European Business Law Review*

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[21] In general, see Brandtzæg, P. B. and Heim, J. and Karahasanovic, A. 2011 “Understanding the new digital divide—A typology of Internet users in Europe” *International Journal of Human-Computer Studies*, p. 123 ff.

[22] See Keidar, R. and Blemus, S. “Cryptocurrencies and Market Abuse Risks: It’s Time for Self-Regulation” *Lexology*.

[23] In brief, the EBA’s findings do not show a fully level playing field in this area, which has uncovered the need to carry out specific amendments in the context of the mandate conferred by Directive (EU) 2019/878 amending the fourth Capital Requirements Directive, for the development of new guidelines to specify a common assessment methodology for granting authorisations all over Europe; see Arnaboldi, F. 2019 “Progress on the First Two Pillars of the Banking Union” “Risk and Regulation in Euro Area Banks”, London, p. 89 ff.

[24] Let us recall Ellis, E. 1999 “The principle of proportionality in the laws of Europe” Oxford, and in particular Tribimas, T. 1999 “Proportionality in community law: searching for the appropriate standard of scrutiny”.

[25]See EBA, Fintech: Regulatory Sandboxes And Innovation Hubs, JC 2018 74, p. 10

[26] See EBA Report on innovative uses of consumer data by financial institutions, 28 June 2017

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«They say things are happening at the border, but nobody knows which border» (Mark Strand)

An analysis of the resolution regimes for failing banks in Russia

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Abstract: *This article discusses the regulatory framework of resolution regimes for failing banks in the Russian banking sector. It includes an analysis of the Central Bank of Russia and its policies to strengthen the financial stability sound. The aim of the article is to examine current regulatory solutions for the failing banks in Russia, including grounds to claim insolvency of commercial banks and the effects of their practical implications. It also provides an overview of the recent trends in court practices regarding failing banks' cases.*

1. In the past years Central Bank of the Russian Federation has been steadily cutting down the number of commercial banks[1] in Russia. If back in 2001 there were some 2,124 credit institutions[2] all over Russia registered by the Central Bank as of 01.01.2001[3] (of which some 2,084 were commercial banks), then in 2010 that number dropped almost twice to as low as 1,178 credit institutions of which 1,124 were banks.[4] And currently as of 01.10.2019[5] there are only 846 credit institutions in Russia, registered by the Central Bank of Russia and other agencies, of which there are only 454 operating credit institutions (credit institutions authorized to carry out banking operations). Out of those 454 operating credit institutions only as few as 414 are commercial banks. Out of those 414 banks nearly half (273) have a universal license and 141 have a basic license for banking operations[6] issued by the Central Bank of Russia.[7]

Interesting to note that more than half of all the operating credit institutions in Russia are in Moscow and Moscow Region (233, which is 51.3% as of 01.10.2019[8]). Besides, there is a remarkable asset concentration in the Russian banking sector among the operating credit institutions. Top 5 Russian credit institutions hold more than 58 trillion rubles[9] of assets, which is 60.8% of all the assets in the Russian banking sector (as of 01.10.2019[10]).

There is an emerging trend in the Russian banking sector in 2019: small banks merge in order to meet the Central Bank of Russia's requirements and to oppose federal giant banks on a local level[11]. There have already been two of such deals this year, but eight more banks conduct negotiations to merge.

Small banks understand clearly that they stand little chance to stay in business if they remain on their own, as the only alternative for them is a revocation of license due to loosing competition. As long as the Central Bank of Russia continues to tighten regulation over banking sector and requirements to banks' capital the Russian banking sector would have to undergo consolidation processes. A couple of years ago big banks absorbed the small ones, but nowadays this trend has changed. In fact, if a small bank does not specialize in servicing some big Clients' or industry-wide enterprises' money then its prospect of successful development in the market is very limited. Small banks started to merge more often, because this allows them to increase capital reserve and limits to lend to quality borrowers, otherwise such clients would leave for the federal banks.[12]

As of 01.10.2019 only 368 of the operating credit institutions were profit-making, and as many as 82 credit institutions were making losses.[13] Since the beginning of 2019 as many as 22 credit institutions have had their licenses revoked (cancelled) and additional 9 credit institutions have been restructured (as of 01.10.2019).[14] The real value of the bankrupt banks' assets in 2017 amounted to 40.2% of the assets value recorded in the banks' accounts (as transferred to the Temporary administrations by the former management of bankrupt banks); in 2018 – 38%[15].

As of 01.10.2019 as many as 23 credit institutions in Russia are undergoing bankruptcy prevention measures (with the participation of the Central Bank of Russia or a Deposit Insurance Agency[16] in accordance with a Federal Law N127-FZ "On insolvency (Bankruptcy)" dated October 26, 2002), which account for 5.1% of all the credit institutions in Russia and those failing credit institutions hold 8.2% of the Russian banking sector assets[17].

2. In accordance with a Russian Federal Law dated 26.10.2002 N127-FZ "On insolvency (bankruptcy)"[18] a bank shall be deemed unable to satisfy creditors' claims on monetary obligations, on severance payments and on remuneration for persons employed under labor contracts, and to pay mandatory payments (like taxes and duties), if it does not fulfill the relevant obligations within fourteen days after the due date and the value of the bank's property (assets) is insufficient to fulfill its obligations to creditors and to pay mandatory payments[19]. Before the Central Bank of Russia revokes a bank's license there may be measures taken to prevent its bankruptcy. And if such measures fail, then such bank may be declared bankrupt by an arbitration court through regular bankruptcy proceedings. In 2018 as many as 41 (in 2017 – 44) credit institutions were declared bankrupt by arbitration courts on the grounds of claims by Temporary administrations and the Central Bank of Russia. And 16 credit institutions were ordered to be forcibly liquidated by arbitration courts' orders.[20] Following measures may be implemented to prevent bankruptcy of a commercial bank up until the date of its license for banking operations revocation[21]:

1) extrajudicial financial recovery;

2) appointment of a Temporary administration to manage the failing bank;

3) reorganization of the failing bank;

4) measures to prevent bankruptcy of a bank having a license to work with individuals. These measures are fulfilled with the involvement of the Central Bank of Russia or a Deposit Insurance Agency. If the Central Bank of Russia is involved, then there has to be a relevant decision passed by its Board of Directors. To further such a decision the Central Bank of Russia appoints a Management company.

It is the Central Bank of Russia that has a right to require from a commercial bank to take measures for its financial recovery, to reorganize it or to appoint a temporary administration to manage the bank in

case certain grounds emerge. Current legislation provides for six grounds that allow taking measures to prevent bankruptcy of a commercial bank[22]. Such grounds emerge when a commercial bank:

- in the past six months does not satisfy repeatedly creditors' requirements on monetary obligations and/or does not fulfill mandatory payments within three days from the due date because of an absence or insufficiency of money on bank's correspondent accounts;
- does not satisfy creditors requirements on monetary obligations and/or does not fulfill mandatory payments for more than three days from the due date because of an absence or insufficiency of monetary funds on its correspondent accounts;
- allows an absolute decrease in the value of its own funds (capital) comparing with their maximum value reached over the past twelve months, by more than twenty percent while violating one of the mandatory standards established by the Central Bank of Russia;
- violates any of the equity (capital) sufficiency standards established by the Central Bank of Russia;
- in the last month violates current liquidity standard for banks, established by the Central Bank of Russia, by more than ten percent;
- allows reduction in the size of its own funds (capital) at the end of the reporting month down to the level below the size of its authorized capital. It is interesting to note that in case of such a specific ground taking place within the first two years of the bank obtaining its banking operations license, then such a bank is not entitled to measures to prevent bankruptcy.

Let's consider measures to prevent bankruptcy of a commercial bank in a more detailed way. Current legislation establishes that following measures may be taken for the purposes of extrajudicial financial recovery of a failing bank[23]:

- bank's founders (participants) and other persons providing financial assistance to the bank;
- changes in the structure of assets and liabilities of the bank;
- changing an organizational structure of the bank;
- matching the size of the authorized capital of the bank and the size of its own funds (capital);
- other measures in accordance with federal legislation.

It is necessary to highlight that if the Central Bank of Russia must revoke a banking operations license from a failing bank, then measures of extrajudicial financial recovery shall not apply.

Temporary administration for the failing bank's management is a special management body of the bank appointed by the Central Bank of Russia in accordance with legislation[24]. There are seven legal grounds for the Central Bank of Russia to appoint Temporary administration[25]:

- the failing bank does not satisfy creditors' claims on monetary obligations and (or) does not fulfill mandatory payments for seven days or more from the due date, because of the lack or insufficiency of funds in the bank's correspondent accounts;
- the failing bank allows a reduction of its own capital in comparison with its maximum size reached in the last twelve months, by more than thirty percent while violating one of the mandatory standards established by the Central Bank of Russia;
- in the last month the failing bank violates current liquidity standard established by the Central Bank of Russia by more than twenty percent;
- the failing bank does not comply with the Central Bank's order to replace a head of the bank or to implement measures for financial recovery or to reorganize the bank within a prescribed period;

- in accordance with the Federal law “On banks and banking activities”[26] there are grounds to revoke a license for banking operations from the failing bank;
- Board of Directors of the Central Bank of Russia has approved a plan for the Central Bank’s participation in realizing measures to prevent bankruptcy of the failing bank;
- Banking Supervision Committee of the Central Bank of Russia has approved a plan for the Deposit Insurance Agency’s involvement in realizing measures to prevent bankruptcy of the failing bank.

It is necessary to mention that the Central Bank of Russia shall appoint Temporary administration to a failing bank by no later than one day since a revocation of the bank’s license. In accordance with official statistics[27] there were 71 Temporary administrations operating in failing credit institutions in 2018. Reorganization of the failing banks takes place in a form of a merger or takeover in accordance with legislation and Regulations by the Central Bank of Russia[28]. Central Bank of Russia has a right to demand reorganization of a failing bank in cases 1) – 3) (supra) that entitle to appoint Temporary administration.

Once an order of the Central Bank of Russia is received by a failing bank, then its CEO has 5 days to address executive bodies of the bank regarding a need to perform reorganization. Executive bodies of the failing bank have ten days to take a decision on reorganization and to inform the Central Bank of Russia accordingly.

Measures to prevent bankruptcy of a bank having a license to work with individuals are taken by the Central Bank of Russia if there are signs of the bank’s unstable financial situation creating threat to interests of its creditors (investors) and (or) threat to stability of the whole banking system[29]. Among the signs of a bank’s unstable financial situation, that endanger the interests of its creditors (depositors), there are, for instance:

– reflecting transactions and duly documented facts in bank’s accounts, that lead to violation of mandatory standards or terms for the bank to execute its liabilities and(or) conditions for participation in the system of mandatory deposit insurance and(or) to emergence of grounds for the implementation of measures to prevent insolvency (bankruptcy) of the bank;

– and(or) the presence of other documented evidence of a threat to the interests of creditors (depositors)[30].

The Central Bank of Russia may decide to send its representatives and representatives of the Deposit Insurance Agency to the failing bank for the purposes of conducting a financial standing analysis. The period for the financial standing analysis of a bank shall not exceed forty-five calendar days and it may only be further extended by no more than ten calendar days on the grounds of an application by the Deposit Insurance Agency.

Main purpose of the financial standing analysis is to uncover insolvency marks, including signs of deliberate bankruptcy. When signs of deliberate and (or)fictitious bankruptcy are detected by Temporary administrations and the Central Bank of Russia, then statements are sent to law enforcement agencies (information about the revealed facts).

In 2018, both the Bank of Russia and Temporary administrations in failing credit institutions sent 99 statements to law enforcement agencies (in 2017 – 91) with information about signs of crimes disclosed in the activities of bank’s management and owners, including those provided for by the following articles of the Criminal Code of the Russian Federation[31]:

– article 159 “Fraud”;

– article 159.5 “Fraud in the insurance industry”;
– article 160 “Appropriation or embezzlement”;
– article 195 “Illegal actions in bankruptcy”;
– article 196 “Deliberate bankruptcy”;
– article 201 “Abuse of authority”[32].
According to the information available in the Central Bank of Russia, in 2018, law enforcement agencies initiated 29 criminal cases against management(owners) of credit institutions (including cases based on statements sent in previous years), in 2017 – 41 criminal cases[33].

3. In 2016-2019 there were many judicial cases concerning failing banks in Russia. The most famous ones are three: Fininvest Bank, Vneshprombank and Promsvyazbank cases. These cases reached the Supreme Court of the Russian Federation which has worked out its own legal positions as to different matters arising during the bankruptcy procedure of credit institutions from inclusion in the register of creditors’ claims and up to invalidation of bank transactions. In some of these matters there is already a sustainable practice in applying the law while as to the other issues legal position of the Supreme Court of the Russian Federation has been changing depending on the peculiarities of the cases heard. We will analyse those cases in the sphere of failing banks, where the legal positions formulated by the Supreme Court of the Russian Federation greatly influenced further practice of Russian courts. In Fininvest Bank’s case there were several court rulings held. These rulings may be divided in two categories: (1) court decisions on the invalidation of bank transactions; (2) court decisions on the invalidation of transactions aimed at the computation and payment of salary bonuses. This classification seems to be rational because it reflects not only the subject matters of these cases but their outcome as well. As an example of court decisions from the first category we will analyze the Definition of the Supreme Court of the Russian Federation dated June 17, 2016 N 307-ES16-6350.[34]
In this case Mr. Ruslan A. Vanchugov appealed on cassation the decisions held by the courts of lower instances which unanimously characterised the transaction by Fininvest Bank as an invalid transaction. The aim of this transaction was to withdraw money from the account of Ruslan Vanchugov. The Supreme Court of the Russian Federation decided that there were no substantial breaches of material or procedural law by the courts of lower instances while hearing the case and it rejected to review the case on the merits. Holding such a decision, the Supreme Court of the Russian Federation agreed with the references made by the courts of lower instances to the particular provisions of the Federal Law “On insolvency (bankruptcy)”[35], Federal Law “On insolvency (bankruptcy) of credit institutions”[36] and the Resolution of the Plenum of the Supreme Arbitration Court of the Russian Federation dated December 23, 2010 N 63 On some matters connected with the application of chapter III.1 of Federal Law “On insolvency (bankruptcy)”.
It is necessary to point out that in other cases in the sphere of failing banks courts are guided by the provisions of the aforementioned Resolution of the Plenum of the Supreme Arbitration Court of the Russian Federation, though this court ceased to exist in 2014 and its functions were transferred to the Supreme Court of the Russian Federation where the Judicial Chamber on Economic Disputes was established. Speaking about the laws, courts that hear similar cases refer only to the provisions of the Federal Law “On insolvency (bankruptcy)” since Federal Law On insolvency (bankruptcy) of credit institutions was repealed.

Speaking about Ruslan Vanchugov, the courts held decisions invalidating the bank's transaction because his brother – Mr. Maxim A. Vanchugov was a Director General of the participating companies – «Fininvest» LLC and «Capital» LLC and therefore he knew that Fininvest bank was facing insolvency. In the Definition of the Supreme Court of the Russian Federation dated July 25, 2016 N 307-ES16-6350 which was held within the same Fininvest Bank's case but due to the appeal on cassation by Mr. Valentin E. Landgraf the courts supported the same legal position. That decision was held on the basis that Valentin Landgraf was the Chairman of the Board of Directors of Fininvest Bank and thus he knew that the bank was in the state of insolvency at the moment when the transaction under dispute took place. The aim of this transaction was to return the money under the bank deposit contract prior to the scheduled maturity date.

As an example of court decisions from the second category we will analyse the Definition by the Supreme Court of the Russian Federation dated May 30, 2017 N 307-ES16-6350. It was held following the appeal on cassation by a trustee in bankruptcy – Deposit Insurance Agency. That was an attempt to review the decisions by the courts of lower instances that qualified the transactions under dispute as valid ones. The nature of these transactions was in the computation and payment of salary bonuses by Fininvest Bank for the benefit of Ms. Natalya S. Gromova within the period from June 2013 to July 2014. The Supreme Court of the Russian Federation rejected the appeal on cassation upholding that the conclusions made by the courts of lower instances were correct. These courts took for a start a fact that there was no evidence in the materials of the case that would certainly prove that the bank in question was insolvent within the period under dispute and that the parties to the transaction were going to infringe the rights of the bank's creditors. The courts also took into account that the sum of salary bonuses was lower than one percent of the assets value of the debtor and the amount of salary bonuses complied with the order prescribed by the Rule of the debtor on salary and salary bonuses.

In Vneshprombank case there was a number of decisions held as well. They were held on the following matters: (1) rejection to include moratorium interest in the register of creditors' claims[37]; (2) invalidation of bank transactions; (3) rejection to include the claims after payment of insurance premium in the register of creditors' claims[38]; (4) claim to stop blocking the bonds and debentures[39]. As to the matter of invalidating bank transactions there were positive and negative court decisions. That is why we will concentrate on their analysis.

Bank transactions were held *invalid* in the Definition of the Supreme Court of the Russian Federation dated April 13, 2018 N 305-ES16-21459(4). According to the courts' opinion, the transfer of money under payment order by "Astro-Volga" Insurance Company PLC was an invalid transaction. During the proceedings it was found by the courts that the aforementioned transfer of money exceeded one million rubles and it was significantly different from the transfers of money for the benefit of the company while interacting with the debtor. Taking into consideration all these facts, the courts concluded that the transaction under dispute led to the situation where the company as a creditor turned out to be in a better position than other creditors. Moreover, the transaction was beyond the usual business activity of the debtor.

Bank transactions were also held *invalid* in the Definition of the Supreme Court of the Russian Federation dated May 28, 2018 N 305-ES16-21459(7). In this case a trustee in bankruptcy – Deposit Insurance Agency filed a suit with a court attempting to hold invalid the following transactions: (1) intrabank transaction aimed at money transfer from the deposit account opened by The British Insurance House LLC in Vneshprombank to the account opened by Mr. Peter A. Naumenko in the same

bank; (2) bank transaction aimed at withdrawing money from the transactional account of Peter Naumenko in order to settle in advance the debt under a consumer credit contract. Courts found these transactions invalid since they took place between affiliated parties in the period under dispute beyond the usual business activity of the debtor. And more, the transactions under dispute led to the situation where one creditor turned out to be in a better position than others.[40]

Nevertheless, some bank transactions in the context of Vneshprombank case were held *valid*. For example, the Definition of the Supreme Court of the Russian Federation dated August 27, 2017 N 305-ES16-21459(15) supported decisions by the courts of lower instances on validation of a bank transaction. The aim of this bank transaction was to transfer money based on payment order by "Industrial Leasing Company" LLC with a following description of payment purpose «the transfer of own funds for the settlements with counterparties». Rationale to hold such a decision by the courts was the fact that during the period in question the debtor was neither insolvent nor lacked property. Moreover, it was not proved in the proceedings that the rights of other creditors were infringed.

Bank transactions were also held *valid* in the Definition of the Supreme Court of the Russian Federation dated February 21, 2019 N 305-ES16-21459(17). In this case a trustee in bankruptcy – Deposit Insurance Corporation filed a suit with a court to hold bank transactions invalid. The aim of these bank transactions was to withdraw (to transfer) money from the account of Mr. Alexey G. Barantsev to settle a debt under credit contracts with Ms. Snejana V. Trantina. Despite the fact that the claim of the trustee in bankruptcy was supported by the court of the first instance, the courts of higher instances took different position. As a result, the Supreme Court of the Russian Federation agreed with the conclusions by the court of appeals and the district court. Their conclusions were based on the fact that there was no evidence in the materials of the case that the transactions under dispute led to the situation where one creditor turned out to be in a better position than others.[41]

In Promsvyazbank case the following questions were discussed: (1) challenging certain laws and regulations[42]; (2) invalidation of bank transactions with securities; (3) reversal of a loan agreement.[43] Further on only the second question will be analyzed since it is the most significant matter in the context of failing banks. In the Definition of the Supreme Court of the Russian Federation dated July 17, 2019 N 305-ES19-10542 the conclusions made by the courts of lower instances were supported. These opinions referred to invalidation of the contracts as concluded between Promsvyazbank and Company Minga Management Limited aimed at purchasing securities. Courts decided that the parties were not acting in good faith. The bank while concluding a contract to buy securities for the amount higher than one million rubles – the monthly limit established by the Central Bank of Russia right before an appointment of Temporary administration – should have realised that its actions looked like an abuse of law. In addition, the courts paid attention to the affiliation between the claimant and the issuer of the securities in question. According to the courts' opinion, the consequences of such actions must have been obvious for the bank as a professional securities market participant. The courts also mentioned that the contracts in question were entered into not at auction and the price of securities in question was chosen by the parties to the contracts without any reference to the objective indicia. This choice was based on the principle of freedom of contract and implied all the possible risks that may arise.[44]

4. As a result of the analyses of the Court's decisions in the cases dealing with failing banks, we shall conclude that according to the legal position of the Supreme Court of the Russian Federation, the

decisive moment in the cases of invalidation of bank transactions is the evidence that the transactions in question led to the situation where one creditor turned out to be in a better position than others. In order to prove that the bank transactions are valid it is necessary to demonstrate that these transactions were made within the usual business activity of a bank.

References

[1] A Bank is a credit institution that has an exclusive right to carry out the following banking operations in aggregate: attracting money from individuals and legal entities to deposits, placement of these funds on its own behalf and at its own expense on the terms of repayment, payment, urgency, opening and maintaining bank accounts of individuals and legal entities – Section 1 of the Federal Law N395-1 dated 02.12.1990 “On banks and banking activities” (as amended on 02.12.2019), available at <http://www.consultant.ru> (accessed December 16, 2019).

[2] Credit institution is a legal entity which has a right to conduct banking operations established in a Federal Law “On banks and banking activities” for the purposes of generating profit as a main purpose of its activities on the grounds of a special permission (license) from the Central Bank of Russia – Section 1 of the Federal Law N395-1 dated 02.12.1990 “On banks and banking activities” (as amended on 02.12.2019), available at <http://www.consultant.ru> (accessed December 16, 2019). Credit institution is considered a wider term comparing to a bank (commercial bank), as the former includes nonbank credit institutions as well as the banks.

[3] Official statistical data from the Central Bank of Russia official website, available at <https://cbr.ru/statistics/bank_system_new/inform_01/> (accessed December 14, 2019).

[4] Ibid.

[5] Official statistical data from the Central Bank of Russia official website, available at <https://cbr.ru/Collection/Collection/File/25584/obs_eng_205.pdf> (accessed December 14, 2019).

[6] Compared to a universal banking license it is limited by type and number of activities a bank is allowed to perform. This new division of banking licenses came into force in Russia starting January 1, 2019.

[7] Official statistical data from the Central Bank of Russia official website, available at <https://cbr.ru/Collection/Collection/File/25584/obs_eng_205.pdf> (accessed December 14, 2019).

[8] Ibid.

[9] In excess of 690 billion pounds sterling at the exchange rate valid on 16.12.2019.

[10] Official statistical data from the Central Bank of Russia official website, available at <https://cbr.ru/Collection/Collection/File/25584/obs_eng_205.pdf> (accessed December 14, 2019).

[11] Kseniya Dementjeva «Only the merged survive», Kommersant newspaper N198 (6678), available at https://kommersant.ru/daily/118265 dated 29.10.2019 (accessed December 15, 2019).

[12] Ibid.

[13] Official statistical data from the Central Bank of Russia official website, available at <https://cbr.ru/Collection/Collection/File/25584/obs_eng_205.pdf> (accessed December 14, 2019).

[14] Ibid.
[15] Termination of activities of credit institutions, 2018. Information-analytical paper, Central Bank of Russia official web-site, available at < https://cbr.ru/Content/Document/File/72231/pub_2018.pdf> (accessed December 16, 2019).
[16] Deposit Insurance Agency is a state corporation created by the Russian Federation for the purposes of effecting functions in the field of mandatory deposit insurance. The Agency is primarily regulated by a Federal Law dated 23.12.2003 N177-FZ “On insuring bank deposits in the Russian Federation” (as amended on 02.12.2019), available at <http://www.consultant.ru> (accessed December 16, 2019).
[17] Official statistical data from the Central Bank of Russia official website, available at <https://cbr.ru/Collection/Collection/File/25584/obs_eng_205.pdf> (accessed December 14, 2019).
[18] Federal Law dated 26.10.2002 N127-FZ “On insolvency (bankruptcy)” (as amended on 02.12.2019), available at <http://www.consultant.ru> (accessed December 15, 2019).
[19] Ibid. Section 189.8.
[20] Termination of activities of credit institutions, 2018. Information-analytical paper, Central Bank of Russia official web-site, available at < https://cbr.ru/Content/Document/File/72231/pub_2018.pdf> (accessed December 16, 2019).
[20] Section 189.45 of the Federal Law dated 26.10.2002 N127-FZ “On insolvency (bankruptcy)” (as amended on 02.12.2019), available at <http://www.consultant.ru> (accessed December 16, 2019).
[21] Section 189.9 of the Federal Law dated 26.10.2002 N127-FZ “On insolvency (bankruptcy)” (as amended on 02.12.2019), available at <http://www.consultant.ru> (accessed December 15, 2019).
[22] Ibid. Section 189.10.
[23] Ibid. Section 189.14.
[24] Ibid. Section 189.25.
[25] Ibid. Section 189.26.
[26] Federal Law dated 02.12.1990 N395-1 “On banks and banking activities” (as amended on 02.12.2019), available at <http://www.consultant.ru> (accessed December 16, 2019).
[27] Termination of activities of credit institutions, 2018. Information-analytical paper, Central Bank of Russia official web-site, available at < https://cbr.ru/Content/Document/File/72231/pub_2018.pdf> (accessed December 16, 2019).
[28] Section 189.45 of the Federal Law dated 26.10.2002 N127-FZ “On insolvency (bankruptcy)” (as amended on 02.12.2019), available at <http://www.consultant.ru> (accessed December 16, 2019).
[29] Ibid. Section 189.47.
[30] Ibid.
[31] Criminal Code of the Russian Federation dated 13.06.1996 N395-1 (as amended on 02.12.2019), available at <http://www.consultant.ru> (accessed December 16, 2019).
[32] Termination of activities of credit institutions, 2018. Information-analytical paper, Central Bank of Russia official web-site, available at < https://cbr.ru/Content/Document/File/72231/pub_2018.pdf> (accessed December 16, 2019).
[33] Ibid.
[34] Information on court cases is taken from the ConsultantPlus company’s official web-site, available at <http://www.consultant.ru> (accessed December 16, 2019).

[35] Federal Law dated 26.10.2002 N 127-FZ «On insolvency (bankruptcy)» (as amended on 02.12.2019), available at <http://www.consultant.ru> (accessed December 16, 2019).
[36] Federal Law dated 25.02.1999 N 40-FZ «On insolvency (bankruptcy) of credit institutions» (as amended on 14.10.2014), available at <http://www.consultant.ru> (accessed December 16, 2019).

[37] Cf. the Definition of the Supreme Court of the Russian Federation dated May 10, 2017 N 305-ES16-21459(2); the Definition of the Supreme Court of the Russian Federation dated February 26, 2019 N 305-ES16-21459(18), available at <http://www.consultant.ru> (accessed December 16, 2019).
[38] Cf. the Definition of the Supreme Court of the Russian Federation dated April 16, 2018 N 305-ES16-21459(5, 6), available at <http://www.consultant.ru> (accessed December 16, 2019).
[39] Cf. the Definition of the Supreme Court of the Russian Federation dated September 25, 2018 N 305-ES18-13925, available at <http://www.consultant.ru> (accessed December 16, 2019).
[40] The bank transaction was held *invalid* on the similar grounds in the Definition of the Supreme Court of the Russian Federation dated February 27, 2019 N 305-ES16-21459(19), available at <http://www.consultant.ru> (accessed December 16, 2019).
[41] A similar outcome of the case may be found in the Definition of the Supreme Court of the Russian Federation dated October 8, 2018 N 305-ES16-21459, available at <http://www.consultant.ru> (accessed December 16, 2019).
[42] See the Definition of the Supreme Court of the Russian Federation April 26, 2019 N 305-ES19-5886, available at <http://www.consultant.ru> (accessed December 16, 2019).
[43] See the Definition of the Supreme Court of the Russian Federation dated December 2, 2019 N 305-ES19-21416, available at <http://www.consultant.ru> (accessed December 16, 2019.
[44] The bank transactions were held invalid on the similar grounds in the Definition of the Supreme Court of the Russian Federation dated July 22, 2019 N 305-ES18-19817, available at <http://www.consultant.ru> (accessed December 16, 2019).

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«They say things are happening at the border, but nobody knows which border» (Mark Strand)

Impediments to resolvability: critical issues and challenges ahead

by **Marco Bodellini**

Abstract: *This paper analyses the impediments to resolvability, distinguishing between exogenous (or architectural) impediments and endogenous (or stricto sensu) impediments. They are both obstacles that can hinder the effective resolution of a failing or likely to fail institution, but, whilst the removal of the former needs legislative action to amend the rules which cause them, the latter should be removed through an effective collaboration between the resolution authorities, the competent authorities and the institutions concerned.*

Whether it is clear which are the main exogenous impediments to resolvability and this, in turn, allows to advance proposals to remove them, by contrast, it is more complicated to find out the endogenous impediments due to the confidential nature of resolution plans. Their confidentiality does not allow to ascertain whether such impediments have been identified by resolution authorities and, more importantly, whether they have been removed. As a consequence, it is not currently possible to know with certainty whether all the EU institutions are considered to be resolvable. And this creates challenges in the resolution process.

1. Impediments to resolvability can be understood as various types of obstacles that are potentially able to hinder the effective resolution of a failing or likely to fail institution.
Impediments to resolvability can be grouped into two broad categories: a) impediments resulting from the legal framework, *i.e.* exogenous impediments or architectural impediments, and, b) impediments directly resulting from the institution and/or its group, *i.e.* endogenous impediments or impediments *stricto sensu*.
This paper discusses both types of impediments, analyses the *status quo* and advances some proposals. It is divided as follows.

After this introduction, the second chapter deals with the exogenous impediments to resolvability, focusing on 1) the definition of 'resolvability', 2) the involvement of different authorities in the resolution process, 3) the concept of 'public interest', 4) the misalignments between the State aid framework and the resolution regime, and 5) the legal constraints in the provision of public financing.
The third chapter analyses the endogenous impediments to resolvability, focusing on 1) their removal, and 2) the *status quo* and the challenges ahead.
The fourth chapter provides some concluding remarks.

2. Exogenous (or architectural) impediments to resolvability are the ones resulting from the legal framework in place. They include: 1) the definition of 'resolvability', 2) the involvement of different authorities in the resolution process, 3) the concept of 'public interest', 4) misalignments between the State aid framework and the resolution regime, and 5) the legal constraints in the provision of public financing.

2.1. The definition of 'resolvability' might result unclear. This derives from the language used in article 15 of the Bank Recovery and Resolution Directive (BRRD) and article 10 of the Single Resolution Mechanism Regulation (SRMR), that provide a tautological definition.[1] According to such articles, 'An institution shall be deemed to be resolvable if it is feasible and credible for the resolution authority to either liquidate it under normal insolvency proceedings or to resolve it by applying the different resolution tools and powers to the institution while avoiding to the maximum extent possible any significant adverse effect on the financial system, including in circumstances of broader financial instability or system-wide events, of the Member State in which the institution is established, or other Member States or the Union and with a view to ensuring the continuity of critical functions carried out by the institution'.[2]
On the basis of these articles, an institution is to be considered as resolvable when it can be either liquidated or resolved.
The reference to the feasibility and credibility of resolution does not provide any further explanation as to when an institution is actually resolvable. By contrast, the reference to the avoidance of any adverse effect on the financial system and to the continuity of critical functions determines that the achievement of only some of the resolution objectives, and not of all of them[3], should be taken into account by the resolution authorities in the resolvability assessment of each institution. This seems to contrast with article 31(1) of BRRD stating that 'When applying the resolution tools and exercising the resolution powers, resolution authorities shall have regard to the resolution objectives, and choose the tools and powers that best achieve the objectives that are relevant in the circumstances of the case'.[4] In other words, this article refers to the resolution objectives in their entirety without ranking some of them over the others.
The wording of article 15(1) of BRRD, coupled with the fact that the continuity of critical functions and the avoidance of significant adverse effect on the financial system are mentioned at the top of the list of the resolution objectives under article 31(2) of BRRD and the fact that article 31(5) of BRRD refers to the achievement of (only) one or more resolution objectives, might be seen as hints that these two resolution objectives should be considered as the main goals to reach when the resolution assessment is performed and also when the resolution tools are applied in the context of a resolution procedure.[5] Such a reading of the rules could be based on the assumption that it might be practically

very difficult to achieve simultaneously all the resolution objectives in every case, particularly keeping financial stability while avoiding the use of public resources.[6]

The reference to liquidation in article 15, in turn, might also end up being misleading in that the two procedures (*i.e.* resolution and liquidation) are meant to be alternative options for the resolution authorities to apply in different circumstances, *i.e.* depending on what is in the public interest. Accordingly, it seems to be terminologically contradictory, or at least not precise, to assess an institution as resolvable when it can be liquidated.[7]

A further layer of complexity arises from the differences featuring the national insolvency proceedings of the EU Member States. In this regard, the most critical issue is that an institution might be deemed as resolvable in that it can be effectively liquidated thanks to the rules of its Member State, whilst another one in similar conditions might not be considered resolvable due to the insolvency proceeding rules of its Member State. It follows that different rules across Member States might end up impacting upon the resolvability assessment, thereby influencing the authorities' action as well as threatening the level playing field between institutions established in different Member States.

The wording of article 15(1) of BRRD seems to allude also to the situation where the institution can neither be resolved nor liquidated. This results from the use of the conjunction 'if' to state that the institution is resolvable 'if' it can be either liquidated or resolved. Nevertheless, in the opposite scenario where the institution is not deemed to be resolvable on the grounds that it is not credible and feasible for the authorities to resolve it nor to liquidate it, it is not specified what the resolution authorities are expected to do, other than to notify the European Banking Authority (EBA), which in itself is not a solution of the issue when the bank is already failing or likely to fail and an action needs to be taken immediately.[8]

On the contrary, some useful elements to interpret the meaning of the concept of resolvability and, in general, to ascertain the resolvability of an institution, as a *status*, are provided by Section C of Annex 1 of BRRD, which lists the matters that resolution authorities are required to consider when assessing resolvability.

Even though the list does not provide an explanation of what the words 'resolvable' and 'resolvability' mean, all the listed elements are certainly helpful in guiding the authorities in determining if and when an institution should be considered as resolvable.

Further clarity is provided by the Commission Delegated Regulation 2016/1075, which has implemented the EBA Regulatory Technical Standards on the Content of Resolution Plans and the Assessment of Resolvability of 19 December 2014. The Commission Delegated Regulation spells out the several stages of the process that resolution authorities should go through in determining whether an institution is resolvable when they draw up the resolution plans.[9]

The first stage relates to the assessment of whether the institution's liquidation would be, firstly, feasible[10] and, if so, credible[11] as well, confirming that liquidation should always be the default option in the face of a crisis. However, this is a complex task and the European Court of Auditors (ECA) has pointed out that in many resolution plans drafted by the Single Resolution Board (SRB) there is neither substantial discussion on the reasons why liquidation is not considered to be a credible solution, nor on the reasons why the SRB thinks that liquidation cannot achieve the resolution objectives to the same extent as resolution.[12]

The second stage takes place when liquidation is not deemed to be feasible or credible and relates to the selection of a preferred resolution strategy to assess.[13] The selection of the preferred resolution

strategy will be based on the information provided by the institution for the purposes of drawing up resolution plans.[14]
The third stage then concerns the assessment of the feasibility of such preferred resolution strategy, which primarily consists of the identification of impediments to resolvability.[15]
Eventually, the fourth stage relates to the assessment of the credibility of the resolution strategy.[16]
Yet, the tautological definition of 'resolvability' could be an impediment to resolvability in itself since it does not clearly specify when an institution should be considered as resolvable, thereby leaving a potentially excessive degree of discretion to the resolution authorities which is only partly addressed by Section C of Annex 1 of BRRD and by the Commission Delegated Regulation 2016/1075. Such an amount of discretion could possibly pave the way to inconsistent and/or contradictory determinations, which in turn could lead to litigation. This issue could be further exacerbated by the fact that the resolvability assessment will be also based on the specific rules applying at domestic level. This might determine that similar crisis situations will be handled in different ways due to differences in the domestic rules of the Member States. The same issues might arise when the banks in crisis are under the remit of National Resolution Authorities (NRAs), which will then apply the national rules. This can end up causing the adoption of different and/or contradictory solutions across EU Member States. Such an outcome is obviously not desirable and can actually undermine the policy and ideological foundations underpinning the Banking Union as well as the Single Market.
Authorities should certainly be given discretion that, in turn, needs to be counterbalanced by a proportional amount of accountability. Discretion is indeed necessary to face different situations, but some clear criteria for properly applying legislative/regulatory definitions to real cases should be provided too, in order for the authorities to make consistent decisions and for the system to be fair, equitable and predictable.
All this finds further evidence in that the resolution regime is based upon the concept of resolvability and authorities are expected to know at any point in time whether an institution is resolvable and whether resolution should be the procedure to submit that institution to, should it become failing or likely to fail. Therefore, there should not be any uncertainty as to whether an institution can be resolved, starting with the legal definition of resolvability.
By contrast, the fact that the resolvability of an institution also depends on the domestic rules of the Member State in which it is established remains an issue that can be effectively tackled only with a Union-wide harmonization of the national insolvency proceedings rules.

2.2. The fact that the new resolution framework provides for the involvement of different authorities in the resolution process might end up being an impediment to resolvability.
The institutional design of the Banking Union is complex in that several authorities and institutions (both national and European) with different backgrounds and core functions are involved in the decision−making process.[17]
Accordingly, the Single Resolution Mechanism (SRM) requires the collaboration between the SRB and the NRAs.[18] In turn, both the institutions and authorities within the Single Supervisory Mechanism (SSM), and the ones within the SRM, are meant to closely cooperate with each other in order to guarantee the soundness of the banking system,[19] since 'supervision and crisis management are part of a seamless process'.[20]

The EBA is also involved in both the assessment of resolvability and the removal of impediments to resolvability primarily when groups are concerned.[21]
Article 114 of the Treaty on the Functioning of the European Union (TFEU) was the only available legal basis to establish the SRB; yet this has contributed to further increase the institutional complexity.[22] This legal basis is certainly controversial and has been considered as inadequate for this purpose.[23] The main issue, in practical terms, is that, due to the *Meroni* doctrine,[24] the decision-making process within the SRM requires the participation of both the Council and the Commission, making it potentially unsuitable for situations that typically need to be addressed very quickly, *i.e.* theoretically over a weekend.
A further layer of complexity results from the fact that both the European Central Bank (ECB) and the SRB can determine that an institution is 'failing or likely to fail'. The reason why the legislation assigns this task to both the ECB and the SRB is grounded on the need to have in place a reactive system whereby resolution (or liquidation) can start when either the supervisory authority or the resolution authority (and not necessarily both) find that an institution is 'failing or likely to fail'.[25]
The interaction with European Commission – Directorate General for Competition (DG Comp), where State aid measures are contemplated, further complicates the institutional design.[26]
The level of complexity affecting the system is rather clear and even more evident if compared to the US system where most of the activity is performed by one agency, the Federal Deposit Insurance Corporation, (FDIC), with competences in the areas of resolution and deposit insurance and to the UK system where now the Bank of England is the bank supervisor, the resolution authority and the central bank.[27]
This architectural complexity and the practical consequences arising from such complexity obviously can negatively affect also the resolvability of failing or likely to fail institutions, thereby representing an impediment.

2.3 'Public interest' is the element driving the resolution authorities in deciding whether to resolve or to liquidate a 'failing or likely to fail' institution.[28] The rules are clear in stating that the default option is the submission of 'failing or likely to fail' institutions to winding-up according to the law of the Member States where such institutions are established. However, if and when liquidation is not considered able to achieve the resolution objectives to the same extent as resolution, then the authorities are meant resolve the troubled institutions.[29]
A clear understanding of the concept of 'public interest' and its consistent interpretation are therefore of paramount importance.
We have argued elsewhere that 'public interest in this context seems to be principally connected with the need to maintain financial stability, or in negative terms, to avoid instability'.[30] Resolution authorities, therefore, have been given the difficult task of ascertaining *ex ante* whether the crisis of a bank and its ensuing liquidation can create financial instability.[31] In this context, we have advocated the introduction of some thresholds above which the public interest is presumed (and therefore resolution should be adopted), on the grounds that they could provide the system with greater legal certainty.[32] In other words, their determination could provide some clearer indication of what 'public interest' concretely means and when such a criterion is actually met. These thresholds could also be designed to be only indicative. Obviously, they would reduce the discretion of the resolution authorities, since they would be in this way guided in their choice.[33] The advantage, nevertheless, would be to

know well in advance what should be the crisis management procedure to apply in case of a failing or likely to fail situation.[34] This in turn could reduce the risk of litigation. For all these reasons, such thresholds could help remove potential impediments to resolvability.

The pivotal importance of a clear understanding and coherent interpretation of the concept of public interest is the reason why on 3 July 2019 the SRB has published a paper outlining its approach to the Public Interest Assessment (PIA).[35]

Intuitively, the PIA aims at ascertaining whether the resolution of a failing or likely to fail institution is considered to be needed in the public interest. Accordingly, the paper provides detailed procedural guidelines aimed at driving the resolution authorities in determining whether resolution is in the public interest. Against this background, resolution authorities are meant to perform the PIA twice. They will perform a preliminary PIA when they draw up resolution plans and, subsequently, they will perform a final PIA in deciding whether resolution is needed in the face of a bank's crisis. Understandably, the final PIA will build upon the preliminary PIA, even though the resolution authorities will have to inform their decisions on the basis of 'more up-to-date information on market conditions and the particular circumstances at the moment of failure'.[36]

The paper emphasises that in performing the PIA the SRB starts by assessing 'whether liquidation under insolvency proceedings would be likely to put the resolution objectives at risk ... If the resolution objectives are deemed at risk, the SRB then assesses the expected effects of the chosen resolution strategy and compares such effects with those of winding up the bank under insolvency proceedings'.[37] It also outlines the elements to take into account in assessing whether the failure of a bank could have significant adverse effects on financial stability, these being the risk of contagion and the effects of the potential action on market discipline.[38] The meaning of key terms, such as financial stability, significant adverse effects, direct contagion, indirect contagion and market discipline is explained as well.[39]

The SRB's paper is very helpful in that it discloses the steps of the process that the SRB goes through in determining whether the resolution of a given institution is in the public interest and, as such necessary, should the latter become failing or likely to fail. The publication of these guidelines are particularly welcome in that they will be able to reduce inconsistencies between the solutions adopted to handle bank crises in the Euro-Area, and possibly beyond.

Nonetheless, the concept of public interest remains abstract and vague, and, as a consequence, potentially subject to different interpretation by different authorities as well as by the same authority at different points in time. Therefore, it might continue to be an impediment to resolvability.

2.4 Misalignments between the State aid regime rules and the BRRD/SRMR regime rules on public intervention can give Member States incentives to avoid resolution.[40] This inconsistency arises from the fact that the provision of public resources can take place more easily in the context of liquidation than in resolution.[41]

Such misalignments are probably due to the different rationale lying behind the two regimes as well as to the Commission's and SRB's different priorities.[42]

The primary goal of the Commission is to guarantee the fair competition between firms established in different Member States, thereby protecting the integrity of the EU internal market.[43] In doing so, the Commission is meant to assess if the provision of State aid measures unfairly advantages a firm to the detriment of others.[44] Still, due to the peculiarities of the banking sector, in assessing the

compatibility of public intervention with the State aid regime, the Commission is also requested to consider the risk to financial stability arising from a bank's failure.[45] Thus, the Commission has to strike a balance between these two legitimate but potentially conflicting objectives (*i.e.* ensuring fair competition within the single market while keeping financial stability) when it decides whether to authorise public intervention.[46]

The main difference between the two regimes is that while the 2013 Banking Communication only requires the application of burden sharing as a condition to receive State aid, the BRRD/SRMR regime states that public money can be used only after a strict application of the bail-in tool.[47]

Hence, whereas DG Comp applies the concepts of 'financial stability' and 'public interest' as the basis to authorise or deny State aid measures, the SRB considers financial stability to be the main component of the 'public interest' that, in turn, is the *discrimen* between resolution and liquidation.[48]

As the International Monetary Fund (IMF) has indicated in the Euro-Area Financial Sector Assessment Program (FSAP) 2018,[49] these misalignments might in some circumstances create incentives to prefer liquidation – with the provision of taxpayers' money – over resolution.[50] The risk of a more relaxed approach to the provision of public funds in liquidation reinforces the need to align the two regimes in relation to the conditions for public intervention.[51]

Also, since national insolvency laws vary across Member States, this can cause a differential treatment of creditors depending on where the procedure takes place.[52] The unacceptable outcome is that some creditors might be better off in liquidation compared to what they would receive in the case of resolution, even if the aggregate cost (for the State) is higher.[53] This also creates an uneven playing field for banks' funding costs.[54]

Making the provision of public funds easier in liquidation than in resolution is an impediment to resolvability, that might encourage Governments and NRAs to opt for publicly funded liquidations.

2.5 A further exogenous impediment to resolvability arises from the legal constraints in the provision of public financing in the context of resolution.

The reason why access to public financing might be particularly important during a crisis is connected to the difficulty that a troubled bank can face in raising funds from the market when it is experiencing such problems.

There are two main sources of public financing in a crisis: 1) emergency liquidity assistance (ELA), and 2) Single Resolution Fund (SRF) support.[55] However, access to both sources is subject to strict criteria, that become even stricter if such measures qualify as State aid provision.[56]

The provision of ELA is considered to be a National Central Banks (NCBs) function, which can be performed only with the *fiat* of ECB's Governing Council.

Although the provision of liquidity assistance to 'financially sound' banks is a ECB's competence that is part of its regular discount policies, by contrast ELA, provided to illiquid but solvent banks in an emergency situation, is a competence of the NCBs.[57] As a consequence this function is decentralized at national level and it is performed on the NCBs own responsibility and liability, in accordance with Article 14.4 European System of Central Banks (ESCB) Statute.[58]

ELA can only be granted to solvent financial institutions or to those institutions that do not meet the solvency requirements,[59] but have a 'credible prospect of recapitalisation' within 24 weeks.[60] For ELA purposes, a credit institution is considered solvent if: (a) its Common Equity Tier 1, Tier 1 and Total Capital Ratio as reported under the Capital Requirements Regulation (CRR) on an individual (if

applicable) and consolidated (if applicable) basis comply with the harmonised minimum regulatory capital levels (namely 4.5%, 6% or 8%, respectively); or (b) there is a credible prospect of recapitalisation in case (a) is not met.[61]

Recent cases have clearly shown how important ELA is for banks facing liquidity issues.

On the other hand, the main function of the SRF is to support the effective application of resolution tools. Accordingly in the context of a resolution procedure the SRB can use the SRF: 1) to guarantee the assets or liabilities of the bank under resolution; 2) to make loans to or to purchase assets of the bank; 3) to make contribution to a bridge institution or an asset management vehicle; 4) to make contribution to shareholders of creditors who have suffered greater losses than in liquidation; and 5) to make a contribution to the bank in lieu of the write-down or conversion of liabilities of certain creditors, when the bail-in tool is applied and the decision is made to exclude certain creditors from the scope of bail-in.[62]

Even though at the Ecofin meetings of June and September 2018 it was agreed that that the European Stability Mechanism (ESM) should provide a common backstop to the SRF,[63] the main weakness is that the total amount of resources is capped and the use of the SRF is subject to the State aid rules.[64]

The overall lending capacity of the SRF will amount to approximately EUR 60 billion by its target date of 31 December 2023. [65] Clearly, this amount may be insufficient in case of a systemic crisis and the Fund will need to rely on implicit support from monetary authorities.[66] This is further confirmed by the finding that 'the large majority of the more than EUR 2.5 trillion of public and monetary support that euro area banks received between 2008 and 2016 was liquidity support'.[67]

For all these reasons, the current financing framework seems to be inadequate to withstand a crisis.[68] Therefore, a liquidity backstop facility complementing existing liquidity arrangements to make them more effective seems particularly needed. In other words, its absence and, in general, the legal framework on resolution financing currently in place represent impediments to resolvability.

3. Endogenous impediments to resolvability (or impediments *stricto sensu*) are the ones resulting from the institution concerned or its group.

Although both the BRRD and SRMR use the term 'impediments to resolvability' many times, there is no clear definition of what an impediment to resolvability is. The only insight in the text of the BRRD can be found in article 54(3), concerning the removal of procedural impediments to bail-in, stating that 'Member States shall ensure that there are no procedural impediments to the conversion of liabilities to shares or other instruments of ownership existing by virtue of their instruments of incorporation or statutes, including pre-emption rights for shareholders or requirements for the consent of shareholders to an increase in capital'.

In the remaining part of the Directive, the term is used to emphasise that such impediments need to be removed. And to this end, the Directive provides the resolution authorities with the powers to do so.[69]

The Commission Delegated Regulation 2016/1075[70] sheds some light on the meaning of impediments to resolvability by dividing them into five categories, *i.e.* impediments concerning: 1) structure and operations; 2) financial resources; 3) information; 4) cross-border issues; 5) legal issues.[71] For each category of impediment, the Regulation points out the main issues that resolution authorities are meant to look at in assessing the feasibility of a resolution strategy on the grounds that the feasibility of a resolution strategy depends on whether there are impediments to resolvability and, if so, whether they can be removed.

3.1. The removal of endogenous impediments to resolvability can be seen as a collaborative process involving the institutions, the competent authorities and the resolution authorities.[72]

Firstly, the resolution authority, after consulting the competent authority and the resolution authorities of the jurisdictions where significant branches are located are requested to draw up a resolution plan for each institution.[73] Resolution plans are developed on the basis of the information that resolution authorities can collect from the institutions' recovery plans[74] (which are drafted by the institutions themselves) as well as from the information that institutions are obliged to give to the former.[75] In the case of groups, the group resolution plan[76] is drafted by the group-level resolution authorities together with the resolution authorities of subsidiaries and after consulting the resolution authorities of significant branches.[77]

The SRB is in charge for drawing up the resolution plans of significant institutions as well as cross-border institutions.[78] Typically, the process starts with the Internal Resolution Team (IRT)[79] drafting the resolution plan, followed by the consultation of the ECB or the National Competent Authority (NCA).[80] Then the plan is submitted to the SRB's board for approval and the approved version is eventually communicated to the bank.[81]

The resolution plans are meant to provide for the resolution actions that resolution authorities can take, should the institution be failing or likely to fail.[82] In terms of actual content of the plan,[83] the SRB divides the required information into several headings,[84] and the plan should also include the preferred resolution strategy, whether a multiple or a single point of entry.[85]

The resolvability assessment[86] is made upon the identification of the bank critical functions as well as the credibility and feasibility of a possible wind down under national insolvency proceedings.[87] Such assessment focuses on seven dimensions, *i.e.*: 1) governance, 2) loss absorption and recapitalisation capacity, 3) liquidity and funding in resolution, 4) operational continuity and access to financial market infrastructures (FMIs), 5) information systems and data requirements, 6) communication, and 7) separability and restructuring.[88] The resolvability assessment is therefore a key component of resolution planning[89] in that it aims at making banks prepared 'for their potential failure'.[90]

When drawing up the resolution plan, the resolution authorities should identify any impediment to resolvability as well.[91] They are meant to do so at the same time as they assess the resolvability of each institution.[92] Also, when this is considered necessary and proportionate, the resolution authority should outline the relevant actions to put in place in order to address such impediments.[93]

In the case in which the resolution authority, after consulting the competent authority, determines that there are substantive impediments to resolvability, it has to inform in writing the institution, the competent authority as well as the resolution authorities of the jurisdictions where significant branches are located.[94] When the SRB is the resolution authority, in such a situation it is requested to 'prepare a report, in cooperation with the competent authorities, addressed to the institution or the parent undertaking analysing the substantive impediments to the effective application of resolution tools and the exercise of resolution powers'.[95]

In the face of this situation, within 4 months the institution concerned is required to propose to the resolution authority the measures needed to address or remove the impediments.[96] This is the first step of the procedure.[97] The proposed measures are then assessed by the resolution authority, and, if the latter, after consulting the competent authority, is not persuaded that such measures are effective, it can require the institution to adopt alternative and proportionate measures and notify such measures[98] to the institution.[99] This is the second step of the procedure.[100] These 'measures

range from additional information requirements to changes to the structure, to the cessation of activities'[101] and, according to the EBA, can be grouped under 3 headings: 1) structural measures concerning the organisational, legal and business structure of an institution, 2) financial measures relating to its assets and liabilities, and 3) products and additional information requirements.[102] As far as institutions under the SRB's remit are involved, the latter has the power to instruct NRAs to require the institutions to take such measures.[103] Nonetheless, where it is possible, NRAs shall directly apply these measures.[104]
Resolution authorities have a significant amount of discretion in selecting the measures that they consider appropriate in order to remove the impediments. Still they are driven in this choice by the EBA Guidelines on Measures to Reduce or Remove Impediments to Resolvability.[105]

3.2. The key phase for the identification of the endogenous impediments to resolvability is therefore the preparation and drafting of resolution plans. This is when the resolution authority has the chance to deeply look into the internal structure of the institution (and its group) and to get a better understanding of its way of working as well as of the main elements that could represent obstacles to its resolvability.
Yet, the position of the SRB in this regard is that banks have to proactively work to make themselves resolvable, and accordingly the SRB expects banks to demonstrate that they are resolvable.[106] Such position is based on the assumption that banks 'know their business structure and how to address possible impediments best'[107] and has been further reiterated with the publication of a consultation document where the SRB has clearly defined its expectations from banks to ensure an appropriate level of resolvability.[108] In that paper it is clearly said that in achieving resolvability 'banks are expected to play an active role in the process of identifying and removing impediments – this is the most efficient way to progress towards resolvability'.[109] Accordingly, the paper spells out the initiatives that banks have to take to make themselves resolvable by providing a number of principles relating to seven different dimensions[110] that the institutions should comply with.[111]
Overall the legal framework on resolution has significantly developed over time also thanks to the notable efforts of the SRB in clarifying its views and expectations.
Against this background, however, the main issue in assessing the *status quo* of impediments to resolvability potentially affecting the EU institutions derives from the confidentiality of resolution plans. They are indeed unavailable for public consultation. This obviously does not allow to analyse and to evaluate the approach taken by the SRB and the NRAs in relation to both the identification of such impediments and their removal. And this is why we have already advocated the publication of a non-confidential and abridged version of the plans, on the grounds that this would not violate professional secrecy requirements since there would not be any illegitimate disclosure of confidential information.[112] This is what already happens in the US, where the publication of the plans does not seem to negatively affect public confidence or market competition.[113] Accordingly, the Financial Stability Board (FSB) has recently published a discussion paper emphasising the importance of public disclosure of information on resolution planning and resolvability of institutions and pointing to the benefits for investors and market discipline that such disclosure could bring about.[114]
Still, since Banco Popular was resolved in 2017 by the SRB, some parts of its resolution plan have been published.[115] In such resolution plan, it was stated that there were a number of potential barriers to resolution, however none of them was considered to be a substantive impediment and therefore no

formal procedure was launched to adopt specific measures.[116] Nevertheless, the list of impediments is abridged so it is not possible to further analyse them nor to assess the approach adopted by the SRB in determining that they were not substantive.

What has been publicly disclosed by the SRB in its Work Programme 2020 is that it is already achieving its target of resolution plans for all banking groups under its remit and it expects to adopt, by March 2021,[117] 117 resolution plans covering all banking groups under its remit.[118] According to the SRB multi-annual planning and work programme 2018 the target is to develop complete resolution plans for all the banks under its remit by 2020, including setting minimum requirements for own funds and eligible liabilities (MREL) targets on all levels of a group.[119]

This represents a step forward compared to the past. In this regard, in the SRB Annual Report 2018, published in 2019, it was said that 'In pursuing its mission to ensure resolvability for significant institutions, the SRB continued its close and successful cooperation with the NRAs through internal resolution teams (IRTs) to draft 109 resolution plans for the 2018 resolution planning cycle'[120] and that regarding its oversight function on less significant institutions, in 2018 it 'received from NRAs notifications for 1189 draft resolution plans, which marks a sizable increase compared to 2017'.[121] Similarly, in the SRB Work Programme 2019, published in 2018, it was said that 'The year 2019 will see significant progress in resolution planning, both in the scope of banks covered by plans and in their content. Banking groups previously not covered will be addressed by new plans, leading to the adoption of a total of 113 resolution plans in the 2019 resolution planning cycle. With regard to content of resolution plans, all plans will be further substantiated reflecting the development of new or updated internal SRB policies'.[122]

Yet, the fact that every institution by March 2021 will have a resolution plan ready to be adopted if needed is not enough in itself to address the substantial concerns raised by the ECA[123] as well as by a Member of the European Parliament (MEP)[124] in relation to the actual content of such plans and their compliance with the regulatory requirements.[125]

In 2017, the ECA had access to a sample of resolution plans and its final evaluation was that 'in none of the sampled documents did the SRB conclude categorically whether the bank could actually be resolved. While some chapters contained a brief summary of the assessment of resolvability, in most of them the summary was limited to a few of the identified potential impediments'.[126]

Similarly and moving from the ECA's findings, in July 2019, a MEP asked the Chair of the SRB the following three questions:

1) For how many of the 127 banks within its remit has the SRB adopted final (phase four) resolution plans?

2) For how many of them has it concluded categorically by a specific reporting date whether the bank could actually be resolved?

3) For how many of them has it sent notifications of non-resolvability to the EBA?[127]

Interestingly, in replying the questions, on 20 August 2019, the Vice Chair of the SRB declared that 'certain banks may have to undertake considerable efforts to achieve resolvability, which must be phased-in over time. As long as banks are making credible progress towards this goal, categorically declaring a bank not resolvable may only slow down the progress in this regard. The SRB considers this approach an effective and promising way forward, which is in line with international practice. Only when banks do not respond and engage proactively with the SRB, formal measures will be necessary. Until today this has not been the case. For this reason, until now the SRB did not inform EBA about an

institution not being resolvable in line with article 10(3) SRMR. In this context it should be noted, that the notification to the EBA as such would not restore the resolvability of an institution'.[128]
The supportive approach adopted by the SRB in the process towards resolvability is certainly thoughtful and well-balanced. The fact that certain banks need to make efforts to achieve resolvability is understandable and the patient support provided by the SRB is probably the most effective strategy to reach such goal over time. Nevertheless, this allows to think that there are still banks that in the view of the SRB are currently not resolvable.
What remains unclear, in particular, is whether endogenous impediments to resolvability have been identified and, even more importantly, removed.[129] Some insights can be found in what the Chair of the SRB has stated in the Work Programme 2020, where it is said that 'Work on the identification of impediments has also moved forward'. The fact that the identification of such impediments has moved forward is by definition a positive outcome, but what still needs to be done is unknown and what the Work Programme 2020 outlines does not look reassuring. It is said that 'In recent years, IRTs have carried out the preliminary identification and analysis of potential impediments (as part of the so-called resolvability assessment) and communicated the outcomes to banks, together with consequential working priorities. IRTs have conducted workshops with banks on the resolvability assessment as an important step towards the removal of potential barriers to resolution'.[130] The reference to 'step towards the removal of potential barriers' might be interpreted as the implicit admission that some institutions are still affected by such impediments, which therefore have not been removed yet.[131] But if this was the case, then it would mean that there are a number of banks that currently are not considered to be resolvable.[132] And this conclusion would be in line with what stated by the Chair of the SRB in the SRB Work Programme 2019, where it is said that 'making banks resolvable is a marathon not a sprint; it will take a number of years'[133] as well as with what the Vice Chair of SRB has said in replying the MEP's questions.[134]

4. This paper has analysed the impediments to resolvability, distinguishing between exogenous (or architectural) impediments and endogenous (or *stricto sensu*) impediments.
Both are obstacles that are potentially able to hinder the effective resolution of a failing or likely to fail institution.
The first ones result from the legal framework and include 1) the definition of 'resolvability', 2) the involvement of different authorities in the resolution process, 3) the concept of 'public interest', 4) the misalignments between the State aid framework and the resolution regime, and 5) the legal constraints in the provision of public financing.
The second ones directly result from the institution and/or its group and relate to 1) structure and operations; 2) financial resources; 3) information; 4) cross-border issues; 5) legal issues.
Whilst the removal of the former needs legislative action to amend the rules which cause them, the latter should be removed through an effective collaboration between the resolution authorities, the competent authorities and the institutions concerned.
Yet, whether it is clear which are the main exogenous-architectural impediments to resolvability and this, in turn, allows to advance proposals to remove them, on the contrary, it is more complicated to find out the main endogenous-*stricto sensu* impediments to resolvability, mostly due to the confidential nature of resolution plans. Their confidentiality does not allow to ascertain whether such impediments have been identified by the resolution authorities and, more importantly, whether they have been

removed. As a consequence, it is not currently possible to know with certainty whether all the EU institutions are considered to be resolvable. And this creates challenges in the resolution process.

References

[1] The same definition is provided by both article 15(1) of BRRD and article 10(3) of SRMR, therefore the discussion in this chapter relates to both articles even when only one of them is mentioned.
[2] A similar definition is provided by article 16(1) of BRRD and article 10(4) of SRMR concerning the resolvability of groups.
[3] The resolution objectives are according to article 31(2) of BRRD: a) 'the continuity of critical functions'; b) 'to avoid a significant adverse effect on the financial system, in particular by preventing contagion, including to market infrastructures, and by maintaining market discipline'; c) 'to protect public funds by minimising reliance on extraordinary public financial support'; d) 'to protect depositors covered by Directive 2014/49/EU and investors covered by Directive 97/9/EC'; and e) 'to protect client funds and client assets'.
[4] A similar provision is contained in article 14(1) of SRMR.
[5] Elsewhere we have argued that 'it is not a coincidence that the continuity of critical functions and the avoidance of adverse effects on financial stability are listed before the protection of public funds'; see Lastra – Russo – Bodellini, (2019), 'Stock take of the SRB's activities over the past years: What to improve and focus on', Banking Union Scrutiny, In-Depth Analysis, Requested by the ECON Committee – European Parliament, 14; accordingly see SRB, (2017), 'SRB Multi-Annual Planning and Work Programme 2018', available at http://www.srb.europa.eu, 4, where it is clearly stated that the SRB's mission is to ensure 'an orderly resolution of failing banks with minimum impact on the real economy, the financial system, and the public finances of participating Member States and beyond'.
[6] See Biljanovska, (2016), 'Aligning Market Discipline and Financial Stability: a More Gradual Shift from Contingent Convertible Capital to Bail-in Measures', European Business Organisation Law Review, 17, 105-106, arguing that there might be cases where 'market discipline and financial stability cannot be achieved simultaneously'; in this regard see also Dewatripont, (2014), 'European Banking: Bailout, Bail-in and State Aid Control', International Journal of Industrial Organization, 34, 37, pointing out that the public interest should be then identified primarily with the maintenance of financial stability, which in turn might require the use of public resources.
[7] See Huertas, (2014), 'A resolvable bank', LSE Financial Markets Group Special Paper Series, Special Paper 230, March 2014, 3, arguing that 'A resolvable bank is one that is "safe to fail": it can fail and be resolved without cost to the taxpayer and without significant disruption to the financial markets or the economy at large'; Schoenmaker, (2016), 'The impact of the legal and operational structures of euro-area banks on their resolvability', Bruegel, Policy Contribution, Issue n. 23/2016, 2, arguing that 'a resolvable bank is one that is safe to fail, in that it can be readily recapitalised without public support and can continue carrying out essential functions practically without interruption, while not disrupting financial markets and the real economy'.
[8] Accordingly see SRB (2019), 'Reply to written question Z-038/2019 by MEP Sven Giegold' 20 August 2019, available at www.srb.europa.eu, 3.
[9] See article 23 of Commission Delegated Regulation 2016/1075.

[10] According to article 24(2) of Commission Delegated Regulation 2016/1075, 'When assessing the credibility of liquidation, resolution authorities shall consider the likely impact of the liquidation of the institution or group on the financial systems of any Member State or of the Union to ensure the continuity of access to critical functions carried out by the institution or group and achieving the resolution objectives of Article 31 of Directive 2014/59/EU. For this purpose, resolution authorities shall take into account the functions performed by the institution or group and assess whether liquidation would be likely to have a material adverse impact on any of the following: a) financial market functioning and market confidence; b) financial market infrastructures ... c) other financial institutions ... d) the real economy and in particular the availability of critical financial services'.

[11] According to article 24(4) of Commission Delegated Regulation 2016/1075, for the purpose of assessing the feasibility of liquidation, 'resolution authorities shall consider whether the institution's or group's systems are able to provide the information required by the relevant deposit guarantee schemes for the purposes of providing payment to covered deposits in the amounts and time frames specified in Directive 2014/49/EU of the European Parliament and of the Council (1), or where relevant in accordance with equivalent third country deposit guarantee schemes, including on covered deposit balances. Resolution authorities shall also assess whether the institution or the group has the capability required to support the deposit guarantee schemes' operations, in particular by distinguishing between covered and non-covered balances on deposit accounts'.

[12] See ECA, (2017), 'Special report no 23/2017: Single Resolution Board: Work on a challenging Banking Union task started, but still a long way to go', available at https://www.eca.europa.eu/en/Pages/DocItem.aspx?did=44424, 23.

[13] According to article 25(1) of Commission Delegated Regulation 2016/1075, 'Resolution authorities shall assess whether a candidate resolution strategy is appropriate to achieve the resolution objectives given the structure and business model of the institution or group, and the resolution regimes applicable to legal entities in a group'. Under article 25(2) of Commission Delegated Regulation 2016/1075, 'In particular for groups, resolution authorities shall assess whether it would be more appropriate to apply a single point of entry or a multiple point of entry strategy'.

[14] See article 23(3) of Commission Delegated Regulation 2016/1075 as well as article 11 of BRRD.

[15] According to article 26(1) of Commission Delegated Regulation 2016/1075, 'Resolution authorities shall assess whether it is feasible to apply the selected resolution strategy effectively in an appropriate time frame and shall identify potential impediments to the implementation of the selected resolution strategy'.

[16] According to article 32(1) of Commission Delegated Regulation 2016/1075, 'After assessing the feasibility of the selected resolution strategy, resolution authorities shall assess its credibility, taking into consideration the likely impact of resolution on the financial systems and real economies of any Member State or of the Union, with a view to ensuring the continuity of critical functions carried out by the institution or group'.

[17] See Lastra – Russo – Bodellini, (2019), 'Stock take of the SRB's activities over the past years: What to improve and focus on', *supra*, 9.

[18] *Id*., 9.

[19] *Id*., 9.

[20] Lastra, (2015), 'International Financial and Monetary Law', Oxford, Oxford University Press, 366.

[21] See articles 12, 13 and 16 of BRRD.

[22] See Lastra – Russo – Bodellini, (2019), 'Stock take of the SRB's activities over the past years: What to improve and focus on', *supra*, 9.
[23] Lastra, (2015), 'International Financial and Monetary Law', *supra*, *passim*.
[24] Case C-9/56 and 10/56, *Meroni v High Authority*, [1957/1958] ECR 133.
[25] See Lastra – Russo – Bodellini, (2019), 'Stock take of the SRB's activities over the past years: What to improve and focus on', *supra*, 10.
[26] *Id*., 10.
[27] See Ferran, (2014) 'European Banking Union: Imperfect, But It Can Work', (April 17, 2014). University of Cambridge Faculty of Law Research Paper No. 30/2014. Available at SSRN: http://ssrn.com/abstract=2426247 or http://dx.doi.org/10.2139/ssrn.2426247, *passim*.
[28] See Lastra – Russo – Bodellini, (2019), 'Stock take of the SRB's activities over the past years: What to improve and focus on', *supra*, 10.
[29] See Bodellini, (2018) 'To Bail-In, or to Bail-Out, that is the Question', European Business Organization Law Review, 19, *passim*.
[30] See Lastra – Russo – Bodellini, (2019), 'Stock take of the SRB's activities over the past years: What to improve and focus on', *supra*, 11.
[31] See Wojcik, (2016), 'Bail-in in the Banking Union', Common Market Law Review, 53, 98, arguing that such an assessment involves a significant degree of discretion.
[32] See Lastra – Russo – Bodellini, (2019), 'Stock take of the SRB's activities over the past years: What to improve and focus on', *supra*, 11.
[33] *Id*., 11.
[34] *Id*., 11, where we underline that a similar approach has been developed by the Bank of England, that 'considers that provision of fewer than around 40,000 to 80,000 transactional bank accounts (accounts from which withdrawals have been made nine or more times within a three-month period) is generally likely to indicate that a modified insolvency would be appropriate'; see Bank of England, (2018), 'The Bank of England's approach to setting a minimum requirement for own funds and eligible liabilities (MREL)', Statement of Policy, 5.
[35] See SRB, (2019), 'Public Interest Assessment: SRB Approach', available at http://www.srb.europa.eu, 6, where it is stated that the SRB approach to the PIA for the banks under its remit has been developed by the SRB itself in close collaboration with the NRAs and in consultation with the ECB in order to ensure a level playing field in the Banking Union.
[36] *Id*., 6.
[37] *Id*., 7.
[38] *Id*., 8.
[39] *Id*., 9.
[40] Lastra – Russo – Bodellini, (2019), 'Stock take of the SRB's activities over the past years: What to improve and focus on', *supra*, 11.
[41] On the publicly funded liquidation of Banca Popolare di Vicenza and Veneto Banca, see Bodellini (2017), 'Greek and Italian lessons on bank restructuring: is precautionary recapitalization the way forward?', Cambridge Yearbook of European Legal Studies, 19, 164.
[42] Lastra – Russo – Bodellini, (2019), 'Stock take of the SRB's activities over the past years: What to improve and focus on', *supra*, 11.
[43] *Id*., 11.

[44] *Id*., 11.
[45] *Id*., 11.
[46] *Id*., 11.
[47] *Id*., 11.
[48] *Id*., 11; on this point, the IMF is of the view that the alignment of concepts such as 'solvency', 'financial stability' and 'public interest', as well as of their meaning would help unify the regime; see IMF, (2018), 'Euro Area Policies, Financial System Stability Assessment', IMF Country Report No. 18/226, July 2018, 7.
[49] See IMF, (2018), 'Euro Area Policies, Financial System Stability Assessment', *supra*, 7.
[50] In a similar vein see SRB, (2017), 'SRB Multi-Annual Planning and Work Programme 2018', available at www.srb.europa.eu, 5, where it is underlined that 'other crisis cases in 2017 also revealed the need to take a broader look at the overall regulatory framework, in particular the interplay between the Bank Recovery and Resolution Directive (BRRD), the national insolvency regimes and the rules regarding State Aid and whether incentives are set correctly'.
[51] Lastra – Russo – Bodellini, (2019), 'Stock take of the SRB's activities over the past years: What to improve and focus on', *supra*, 11.
[52] See IMF, (2018), 'Euro Area Policies, Financial System Stability Assessment', *supra*, 7.
[53] See Bodellini, (2018) 'To Bail-In, or to Bail-Out, that is the Question', *supra*, *passim*.
[54] IMF, (2018), 'Euro Area Policies, Financial System Stability Assessment', *supra*, 27.
[55] Access to SRF resources is considered public financing even though the Fund raises contributions from the industry.
[56] See Lastra – Russo, (2018), 'The financing of bank resolution – who should provide the required liquidity?' Banking Union Scrutiny, In-Depth Analysis, Requested by the ECON Committee – European Parliament, 7.
[57] *Id*., 7.
[58] See Hallerberg – Lastra, (2017) 'The single monetary policy and decentralisation: an assessment', In-Depth Analysis for the ECON Committee, Monetary Dialogue, *passim*.
[59] On the new capital requirements introduced with the so-called Basel IV package see Bodellini (2019), 'The long 'journey' of banks from Basel I to Basel IV: has the banking system become more sound and resilient than it used to be?', ERA Forum, 20, 81-97.
[60] Point 4 of the ELA Agreement.
[61] *Id*.
[62] Article 76 of SRMR.
[63] See https://www.consilium.europa.eu/media/36400/summing-up-letter-eurogroup-inclusive-format-7-september.pdf.
[64] See Recital (20) and art 19 SRMR.
[65] See EP Briefing, (2018) 'Public hearing with Elke Konig, Chair of the SRB Supervisory Board', presenting the SRB annual report 2017, available at www.europarl.europa.eu/RegData/etudes/BRIE/2018/624403/IPOL_BRI(2018)624403_EN.pdf, *passim*.
[66] See De Groen – Gros, (2015) 'Estimating the bridge financing needs of the Single Resolution Fund: How expensive is it to resolve a bank?', In-Depth Analysis for the Economic and Monetary Affairs Committee, *passim*.

[67] See De Groen, (2018), 'Cash outflows in crisis scenarios. Do liquidity requirements and reporting obligations give the Single Resolution Fund sufficient time to react?', In-Depth Analysis requested by the ECON Committee, *passim*.

[68] See Lehmann, (2018), 'Cash outflows in crisis scenarios: do liquidity requirements and reporting obligations give the SRB sufficient time to react?', In-Depth Analysis requested by the ECON committee, *passim*; De Groen, (2018), 'Cash outflows in crisis scenarios. Do liquidity requirements and reporting obligations give the Single Resolution Fund sufficient time to react?', *supra*, *passim*; Mersch, (2018), 'The limits of central bank financing in resolution', available at www.ecb.europa.eu/press/key/date/2018/html/ecb.sp180130.en.html, *passim*.

[69] See article 17(5) of BRRD.

[70] The Commission Delegated Regulation 2016/1075 has implemented the EBA Regulatory Technical Standards on the Content of Resolution Plans and the Assessment of Resolvability of 19 December 2014.

[71] Article 26(3) of Commission Delegated Regulation 2016/1075.

[72] Accordingly, article 10(5) of BRRD clearly states that 'resolution authorities may require institutions to assist them in the drawing up and updating of the plans'; see also article 8(8) of SRMR.

[73] Article 10(1) of BRRD.

[74] According to article 10(2) of SRMR, 'The ECB or the relevant national competent authority shall provide the Board with a recovery plan or group recovery plan. The Board shall examine the recovery plan with a view to identifying any actions in the recovery plan which may adversely impact the resolvability of the institution or group and make recommendations to the ECB or the national competent authority on those matters'.

[75] Article 11(1)(b) of BRRD.

[76] According to article 12(1) second part of BRRD, 'Group resolution plans shall include a plan for resolution of the group headed by the Union parent undertaking as a whole, either through resolution at the level of the Union parent undertaking or through break up and resolution of the subsidiaries'.

[77] Article 12(1) of BRRD.

[78] Article 8(2) of SRMR, stating that 'The Board shall draw up the resolution plans, after consulting the ECB or the relevant national competent authorities and the national resolution authorities, including the group-level resolution authority, of the participating Member States in which the entities are established, and the resolution authorities of non-participating Member States in which significant branches are located insofar as relevant to the significant branch. To that end, the Board may require the national resolution authorities to prepare and submit to the Board draft resolution plans and the group-level resolution authority to prepare and submit to the Board a draft group resolution plan'.

[79] 'IRTs are the main *fora* via which the SRB and NRAs cooperate in performing resolution activities (resolution planning and preparation of resolution schemes) at expert level. IRTs are composed of staff of the SRB and of the relevant NRAs, and are headed by coordinators appointed from the SRB's senior staff'. See SRB (2016), 'Introduction to resolution planning', available at http://www.srb.europa.eu, 1.4.3.

[80] Lastra – Russo – Bodellini, (2019), 'Stock take of the SRB's activities over the past years: What to improve and focus on', *supra*, 23.

[81] *Id*., 23.

[82] Article 10(1) of BRRD and Article 8(5) and 6 of SRMR.

[83] About the resolution plan content see article 10(7) of BRRD and article 8(9) of SRMR. According to article 22(1) of Commission Delegated Regulation 2016/1075, a resolution plan shall contain: '(1) a summary of the plan, including a description of the institution or group ... (2) a description of the resolution strategy considered in the plan ... (3) a description of the information, and the arrangements for the provision of this information, necessary in order to effectively implement the resolution strategy ... (4) a description of arrangements to ensure operational continuity of access to critical functions during resolution ... (5) a description of the financing requirements and financing sources necessary for the implementation of the resolution strategy foreseen in the plan ... (6) plans for communication with critical stakeholder groups ... (7) the conclusions of the assessment of resolvability ... (8) any opinion expressed by the institution or group in relation to the resolution plan'.

[84] Namely: (1) Strategic business analysis; (2) Preferred Resolution Strategy; (3) Financial and Operational Continuity in Resolution; (4) Information and Communication plan; (5) Conclusion of the Resolvability Assessment; (6) Opinion of the bank in relation to the resolution plan. See SRB, (2016), 'Introduction to resolution planning', *supra*, 19-20.

[85] Lastra – Russo – Bodellini, (2019), 'Stock take of the SRB's activities over the past years: What to improve and focus on', *supra*, 23.

[86] It is clearly stated that the resolvability assessment cannot assume any of the following: '(a) any extraordinary public financial support besides the use of the financing arrangements established in accordance with Article 100; (b) any central bank emergency liquidity assistance; (c) any central bank liquidity assistance provided under non-standard collateralisation, tenor and interest rate terms'; see article 15(1) of BRRD and article 16(1) of BRRD in relation to groups; se also article 8(6) fifth part of SRMR.

[87] See SRB, (2016), 'Introduction to resolution planning', *supra*, 11.

[88] SRB (2019), 'Expectations for banks 2019', available at http://www.srb.europa.eu. 10.

[89] A detailed description of the assessment of resolvability is indeed one of the elements to include in the resolution plan according to article 10(7)(e) of BRRD and article 12(4) of BRRD in relation to groups.

[90] See SRB (2019), 'Expectations for banks 2019', *supra*, 6.

[91] Article 10(2) of BRRD and Article 8(6) third part of SRMR.

[92] Article 15 of BRRD.

[93] Article 10(2) of BRRD and Article 8(6) third part of SRMR.

[94] Article 17(1) of BRRD.

[95] See article 10(7) of SRMR, also stating that 'That report shall consider the impact on the institution's business model and recommend any proportionate and targeted measures that, in the Board's view, are necessary or appropriate to remove those impediments in accordance'.

[96] Article 17(3) of BRRD and article 10(9) of SRMR.

[97] EBA (2014), 'Guidelines on the specification of measures to reduce or remove impediments to resolvability and the circumstances in which each measure may be applied under Directive 2014/59/EU', 19 December 2014, 3.

[98] See article 17(5) of BRRD.

[99] Article 17(3) and (4) of BRRD and article 10(10) of SRMR.

[100] EBA (2014), 'Guidelines on the specification of measures to reduce or remove impediments to resolvability and the circumstances in which each measure may be applied under Directive 2014/59/EU', *supra*, 3.
[101] SRB (2019), 'Expectations for banks 2019', *supra*, 7.
[102] EBA (2014), 'Guidelines on the specification of measures to reduce or remove impediments to resolvability and the circumstances in which each measure may be applied under Directive 2014/59/EU', *supra*, 3; see also Article 17(4) of BRRD, also stating that 'In identifying alternative measures, the resolution authority shall demonstrate how the measures proposed by the institution would not be able to remove the impediments to resolvability and how the alternative measures proposed are proportionate in removing them. The resolution authority shall take into account the threat to financial stability of those impediments to resolvability and the effect of the measures on the business of the institution, its stability and its ability to contribute to the economy'. Concerning the UK legal framework see Bank of England (2015), 'The Bank of England's power to direct institutions to address impediments to resolvability', Statement of Policy, December 2015, 12.
[103] Article 10(11) of SRMR.
[104] *Id*.
[105] EBA, (2014), 'Guidelines on the specification of measures to reduce or remove impediments to resolvability and the circumstances in which each measure may be applied under Directive 2014/59/EU', *supra*, 3.
[106] SRB, (2019), 'Single Resolution Board Work Programme 2020', available at http://www.srb.europa.eu, 4-15.
[107] SRB, (2019), 'Annual Report 2018', available at www.srb.europa.eu, 5.
[108] SRB (2019), 'Expectations for banks 2019', *supra*, 7.
[109] *Id*., 7, also stating that 'It is the SRB's task to set the direction and to ensure it actually happens. Only where this proves unsuccessful, the SRB will use its authority to set in motion formal procedures to remove substantive impediments'.
[110] *I.e.*: 1) governance, 2) loss absorption and recapitalisation capacity, 3) liquidity and funding in resolution, 4) operational continuity and access to FMIs, 5) information systems and data requirements, 6) communication, and 7) separability and restructuring.
[111] SRB (2019), 'Expectations for banks 2019', *supra*, 14.
[112] Lastra – Russo – Bodellini, (2019), 'Stock take of the SRB's activities over the past years: What to improve and focus on', *supra*, 25.
[113] Russo, (2019), 'Resolution plans and resolution strategies: do they make G-SIBs resolvable and avoid ring fence?', European Business Organization Law Review, 20.
[114] See FSB (2019), 'Public Disclosures on resolution Planning and Resolvability' Discussion Paper for Public Consultation, 3 June 2019, 2.
[115] See SRB (2016), 'Introduction to resolution planning', *supra*, 34-35.
[116] *Id*., 34-35.
[117] It is said that the next 12-month resolution planning cycle will start in April 2020 and finish in March 2021.
[118] SRB, (2019), 'Single Resolution Board Work Programme 2020', available at http://www.srb.europa.eu, 4-6; according to the SRB's website as of 5 September 2019, there were 124 banks under the

SRB's remit; see https://srb.europa.eu/en/content/banks-under-srbs-remit; they were 126 at the end of 2018, see SRB (2019), 'Annual Report 2018', available at www.srb.europa.eu, 11.

[119] SRB, (2017), 'SRB Multi-Annual Planning and Work Programme 2018', available at http://www.srb.europa.eu, 4-9.

[120] SRB, (2019), 'Annual Report 2018', *supra*, 9.

[121] *Id*., 9.

[122] SRB, (2018), 'Single Resolution Board Work Programme 2019', available at http://www.srb.europa.eu, 6; see also SRB (2017), 'SRB Multi-Annual Planning and Work Programme 2018', *supra*, 9, where it was said that 'In 2018, the SRB will enhance resolvability inter-alia by drafting and adopting resolution plans for 99% of the groups under its responsibility. The only banks not covered by a resolution plan will be those that are subject to structural changes ... All plans will be further improved in quality, benefiting from further developed internal policies and standards ... In 2018, the SRB will also carry out a first identification of substantive impediments to resolution. Prior to defining these as substantive, the SRB will assess whether the actions taken by a bank are sufficient to avoid initiating formal procedures'.

[123] ECA, (2017) 'Special report no 23/2017: Single Resolution Board: Work on a challenging Banking Union task started, but still a long way to go', *supra, passim*.

[124] See Giegold, (2019), '(Verts/ALE), Question for written answer Z-00038/2019 to the Chair of the Single Resolution Board, Rule 141, Subject: Adoption of resolution plans and assessments of resolvability' available at https://www.europarl.europa.eu/doceo/document/ECON-QZ-639806_EN.pdf, 1.

[125] The SRB has already reacted to the observations raised by the ECA saying that 'it should be pointed out that the ECA Special Report examined the state of play and resolution plans drafted by the SRB in 2016. Many of the Court's findings have been already addressed in the resolution plans which were prepared in 2017 or have been included as priorities in the Multiannual Planning and Work Programme (MAP) published in December 2017'; see SRB, (2018), 'Annual Report 2017', available at http://www.srb.europa.eu, 4-5.

[126] ECA, (2017), 'Special report no 23/2017: Single Resolution Board: Work on a challenging Banking Union task started, but still a long way to go', *supra*, paragraph 35.

[127] See Giegold, (2019) '(Verts/ALE), Question for written answer Z-00038/2019 to the Chair of the Single Resolution Board, *supra*, 1.

[128] SRB (2019), 'Reply to written question Z-038/2019 by MEP Sven Giegold' 20 August 2019, available at www.srb.europa.eu, 3.

[129] Grande, (2017), 'Resolution Planning in Practice', Presentation delivered at the Florence School of Banking and Finance, 4 October 2017, available at www.srb.europa.eu, *passim*, saying that examples of potential impediments identified by the SRB in 2016 are: 1) insufficient loss absorbing capacity, 2) operational continuity, such as continuity of access to FMIs, 3) inability to provide information in time, 4) execution of bail-in, 5) funding during/post resolution, 6) group structure (*i.e.* lack of a holding company), 7) cross-border issues.

[130] SRB, (2019), 'Single Resolution Board Work Programme 2020', available at www.srb.europa.eu, 15.

[131] Similarly see SRB, (2019), 'Annual Report 2018', available at www.srb.europa.eu, 14, where it is said that 'Since almost all banks under the SRB's remit are now covered by resolution plans an

increasing focus is now put on further operationalising the existing plans, which benefit from more numerous and more comprehensive internal SRB policies. The most recent plans cover almost every aspect of planning, including the choice of resolution tools, resolvability assessment, public interest assessment or the use of simplified obligations'.

[132] Accordingly see FSB (2015), 'Removing Remaining Obstacles to Resolvability', report to the G20 on progress in resolution, 9 November 2015, *passim*, stating that at that point in time 'Some G-SIB home authorities identified material impediments to the resolvability of the G-SIB or G-SIBs in their jurisdiction and stated that they would not consider the G-SIB or G-SIBs resolvable until these issues have been addressed'; particularly the impediments to resolvability identified at that time were related to: 1) funding and liquidity needs in resolution, 2) continuity of shared services that are necessary to maintain the provision of a firm's critical functions in resolution, 3) continued access to payment, settlement and clearing services, 4) capabilities to generate accurate and timely information in resolution, 5) implementation of the new TLAC standard, 6) making bail-in operational, 7) cross-border effectiveness of resolution actions'.

[133] SRB, (2018), 'Single Resolution Board Work Programme 2019', available at http://www.srb.europa.eu, 3.

[134] SRB (2019), 'Reply to written question Z-038/2019 by MEP Sven Giegold', *supra*, 3.

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«They say things are happening at the border, but nobody knows which border» (Mark Strand)

The disruption effect of blockchain and the future scenarios of contracting in the digital era

by **Ana Gascòn Marcèn** and **Claudia Marasco**

Abstract: *The article analyzes the inadequacy of blockchain's reference regulatory framework, in relation to its potential applicability to some crucial areas of law and, in particular, investigates the advantages and critical issues of its use in contracts in the digital age. While Legislator is at various level focused on cataloging and defining blockchain phenomenon, the regulatory gap that emerges underlines the opportunity for a regulatory intervention at European level, which is able to ensure the development of the digital single market, considering the global extent and the rapid increase of its use.*

1. As traditionally underlined by literature[1], law is destined to change over time symmetrically to the evolution of human activities and, therefore, at the same time it presents itself as "*the product and engine of economic, social and political changes*"[2]. The innovation of markets and of economic relationships in the technological direction is gradually inducing the jurist to review and to adapt the traditionally available archetypes, considering that the effects that new technologies have on natural and human "facts" no longer can represent a secondary variable, but a determinant variable of legal matters.

Digital technologies, in fact, as phenomena intrinsically and inevitably able to affect and influence the rules of the market and of its relationships, have promoted the introduction of new business and legal models. First ones models, among which digital platforms can be mentioned, have been proposed as more efficient tools for satisfying user needs, offering more flexibility and services in terms of cost containment, compared to those attributable to the traditional economy. The latter ones, to which ones would also be attributable the contractual relationships carried out in a network without intermediaries,

seem to generate, not only economically but also socially, new paradigms, which require to be legally framed. We refer to the cd. DLT (Distributed Ledger Technologies)[3] and among them, in particular, at the prevalence of blockchain[4], which identifies a completely decentralized digital system, ie without intermediaries, which can also be used to conclude transactions.

In light of the aforementioned innovations spread, the careful jurist is called upon to carry out a more complex hermeneutic activity, aimed also, and preliminarily, at the technologies' functional analysis. So much a lot, firstly in order that he can effectively shape the right to changing reality and, secondly in order that – when traditional classifications are inadequate to regulate new forms of relationships -, the Legislator can introduce the most appropriate legal solutions[5]. Indeed, it is undeniable that precisely the birth of new technological phenomena causes substantial difficulties in conceiving, *ex ante*, a prompt and efficient abstract and general regulation, especially when they take on disruptive characteristics and do not seem to be able to adapt to the traditional legislative adaptations of the regulatory provisions already dictated. for at least apparently similar cases.

In addition, new technologies, combined with the effects of globalization, seem to gradually and incessantly enlarge the tangle of possible economic and legal relationships, also eliminating (*rectius* reducing) the geographical boundaries first and, often, the regulatory ones later[6]. Therefore, many times the regulatory pursuit that the national legislator tries to implement against these new economic realities, does not seem to satisfy the speed required him to respond to market needs. Indeed, new technologies are increasingly entrusted to the lean and uniform regulation of the Union.

One wonders therefore if, when he approaches digital technologies, the national and European jurist is called upon to make a further hermeneutic effort, bearing in mind that it may no longer be sufficient for him to carry out an activity of (albeit difficult) subsumption of the case new in traditional conceptual categories, especially internal ones, but that it may become necessary for him to refer to them only as an instrument of logical passage to reach an innovative legal result.

It should be noted that not everything that is technologically possible must necessarily become lawful[7], so it is essential to know the operating methods of the individual innovative phenomena which the need for exegetical and / or regulatory intervention emanates from, also to define coherent and efficient regulations in relation to the potential application of the mentioned tools and to make common and effective policy-legislative choices in relation to any, and foreseeable, regulatory gaps.

Among the mentioned innovations, certainly blockchain constitutes a still incomplete phenomenon both from an operational and a regulatory point of view. The need to ensure greater certainty for online transactions at various levels has prompted institutions and economic operators to resort more widely to this framework, which has impacted on the general legal framework and has acquired a progressively more central role in the doctrinal debate of recent years. Nevertheless the Legislator, in his various levels of expression, encounters the difficulty of framing the phenomenon and the relationships that arise through this technology, bearing in mind that it, having high potential application, can generate implications that are not yet completely foreseeable or controllable and that it refers to heterogeneous sectors of the market and contract law.

Consider that part of the literature[8] investigating the impact of blockchain on the market, offered two possible alternative answers in the field of economic theories. If blockchain were considered a "general purpose technology", it would act in many sectors of the economy as a factor in the growth of company productivity while, if it was understood as a technology that, in itself, does not generate production but a new economic perspective , it could be called "institutional technology". Well, in both cases,

blockchain would seem to integrate the requirement of “disruptive” innovation, given that it generates a distortion of market equilibrium, capable of replacing a large part of intermediaries that play the role of “third parties”. In fact, it was argued that blockchain has actually introduced a new way of understanding the economy, which would determine the true and deepest disruptive effect arising from the use of digital technologies, in consideration of the fact that economic systems, based on disintermediation, would considerably implement the efficiency of exchange and production and, finally, of the general economy.

Mutatis mutandis, we ask ourselves if, prospectively, blockchain could integrate a tool for coordinating economic activities and, in this sense, a new type of economic institution that allows to affect some aspects of market capitalism, considering that a register has the function of certifying the state of an economy and changing its organization could change the way we do actions and transactions.It therefore seems necessary to analyze the technological profiles of the framework and to verify if it is possible to trace its regulation back to the current regulatory parameters, with a more precise reference to its most disruptive variations for the law.

2. Classification of blockchain (or “chain of blocks”) in a single and all-inclusive definition area is an arduous task, considering that it can be observed from different and heterogeneous perspectives; however, technically, it can be considered a functional database for management. of encrypted operations (stored on a “decentralized” peer to peer network), accompanied by a timestamp and collected on so-called “blocks”, concatenated and divided in chronological order[9]. Basically, this is neither an application nor an intra-company organization system, but rather a technology that allows the exchange of information and values of various kinds via the Internet through the use of a “public register” (or digital ledger), managed directly by the individual users of the network, on a global platform[10].On closer inspection, even though it is commonly connected exclusively to cryptocurrency, tracing the blockchain exclusively to the most famous Bitcoin, would reduce its prospect of use, considering that it, indeed, constitutes only its underlying technology. In fact, it is potentially applicable not only to the electronic transfer of money, but also to many other sectors of the exchange, which are now carefully investigated and being tested by economic operators.Indeed, as has been appropriately argued[11], any digital value or virtual asset, any data or information can, under certain conditions, be inserted in an IT structure and, in this way, be the subject of transfer and sharing. In fact, until the emergence of blockchain, it was considered rather peacefully that, in the public sector, only political and economic institutions could impersonate the authority guaranteeing compliance with the rules of correctness of administrative procedures and that, in the private sector, only the so-called third parties (including guarantors as various qualitification, Banks and intermediaries) could appear as instruments aimed at reducing the physiological diffidence that animates market operators, allowing the latter to function in compliance with the rules of certainty and trust between the parties. This configuration of the relationships of law almost inevitably determines, however, a “centralization” of the exchanges, that is the concentration of the control of the execution of the relationships in a single authority or in a single entity. We refer, in particular, to the necessary reliance that the parties of a legal relationship must place in a subject, who would however be free to violate the rules of conduct of which he makes himself “guarantor”. Blockchain, instead, invokes the idea of a single ledger, distributed in copies (*rectius* in original forms) to a multitude of people and would seem to allow to introduce, effectively, a new logic of governance, based on what it could push to define “objectified trust” between all participants in the

system.In this sense, the main innovative effect attributable to the blockchain framework would be found not so much in de-materialisation of currency (as already recognized after Bitcoin introduction), as in the more invasive introduction of the factual possibility of transferring a value units with minimal infrastructure and without the necessary intervention of third parties as guarantors or trustees. This circumstance has substantially made it possible to overcome the traditional concept of trust in the third party, integrating what has been precisely called the disruptive effect of blockchain, in a generalized sense[12].On closer inspection, however, although the cryptocurrency has the attention of economists attracted in consideration of the possibility of overcoming the traditional concept of trust, the technology underlying Bitcoin would seem to find adequate space in other and different sectors of the digital economy and, in particular, in the field of intelligent contracts and B2B distance contracts. In fact, when the operation deposited on blockchain consists of a transaction, the latter consists of an exchange of messages in encrypted code (from pseudonymised users) and a combination between the time stamp and the digital signature: first one allows that the set of messages – validated through the cryptographic process – is communicated and written in the register of all the other nodes on the network and made irreversible, while the second one guarantees that the sender and the recipient of the same messages are identified in a certain way[13].
These operating methods inevitably impact on traditional principles of law; hence the difficult task performed by the interpreter called to evaluate whether or not they are compatible with the existing legal categories. A reconstruction of the operating profiles of blockchain, therefore, is the indispensable premise to investigate the legal consequences that would derive from the application of blockchain to contracts, in order to evaluate the possibility of a dedicated regulatory intervention and the most appropriate regulatory method for the circumstances.

3. At present, blockchain integrates itself in a historical context characterized by the uncontrolled evolution of market logic, which forces economic operators to suddenly adapt themselves to modern operating systems, introduced by technology. And in fact, we are witnessing the rapid spread of the “online platform”, which could rise to the role of ideal type of new production and work methods[14], based on characteristics such as flexibility, disintermediation and allocative decentralization: in this sense, the online platform it seems to constitute an essential infrastructure of the new world economic model and, specularly, of law.The development of a true European Digital Single Market has been a main priority of the European Union[15] during the last years and it will be even more important in the coming ones[16]. To profit from all the potential of the Digital Single Market, it is necessary to this requires high-speed, secure and trustworthy infrastructures and content services, supported by the right regulatory conditions for innovation, investment, fair competition and a level playing field [17].
In this sense, the regulation of DLT through national laws could create a fragmentation of the single market[18], so regulation at European level or at least some kind of address seems a good approach[19]. It must be added that The European Union has global normative influence in other fields related to Information and Telecommunications Technologies such as the privacy sector[20] and could also affect blockchain. As Professor Finck explains, regulation can be an engine for innovation: promoting legal certainty, creating a market for new technology, ensuring interoperability between new technologies and existing legislation and generating trust[21].Nevertheless the EU is also conscious of the problems DLT creates. The European Central Bank received cryptocurrencies with some level of mistrust[22] and the EU had to cover their use with the 5th Anti-Money Laundering Directive[23]. The European Union

knows that the use of DLTs deserves particular attention in order to understand whether it raises challenges with respect to traditional concepts and rules of civil and contract law[24] and to weigh its compatibility with the European data protection law[25].However, the European Commission considers that DLT has the potential to bring major improvements to European industry and citizens[26]. So it decided to welcome the advances and aims of positioning Europe at the forefront of blockchain innovation and uptake[27].

The European Commission, in collaboration with the European Parliament, launched the EU Blockchain Observatory and Forum in 2018 and several member States signed a joint Declaration creating the European Blockchain Partnership (EBP) and cooperate in the establishment of a European Blockchain Services Infrastructure (EBSI) that will support the delivery of cross-border digital public services, with the highest standards of security and privacy. These States consider that Europe is well placed to take a global leadership position in the development and application of DLT and will cooperate towards a European ecosystem for blockchain services and applications can avoid fragmented approaches. Such cooperation can also strengthen compliance with regulations and regulatory convergence which is essential to support scalability of such solutions across borders.

The EU also promoted the creation of a public-private partnership in 2019, the *International Association for Trusted Blockchain Applications* (INATBA) which is a multi-stakeholder organization based in Brussels. It brings together suppliers and users of Distributed Ledger Technologies with representatives of governmental organizations and standard-setting bodies from all over the world.

ESMA also is studying the impact of DLT in two particular area of interest: financial markets and digital values use[28].

The European Parliament[29] in its Resolution of 3 October 2018 on “distributed and blockchain registry technologies: building trust through disintermediation” (P8_TA-PROV (2018) 0373), stresses the Commission needs to undertake an in-depth assessment of the potential and legal implications, including the risks related to jurisdiction; and calls on the Commission to promote the development of technical standards at with relevant international organizations, and to conduct an in-depth analysis of the existing legal framework in the various Member States in relation to the enforceability of smart contracts. It also notes that legal certainty can be enhanced by means of legal coordination or mutual recognition between Member States regarding smart contracts.The European Commission is therefore working to study whether the current legal framework is clear enough to ensure the enforceability of smart contracts and clarify jurisdiction in case of legal disputes[30]. In the coming years, the European Commission has pledged to invest in blockchain and jointly define standards for this new generation of technologies, that will become the global norm[31].In light of the phenomenal dynamism highlighted by digital technologies in general, and by blockchain in particular, it seems essential that the European sector authorities are placed in the position of being able to ensure, in terms of concreteness, adequate protection for the interests of users of the services.In fact, while innovative phenomena such as the aforementioned digital platforms or even the sharing economy in general, are explored both by the national Legislator and by the Community authorities, already creating sufficient discipline to deal with the contractual reality, the blockchain regulation still lags behind on the European and Italian regulatory scenario.

3.1 Indeed, the initiatives taken at European level with reference to blockchain, in the opinion of the writer, although suitable for demonstrating supranational attention to the phenomenon, are only the

first steps towards a right direction. They should also be specifically aimed at strengthening the digital single market, which is a priority of the Union's policies[32]. The latter, in fact, has always been oriented towards ensuring a unique and balanced context, regardless of the business model chosen by the individual operator, with a view to the good performance of the market in a global sense. And in this sense, the centrality of information technologies and online services as catalysts for economic growth and innovation has been recognized and the adoption of blockchain technology as a tool capable of facilitating economic relations is supported. However, it is necessary to deal with the European regulatory gap regarding a satisfactory definition of the blockchain framework, outside the regulation of just some application aspects of the same. Among other results, the Resolution of 3 October 2018 identifies a real ecosystem of DLTs, based precisely on self-sovereignty, identity and trust but, regarding the application of technologies to contracts, highlights the need for the European Commission to carry out an in-depth assessment, given the legal implications that would derive from it, such as, for example, with regard to the applicable jurisdiction. And, in fact, the source in comment highlights that it is necessary to promote a general legal framework that recognizes smart contracts and eliminates their obstacles to functioning.On the bridging of the first reflections, matured in European headquarters, Italy has also decided to take further steps in the direction of digital progress. In fact, on October 15, 2018, the Council of Ministers had already, at first reading, approved the full text of the draft law that would flow into the so-called Simplification Decree, containing, among others, a provision on digital technologies and on blockchain.

The need to adapt to the digital progress of data and contracts could have, in this sense, inspired the regulatory proposal put forward by the Ministry of Economic Development in terms of technologies, with the aim of introducing an initial regulation of the matter in question, according to the indications coming from the EU Commission in April 2018 and from the aforementioned Resolution of 3 October[33]. The proposed legislation on the validation of data with blockchain, following a rereading of the advanced proposal, finally came together in art. 8*ter* of Legislative Decree 135/2018 – converted into Law no. 12/2019 – entitled "*Technologies based on distributed registers and smart contracts*". The rule appears interesting because it had the advantage of providing a first legal framework of blockchain and smart contracts phenomena, which, coordinated with the provisions of the V (fifth) Anti-Money Laundering Directive (Dir. (EU) 2018/843) and with the reports prepared by Banca d'Italia has made Italy one of the first countries to have embarked on a regulatory path of the innovative phenomenon, which does not seem further negligible by the Legislator, at various levels.Moreover, Italy has long since shown that it is particularly attentive to modernization processes in the digital sense. We have regard to the entry into force of the Presidential Decree 513/97[34] or the introduction of the so-called "Digital Administration Code" (Legislative Decree 82/2005), amended several times[35]. Therefore, the draft law which has just been taken into account and the subsequent Law 12/2019, constitutes part of a regulatory procedure favorable to the requests coming from modern innovative techniques[36].

It is clear, however, that the identification of a body of rules in step with the constant change of the digital sector, requires the Legislator to abandon the traditional operational logics that it has used up until the recent past[37]. Instead, the legislative initiative undertaken confirms the regulatory gap of some crucial blockchain applications, particularly in the negotiation field, which is still too far from adequate regulation. In fact, adapting the traditional paradigms of private law to those determined by blockchain would mean introducing into the system of national law substituting IT systems of the ordinary methods of perfecting / executing mandatory relationships. Therefore, as has been

authoritatively highlighted[38], the Blockchain would mark a "*moment of fundamental technological discontinuity*" in that, constituting a network for the exchange of value, it is substantiated in a trustless technology[39]; so, in the absence of a clear disciplinary framework on the matter, it seems to operate as a transnational private system based on the so-called widespread consensus as a "socially typical" instrument, not yet standardized, for the exchange of wealth and the improvement of negotiation agreements.From this, it can be deduced that, at the disciplinary level, much still needs to be done to reach the goal of establishing a digital single market through the use of new technologies and of blockchain in particular, bearing in mind that, as claimed in the most recent literature[40], this architecture it seems to attract economic operators at all levels considering the objective of simplifying processes and reducing trade costs.

4. To consider well, blockchain use in agreements' field[41] would allow us to offer new ways through which to produce, render services and exchange values, taking into account that it brings with it disintermediation[42], transparency, decentralization of consent and greater certainty in the performance of services. In the aforementioned perspective of so-called process simplification and cost reduction, smart contracts[43] would seem to be the ideal application field for the development of blockchain technology, in account that they consist of computer protocols capable of autonomously executing the programmed terms, once certain predefined conditions are satisfied[44]. In this way, it is possible to transpose a legal transaction into a computer code, so that following the fulfillment of certain pre-established conditions, the system will automatically execute the transaction[45]. In other words, the code "reads" the agreed clauses and the corresponding IT conditions, then verifying that the data referred to the real situations correspond to those entered within the agreements made[46].
As doctrine highlighted, therefore, it could be said that: "*blockchain constitutes the track, where smart contracts are the wagons of the train in which the goods / services (called data feeds) that circulate are contained*"[47]. It brings with it: disintermediation, decentralization of consent, transparency and pseudonymisation, characteristics that could make blockchain technology considered the fifth disruptive paradigm of computing hera. In this sense, consider that the advent of the Internet had already produced a disruptive effect by transforming the traditionally passive function of the average "user", tending to be limited in his access to information, into a fully "active" function, free to move in a network that provides for a growing interaction between subjects of different nature, subsequently succeeding in erecting itself also as a model of exchange.
To verify the lawful of blockchain use in the negotiations' context, consider that, with the use of its system, the fulfillment of the obligation assumed by A is inseparably linked to the fulfillment of the obligation of B and (that) the executions of obligations tends to occur simultaneously[48], so the risks associated with the so-called chargeback frauds would be prevented, because a contractor cannot, for example, cancel a payment after receiving the goods. It's belived that the smart contract concluded *via* blockchain would be able to give the agreement a greater degree of certainty[49] and security than a traditional contract. It is believed[50] that this may also allow us to overcome interpretative problems linked to the ambiguity of natural language, thus making the provision of traditional systems for strengthening contractual guarantees superfluous. In this regard, the positive effects that derive from it in terms of simplification of negotiations and savings in the general economy, as well as prevention with respect to the use of third parties (including judicial protection) or intermediary service providers are clear[51].

The application of blockchain technology to smart contracts generates even more disruptive effects, connected to the disintermediation of the market, as the negotiation relationship is capable of self-management and self-execution without external influences or interventions and without the use of third parties. In fact, it completely "confided" in the unchangeability and veracity of the data entered in the system, according to the IT functioning mechan ism described[52].It is also evident how blockchain can significantly affect contractual relationships in which the trust in the behavior of the negotiating parties takes on an important role in assessing the correct execution of the operations done[53].

In fact, while traditionally the execution of the shop is remitted to an exogenous variable to the negotiation device, depending on the unpredictable behavior of the contracting parties concerned, the blockchain's operating mechanism is instead capable of eliminating the risks of default of obligations, of double spending and contractual fraud, with obvious advantages for the parties involved and more generally for marketplace[54]. There is an operating system which, by innovating part of the ordering criteria of traditional contracts, can be a valid tool to deal with the known critical issues in negotiation relationships characterized by information asymmetry in which, in the face of a contractor with specific technical knowledge, the position of who (the consumer) is not in possession of adequate notions is found[55].Blockchain would seem to allow, therefore, to overcome the risks associated with the traditional performance of the contractual synallagma; on the other hand, it presents certain problematic profiles that require careful reflection[56] by the interpreter[57].

There is, in fact, preliminary questions about the need that contracts concluded through the blockchain structure should present those essential elements, legally provided under penalty of its nullity and, subsequently, whether the latter are easily identifiable in the system[58].Moreover, it should be highlighted how the "electronic" form, while being abstractly able to replace the paper form, may not make it easy to access the relevant information of the shop for unpractical contractors[59]. This danger is not only in the physiological phase of the agreement (essentially due to the technical-digital inexperience of the parties), but also in the pathological one and, specifically, in legal procedures (taking care to the possible difficulties in contractual agreements interpretation by jurisdiction). It is clear, however, how this circumstance is possible and, in any case, temporary, taking into account the progressive diffusion of the technological phenomenon in question.In other perspective, it should be highlighted how the immutability of blockchain code, as well as the rigidity of the criteria used for its creation, could be an obstacle to the full expression of the decision-making freedom of the negotiating parties[60].

We refer to the fact that the stability and certainty, deriving from the application of the technology in question, prevents the contractors from resorting to the decision-making discretion inherent in the transaction's execution phase, being able to exclude any modification of the concluded deal. In light of what has been said, it is essential that the Legislator identifies the boundaries in which this type of agreement can validly operate and this with the aim of determining, in particular, the hypotheses in which parties can conventionally derogate from the general discipline. It would also seem appropriate to analyze, and consequently regulate, whether it is appropriate that blockchain really embraces a complete decentralization and disintermediation, completely self-referentially given and, therefore, without an adequate centralized regulatory or administrative control system[61].

It is also necessary that the jurist questions the opportunity to allow blockchain to be the basis of a model for complex contractual operations, managed by numerous variables or by multiple combination

mechanisms of the same. Indeed, in some cases, the difficult compatibility of technology in question with the negotiating structure is clear. We refer, for example, to the hypothesis of contracts concerning objectively complex obligations, such as “alternative” obligations: the plurality of performances, alternative to each other, in fact, represents a case in which, since the beginning, object of the obligation is not fully determined. In this case, the right of choice (about the performance) refers to one of the parties and, from the conclusion of the contract, it is delayed to the executive phase of the deal[62]. The uncertainty that characterizes the moment before the concentration of the object of the obligation could, therefore, badly adapt because of its nature to the rigid and immutable system of blockchain, which would instead be more easily compatible with simple bonds (or, at the most, cumulative), the whose obligations are determined in advance, certain and irrevocable. Another example of a contract model, apparently not very similar to the use of blockchain, could be the “trusty contract”, the content of which cannot be easily reduced to automated expressions of will, because the performance is intrinsically subject to the broad discretion of the contractor and to the creation of the so-called indirect purpose.

Blockchain technological system, in fact, could validly replace the contractual *fides*, which traditionally placed in the person of the other contractor[63], but it does not seem easily conceivable could replace the cause (*rectius* the content) of the own contract or of its execution according to good faith. Far from analyzing the controversial theoretical reconstruction of the *causa fiduciae* (for those who admit its existence), it is necessary, however, to specify that, in trusty contract, the purpose actually pursued by parties is certainly indirect and left to the internal *pactum fiduciae*, which has validity between so-called “settlor” and “trustee”. Therefore, blockchain does not seem suitable, at first analysis, to meet the needs pursued by the trusty negotiation model, precisely aimed at widening the positive law’s tangle, to achieve concrete objectives further than the typical negotiation schemes adopted, and left to discretion. operational of the contractor, which is thus covered with greater intensity[64].

5. Peculiarities that, without claiming to be exhaustive, have been attempted to trace concerning blockchain enforceability to negotiations raise more than one reflection, due to the potential availability of this framework in crucial sectors of law and of market, as well as its strong attitude to cross national borders, assuming the typical characteristics of the global phenomenon[65]. In fact, despite the significant level of consensus that the most varied potential of blockchain find at institutional level, it has not yet been the subject of a regulation dedicated to contracts, but just of some national regulations, aimed at legitimizing the certification of concluded transactions ” through “the network[66].Add to this that the required use of a modern computer language, replacement the more generally usable traditional one, and the rather embryonic legal-institutional status in which blockchain stands, prevent the identification of a commercial practice or, even, a *lex mercatoria* to fill (more or less temporarily) the current legislative gap[67].Given that the Italian legal system has already, with the aforementioned Simplification Decree, taken the first steps towards a wider recognition of the technology in question and which has not, however, prepared an effective disciplinary system to deal with the disruptive impact of blockchain use in the private negotiation sector at national level, the possibility of concluding and interpreting contracts, through it, currently seems to require an exegetical activity that is still highly cumbersome, as it is anchored to traditional legal paradigms. Therefore, the first question that arises, after a careful analysis of the operational characteristics of the framework, is whether the approach that

the institutions have adopted with respect to blockchain and, in a broader sense than all the most recent innovative phenomena, is appropriate or if, however, it requires renewal.

We refer, in particular, to the alternative between the use of interpretation tools to bring the phenomenon in question back to pre-existing categories of law and the opportunity to prepare a new regulatory instrument.As also underlined by the doctrine[68], at this historical moment the disciplinary gap in question seems to translate into the dichotomous alternative for Institution at every level, between *ius conditum*, i.e. the legislative choice to bring the discipline back to it in terms of the categories in force, and *ius condendum*, i.e. the choice of policy regulatory interventionist, for a possible specific regulation of the phenomenon.At present, as well as above highlighted, it could be stated that blockchain shows itself as a "*socially typical*" economic prototype ascribable to so-called "*Jus-realistic*" conception of law, which woul look for a new and more appropriate regulatory scheme for this phenomenon, whereas the jurist's current approach to regulate this phenomenon seems to adhere to *juris-formalist* perspective, as it is still aimed at subsuming the phenomenon to current law. In this second contest, we ask ourselves provocatively if, in the future, the legislative gap could drive to ascribe blockchain among the sharing economy tools, because of the only common purpose of disintermediation and substantial (indirect) collaboration between users and, consequently, if this could lead to finding analogies with the regulations intended for those, different, innovative and technological phenomena and tools, in legal-formal perspective currently pursued by the legislative authorities.Actually, a specific regulatory intervention may be more than desirable, in light of the transnational character of blockchain, of its intrinsic *no*-territoriality, as well as of the prudent approach of economic operators in the use of unexplored and non-standardized technology[69]. More specifically, we refer to the evaluation of a regulatory proposal at European level, even more than at the national level[70] considering that, as stated by the most recent EBA report regarding to the related issue of cryptocurrencies, it would be important to provide an answer from European Union on the impact that technologies have on crucial sectors of trade.

The reflection gained in relation to the cryptocurriences should in fact be extended to the negotiation sector taking into account that, as also stated by the doctrine[71], a market that aspires to become unique, like the digital one, necessarily requires rules as common as possible, often released from regulatory responses national, especially in consideration of a technology with free and potentially infinite access[72].Instead, at present, the normative absence applicable to transactions concluded on blockchain could result in the use of contractual freedom precept, which constitutes a typical choice of liberal and liberal systems. However, returning it the idea of a mere *ex ante* choice of deal parties in order to regulate the law of the relationship (and its consequent jurisdictional court) it would risk not to solve the problem of uniform preventive regulation, but to shift the critical issues of the negotiation to a moment prior to the conclusion of the deal via blockchain. More specifically, it would replace the rules of validity, of the mere rules of "*economic behavior*", also taking into account that blockchain is based on shared consent, which does not even requires you to investigate the correctness of the data entered on the net.

References

[1] See: M. Giuliano: "*La blockchain e gli smart contracts nell'innovazione del diritto del terzo millennio*", in "*Il diritto dell'informazione e dell'informatica*", Review, 2018, pp. 989 – 1039; V. Frosini: "*Temporalità e diritto*" in "Riv. dir. civ.", 1999 p. 431 ff; E. Resta "*Il tempo e lo spazio del giurista*" in "*Scienza e diritto nel prisma del diritto comparato*", (by) G.- Commandè and G. Ponzanelli, Torino, 2004 p. 253 ff. in A. Alpini: "*L'impatto delle nuove tecnologie sul diritto*" in "*Comparazione e diritto civile*", Review, 2019.

[2] M. Giuliano: "*La blockchain e gli smart contracts nell'innovazione del diritto del terzo millennio*", in "*Il diritto dell'informazione e dell'informatica*", 2018, p. 989 – 1039.

[3] These are technological tools that have the purpose of guaranteeing immutability, security and integrity of facts put in the network, without the need to resort to specific certification authorities of this in charge. In particular, the concept is an evolution of "*decentralized ledger*" which, commonly and generally, indicates a phenomenon of decentralization of information, in the sense that the latter tends to no longer be guarded or managed necessarily by a single central authority: in fact, the technological scenario seems to offer new alternatives to sharing information. The innovation has precisely evolved, introducing the "*distributed ledgers*" (which characterizes, among others, precisely the blockchain).The Distributed Ledgers Technologies or DLT are, therefore, a set of technological tools, characterized by referring to a "shared register", governed to allow access and, to multiple nodes of the network, the possibility of making changes (cf. M. Bellini: "What the Distributed Ledgers Technology – DLT Blockchains are and how they work", available on http://www.blockchain4innovation.it).

[4] But, see "*Discussion Paper*" par. 4 ESMA, 2 juny 2016 and Report ESMA 2017 "*Report on Distributed Ledger Technology Applied to Securities Markets. Reference*", which describes DLT and blockchain as partially different phenomena.

[5] In this sense, careful teaching highlighted that the option of disavowing the digital reality, (expression of a purely censorious approach, typical of the mode of action of authoritarian countries for example) while being an abstractly possible alternative, is impracticable for liberal democracies , not only for reasons of adherence to the constitutional data, but also for the impossibility of financially supporting this choice. See, A. Gatti: " *Istituzioni e anarchia nella Rete. I paradigmi tradizionali della sovranità alla prova di Internet* ", in "*Diritto dell'informazione e dell'informatica*" (II), fasc. 3, 1 June 2019.

[6] So much so that, with reference to the replacement of the geo-political borders with a digital space without delimitations, there has been talk of a national "sovereignty crisis". In this sense, cf. A. Gatti, cit. at 712 ff.

[7] See U. Galimberti: "*Psyche and techne – L'uomo nell'età della tecnica*", Milan 1999, in G. Pascuzzi, cit. at 990.

[8] Cf. S. Davidson, P. De Filippi and J. Potts, in: "*Blockchain and the economic institutions of capitalism*", in Journal of Institutional Economics, vol. 14, Issue 4, 2017.

[9] The database so developed is said to be decentralized (or "distributed") because it is not controlled by any top authority or specific unitary company. It is not physically kept on a single machine but it is placed on each of the devices connected to the same platform; so the information circulates quickly and cannot be modified, without prejudice to the need to ensure that it is kept on copy on the personal computers of all users (see M. Beauty: "*Blockchain* ", in" *Fintech* "by Paracampo, page 220 ff). For a

more detailed examination of the technology and a technical analysis of its components see, among all: M. Pilkington: "*Blockchain Technology: Principles and Applications*" (September 18, 2015), in "*Digital Transformations*", edited by F. Xavier Olleros and Majlinda Zhegu. Edward Elgar, 2016. Available on SSRN: https://ssrn.com/abstract=2662660.See also: O. Rikken (Smart contract Working Group – Dutch Blockchain Coalition) in "*Smart contracts as a specific application of blockchain technology*".

[10] Cf. *ex multis* D. Tapscott and A. Tapscott: "*Realizing the Potential of Blockchain. A Multistakeholder Approach to the Stewardship of Blockchain and Cryptocurrencies*", White Paper commissioned by World Economic Forum, june 2017; C. Bomprezzi "*Blockchain e assicurazione: opportunità e nuove sfide*", in "*Diritto Mercato Tecnologia*", 7 july 2017; F. Rundo and S. Conoci "*Tecnologia blockchain: dagli smart contracts allo smart driving*" on "*Sicurezza e Giustizia*" III / MMXVII p. 52; M. Bellezza "*Blockchain*" in "*Fintech*", Paracampo (by) at 220 ff.

[11] Cf. P. Cuccuru: "*Blockchain ed automazione contrattuale. Riflessioni sugli smart contract*", in Nuova giur. comm.1, II 2017, p. 110; M. Iansiti – K. R. Lakhani: "*The truth about blockchain*" in *Harward Business Review*, jan-feb 2017, at 4, available on https://enterprisersproject.com/ sites/ default/files/the_truth_about_blockchain.pdf.

[12] On this topic see *ex multis*: P. Cuccuru cit.; G. Castellani: "*Smart contract e profili di diritto civile*", available on http://www.comparazionedirittocivile.it.

[13] Cf. M. Bellini available on https://www.blockchain4innovation.it/esperti/blockchain-perche-e-cosi-importante/#Le_logiche_di_funzionamento_della_blockchain.

[14] A. Palladino: "*L'equilibrio perduto della blockchain tra platform revolution e GDPR compliance*" in Medialaws.eu, at 147.

[15] One of the ten priorities that Jean-Claude Juncker set for his mandate as President of the European Commission between 2014 and 2019 was to create a connected digital single market, see Jean-Claude Juncker A new start for Europe. Opening statement in the European Parliament plenary session, Strasbourg, 15 July 2014.

[16] One of the six priorities of the European Commission for the 2019-2024 period is to create a Europe fit for the digital age. Ursula von der Leyen, A more ambitious Union. My program for Europe. Political Guidelines for the Next European Commission 2019-2024, avaiable on: https://ec.europa.eu/ commission/sites/beta-political/files/political-guidelines-next-commission_it.pdf

[17] See the Communication from Commission to European Parliament, Council, European Economic and Social Committee and Committee of Regions. Strategy for the digital single market in Europe COM (2015) 192 final Brussels, 6.5.2015, at 3.

[18] Cf. The European Union Blockchain Observatory and Forum, *Legal and regulatory framework of blockchains and smart contracts*, 2019, on https://www.eublockchainforum.eu/reports.

[19] In this sense, the latest developments in Spain are an interesting example. The sixth additional provision of the Real Decreto-ley 14/2019, de 31 de octubre, *por el que se adoptan medidas urgentes por razones de seguridad pública en materia de administración digital, contratación del sector público y telecomunicaciones* establishes that, in the relations of natural or legal persons with the public Administration, identification systems based on distributed registration technologies are forbidden as long as they are not subject to specific regulation by the State within the framework of European Union Law. This intervention is justified on a provisional basis until progress is made within the European Union in the treatment of such technologies.

[20] See the extraterritorial application of European Union's General Data Protection Regulation and the convergence trend towards European standards at a global level exemplified by States such as Brazil, India, Japan or South Korea or the protocol modernizing Council Convention of Europe on the protection of individuals with respect to the automated processing of personal data (ETS 223). See M. Goddard: "*The EU General Data Protection Regulation (GDPR): European regulation that has a global impact*" in *International Journal of Market Research*, vol. 59, no 6, 2017, p.703-705.

[21] Cf. M. Finck, *Blockchain Regulation and Governance in Europe*, Cambridge University Press, 2018.

[22] Joint Research Center, *Blockchain now and tomorrow. Assessing multidimensional impacts of distributed ledger technologies*, European Commission, 2019.

[23] Directive (EU) 2018/843 of European Parliament and of Council of 30 May 2018 amending Directive (EU) 2015/849 relating to the prevention of the use of the financial system for money laundering or terrorist financing purposes and amending Directives 2009/138 / CE and 2013/36 / UE, GUUE L 156 of 19.6.2018, p. 43-74.

[24] European Commission, *Staff Working Document on the free flow of data and emerging issues of the European data economy Accompanying the document Communication Building a European data economy*, SWD(2017) 2 final, at 45.

[25] M. Finck, *Blockchain and the General Data Protection Regulation. Can distributed ledgers be squared with European data protection law*, European Parliament, 2019.

[26] https://ec.europa.eu/digital-single-market/en/blockchain-technologies.

[27] European Commission, European Blockchain Strategy. Share. Build. Deploy. Available on: https://ec.europa.eu/digital-single-market/en/news/european-blockchain-strategy-brochure

[28] ESMA. *Report. The distributed Ledgers Technology applied to securities Markets*, 50-1121423017-285, 7 FEB 2017.

[29] Also European Parliament resolution of 13 December 2018 on blockchain: a forward-looking commercial policy.

[30] https://ec.europa.eu/digital-single-market/en/blockchain-technologies A '*Study on Blockchains: Legal, Governance and Interoperability Aspects*' has been launched to examine the legal and regulatory aspects and socio-economic impacts blockchain-inspired technologies.

[31] Ursula von der Leyen, "Un'Unione più ambiziosa. Il mio programma per l'Europa. Orientamenti Politici per la Prossima Commissione Europea 2019-2024", at 14, available on: https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission_it.pdf

[32] Cf. E. Macchiavello and A. Sciarrone Alibrandi: "*L'inquadramento giuridico delle attività svolte dai lending marketplace. Linee di fondo*", in "*Quaderno FinTech "*, "5/2019, Consob, at 28 ff.

[33] Indeed, the original text proposed by Ministry of Economic Development, at second reading, had been approved in a "reduced" form on December 12, 2018 deleting, among other things, the proposed legislation regarding the validation of data with blockchain, whose legal reasons have been hypothesized. A first motivation, of a technical character, could have been found in the legal character of the potentially introductory regulatory act of the Blockchain discipline: the Simplification decree, in fact, took the form of a decree-law, as such endowed with the profiles of necessity and urgency which, could not have been glimpsed relative to the introduction of a discipline on the Blockchain. Secondly, the proposal could probably clash with the overall national regulatory framework which, in order to

consider electronic time validation qualified, required the intervention of the so-called "Trust service providers", completely absent in case of blockchain with strong decentralization.
In fact, as has also been pointed out, the applications of Distributed Ledger Technology are extremely various and their use could have required a degree of evidentiary certainty higher than that conferred on them by the Simplifications decree. In fact, it had been highlighted that, at least in the case of permissionless blockchain, these technologies do not use, for the purposes of time stamping, data recorded in them of the certified electronic time validations issued by trust service providers (third parties), for which the main The effect of the rule to be introduced would have been to allow the probative use of the information recorded without certifications, it being understood that, in the event of a dispute, it would remain the burden of the person who produces it that of demonstrating the reliability of the date and time to linked to them and the integrity of the data they contain. (See, *ex multis*, article signed by M. Cavicchioli: "*Decreto Semplificazioni 2019: la decisione su blockchain fa discutere*" available in http://www.cryptonomist.it)
[34] The DPR n. 513 of 10 November 1997 dictated the: "*Regolamento contenente i criteri e le modalità di applicazione dell'art. 15, comma 2, della legge 15 marzo 1997, n. 59, in materia di formazione, archiviazione e trasmissione di documenti con strumenti informatici o telematici*". On this point, as argued by G. Finocchiaro in: "*Il contratto nell'era dell'intelligenza artificiale*" Riv. Trim. "Diritto e procedura civile" June 2018 at 441 ff., the Italian Legislator would have considered introducing a definition of a computer document to break down a cultural conditioning that leads to think of the document as necessarily paper support.
[35] For a more complete investigation into the state of the art in Italy with reference to the legislation on technological innovation, see: E. Macchiavello and A. Sciarrone Alibrandi: "*L'inquadramento giuridico delle attività svolte dai lending marketplace. Linee di fondo*", in "*Quaderno FinTech* ", "5/2019, Consob, at 28 ff.
[36] See M. Bellini: "*Che cosa sono e come funzionano le Blockchain Distributed Ledgers Technology – DLT*" available on http://www.blockchain4innovation.it
[37] For an overview on the state of digitization of Italy in Europe cf. Digital Economy and Society Index (commonly called DESI) Report 2018 where, among other things, the results of the digital performances of the European States and their progress are reported, which place Italy, indeed, in the last places together with Romania, Greece and Bulgaria as regards the integration of digital technologies, connectivity, use of the internet and digital public services.
[38] Cit. M. Bellezza: "*Blockchain*", in "*Fintech*" Paracampo (by) at 222.
[39] Cit. M. Faioli, E. Petrilli, D. Faioli: "*Blockchain, contratti e lavoro. La ri-voluzione del digitale nel mondo produttivo e nella PA*" in "*Economia&Lavoro*", october 2016, at 139
[40] Cf. G. Castellani: "*Smart contract e profili di diritto civile*", available on http://www.comparazionedirittocivile.it
[41] In arg. see also: A. ALPINI, "*L'impatto delle nuove tecnologie sul diritto*", 2018, available on *http://www.comparazionedirittocivile.it*; F.COSTANTINI: "*Intelligenza artificiale e diritto civile. Verso una "artificial intelligence forensics"?"*, in G. Costabile, A. Attanasio, M. Ianu-lardo (by), *IISFA Memberbook 2017 Digital forensics: Condivisione della conoscenza tra i membri dell'IISFA Ita-lian Chapter*, Roma, 2017, Roma, at 17 ff.
[42] Indeed, it should be noted that disintermediation term was already used in United States during the 1960s to describe economic dynamics according to which first conscious savers gave up leaving their

money on a current account, "disintermediating" the bank through own autonomous investment choices, especially in pension funds and small bond packages. Therefore, starting from that historical moment, the phrase in question has taken full value in its transitive verbal dimension, being used to refer to the process of removing a physical (intermediary) or technical entity (obstacle) from any type of production path, as an expedient to bring speed and rationality back into a production path that underwent significant expansion under the aegis of globalization. See A. Belloni, Uberization, Milan, 2017, 40, note in A. Palladini, cit. at 145.

See also "*Quaderno Fintech*" 5/2019 Consob, cit., at 28 f., about the disintermediation of technological phenomena and in particular of online platforms.

[43] For a deeply study on smart contracts origin, see N. Szabo: "*Formalizing and securing relationships on Public Networks*", in "*First Monday*" n. 9 vol. 2, September 1, 1997, which coined the term, using it to indicate a computerized transaction protocol that executes the terms of an agreement. Furthermore, in the two papers ("*Formalizing and Securing Relationship on Public Networks*" and: "*The Idea of Smart Contracts*") he theorized a distributed network made up of subjects identifiable only through digital pseudonyms, in which cryptography was used to put safely and have contractual agreements automatically executed. In other words, Szabo is to be considered the pioneer of blockchain smart contracts. In 1998 these insights were reworked in a third paper, entitled: "Secure Property Titles with Owner Authority" (cit. C. Bomprezzi, cit. at 17).

[44] P. Cuccuru, cit. at 110.

As IT algorithms that perform what they are programmed for, smart contracts can technically also automate non-legal services (such as business processes). For further details in arg., Cf. O. Rikken (Smart contract Working Group – Dutch Blockchain Coalition) in "*Smart contracts as a specific application of blockchain technology*" at 12 ff, but also C. Bomprezzi cit., at 16; D. Di Sabato: "*Smart contracts: robots that manage contractual risk*", in "*Contratto e Impresa*", 2017, at 378 ff.

Bravo, on the other hand, defined the smart contract as "cybernetic contract", not considering it a legal category (in: "From telematic bargaining to cyber bargaining", Milan, 2007). See I. Caggiano: "The contract in the digital world", in "The contract of the third millennium. Dialogue with Guido Alpa" by L. Gatt, Scientific Publishing Naples, 2018, at 61.

[45] For a definition of smart with contractual content see also P. Cuccuru: "*Blockchain ed automazione contrattuale. Riflessioni sugli smart contract*" at 111, which literal reports: "*In concreto, gli smart contract sono agenti indipendenti ai quali viene affidato un certo patrimonio digitale che viene gestito in conformità alle istruzioni fornite dal programmatore. Una volta inclusi nella Blockchain, gli smart contract operano seguendo le regole pre-impostate fino al raggiungimento dell'obiettivo stabilito o all'esaurimento delle risorse delle quali sono dotati. Il loro protocollo ricalca, semplificando, lo schema causale "se x allora Y", che nella forma base ricorda una sorta di distributore automatico*".

Bravo defined smart contract as "cybernetic contract" in: "*From telematic bargaining to cybernetic bargaining*", Milan, 2007, since it would not be a legal category. See "*The contract of the third millennium. Dialogue with Guido Alpa*" by L. Gatt, Scientific Publishing Naples, 2018, at 61.

[46] M. Bellini: "*Smart contract: che cosa sono, come funzionano, quali sono gli ambiti applicativi*" available on http://www.blockchain4innovation.it, updated on 27 dec 2018.

[47] The operative scheme appears, in itself, simple, because: "*to an order X corresponds a consequence Y*", predefined by the parties, but use of the blockchain to contracts results in a cd. disruptive effect, which manifests itself as "*fattore endogeno, non determinabile, non assolutizzabile e*

non completamente valutabile al giorno d'oggi, ma già incisivo per molte relazioni commerciali e, quindi, anche giuridicamente rilevante, come si può dedurre dalle sue prime applicazioni, che in seguito tenteremo di analizzare". See,: M. Faioli, E. Petrilli, D. Faioli: "*Blockchain, contratti e lavoro. La ri-voluzione del digitale nel mondo produttivo e nella PA*" in "*Economia&Lavoro*", oct 2016, at 140.

[48] P. Cuccuru, cit. at 112 ff.

[49] It is appropriate to point out that also "timestamp" use, affixed to the transaction via blockchain, gives "formal" certainty to the execution of the content of the agreement, being able to prevent any difficulty deriving from any historical contradictions. See P. Cuccuru, cit. at 112.

[50] P. Cuccuru, cit. at 112; but also: V. Pasquino, cit. at 245. *Contra*, cf. I. A. Caggiano, cit.

[51] As regards the advantageous aspects of blockchain, also M. Faioli cit., at 140 ff.

[52] On closer inspection, contractual automation in general is already applied to some areas of negotiation; we refer, in particular to the financial sector, in which we speak about "algorithmic negotiation" and "high frequency algorithmic negotiation". See I. A. Caggiano, cit. at 66, as well as Directive 2014/65 / EU (MiFID II), arts. 4 and 17.

[53] See also G. Chiodi: "*La funzione sociale del contratto: riflessioni di uno storico del diritto*", at 153.

[54] See V. Pasquino: "*Smart contract: caratteristiche, vantaggi e problematiche*" Riv. Online "Law and Trial"; D. Di Sabato, cit.

Since 1997, European Legislator has tried to promote trust between deal parties in distance or in "electronic" commerce, until the issue of EU Reg. No. 910/2014 commonly called "eIDAS"; cf. in this sense and for further information G. Finocchiaro: "*Il contratto nell'era dell'intelligenza artificiale*" Riv. Trim. "*Civil law and procedure*" 1 June 2018 at 441 ff.

[55] For a detailed study on evolution of the contract formation process cf. A. Urso "*Autonomia privata e procedimento di formazione del contratto*", in "Persona e Mercato – Materiali e commenti", n. 3/2010 at. 58 ff.

[56] M. Nicotra: "Smart Contract ed obbligazioni contrattuali: formalizzare il codice per assicurare la validità del contratto", available on http://www.blockchain4innovation.it 3 july 2018.

[57] P. Cuccuru cit. at 113.

[58] *Mutatis mutandis,* it would be interesting to analyze N. Irti: "*Scambi senza accordo*" 1998 ("Riv. trim. dir. proc. civ.", I/1998, at 347-364), where the Author highlights precisely, following the evolution of technology, the inexorable transformation of the "dialogue" between the parties to the agreement, as a constituent element of the contract, to the point of breaking "*...nella solitaria unilateralità di due decisioni...*"*(*at 359). In the same sense, see I. A. Caggiano, cit., at 68 f.

[59] V. Pasquino, cit. at 246; P. Cuccuru cit. at 113.

[60] Consider, for example, the use of self-protection mechanisms: the termination, in the event of a defect, fraud or abuse of the right, or all subjective behavior necessarily external and / or prior to the formation of the contract that would invalidate its validity or 'execution; think also of the management of events that occur that justify the use of withdrawal or, again, compliance with legislative policy rules, as in the hypothesis of a smart contract that automatically and against payment issues material stored on the network that violates the legislation in terms of privacy. In this sense, cf. also P. Cuccuru, cit. at 116, but also V. Pasquino cit. at 244 f.; I.A. Caggiano, cit. at 67 ff. with reference to the problem of the imputability of decisions.

[61] On this argument, it is hardly necessary to mention that, in front of the spread of the Internet and its search engines, as a new "place" for the exchange of information and wealth, the Legislator preferred to adopt minimal legislation, giving ample space to the self-regulation of the market and users.

[62] Given that the alternative obligation structure is not peaceful and that it falls outside the discussion in question, see Bianca "*Diritto civile*" vol. IV Milan, 1998 at 128, Di Majo-Inzitari in Enc. Dir. Vol. XXIX, 1979, at 212, *sub*-item "obbligazione alternativa", which argue that alternative obligation requires a choice of the service to be performed and, therefore, a r moment of determination further then simple obligation, to fulfill .

[63] In fact, as authoritatively said by F. Moliterni in "*Commercio internazionale, letters of indemnity, bills of lading (o polizze di carico) e sistema di circolazione e regolamento delle eletronic bills of lading: suggestioni dal modello dei sistemi di pagamenti elettronici <<istantanei>> peer to peer e dal modello del sistema blockchain",* in "Diritto del Commercio Internazionale", fasc. 1, 1 marzo 2018, at 85, in a complex commercial network, the reasons for trust stand in rules inherent in real and personal and social networks and in their selection system based on reputational merit and on the golden rule of absolute respect for principles of contractual solidarity which, in the western world, would translate into the clause general of good faith.

In the "informal system" of commerce, based on reputational merit, violation of golden rules and betrayal of reasonable assignment of counterparties would entail the tendential exclusion of that operator from the commercial network system.

[64] Consider, in fact, that trustee could choose not to observe the deal with the settlor, making an abuse of right. Cf., *ex multis*, Messineo: "*Manuale di diritto civile e commerciale*", I, Milan, 1957, at 578, according to which the surplus of the technical means over the practical purpose "*si presta ad un abuso della fiducia, da parte del fiduciario*".

[65] To analyze "digital place" as a no-territorial place, A. Gatti: "Istituzioni e anarchia nella Rete. I paradigmi tradizionali della sovranità alla prova di Internet", in "Diritto dell'Informazione e dell'Informatica" (II), fasc. 3, 1 june 2019, at 711 ff.

[66] See also: J. Naves, B. Audia, M. Busstra, K. L. Hartog, Y. Yamamoto, O. Rikken and S. Van Heukelom-Verhage: "*Legal aspects of blockchain*", 2019, avaiable on https://www.mitpressjournals .org/doi/pdf/10.1162/inov_a_00278

[67] Cf. G. Castellani, cit., at 3

[68] Cf. I. A. Caggiano, cit. at 67 ff.

[69] Cf. "*Quaderno Fintech*" 5/2019, cit.

[70] Cfr. B. Cappiello: "*Cepet leges in legibus. Cryptoasset and cryptocurrencies private international law and regulatory issues from the perspective of EU and its member states*",in "Diritto del Commercio Internazionale", fasc. 3, 1 sept. 2019, at 561 ff.

[71] Cf., *ex multis,* B. Cappiello, cit.

[72] However, it is necessary to mention the deserving national initiative taken by some orders across the Alps, which have given effect to "facts" (which one could therefore go as to define "*digital facts*") that occur on Distributed Ledgers at transnational level and on Blockchain in particular. Among many others, consider initiatives aimed at digitalization of "land registry": HM Land Registry in the UK and Lantmaeteriet, (the Swedish land registry) are two of the most advanced projects that have both tested blockchain to manage the passage of ownership of real estate through smart contracts.

On this point, a reflection on the Italian advertising system is by F. Drughiero: "*Blockchain e circolazione mobiliare: verso un nuovo regime pubblicitario?*", 25 July 2019, available on http:// www.iusinitinere.it.
Furthermore, some US federal States have recently approved or discussed legislative initiatives aimed at conferring juridicality to data transmitted via Blockchain: on June 5, 2017, for example, Governor of Nevada, Brian Sandoval, signed a law on blockchain use and smart contracts technology. The legislation amended the Uniform Electronic Transaction Act of Nevada, adding a definition of blockchain and including documents produced through this technology use among electronic ones (see VGM HYMAN, M. DIGESTI, New Nevada legislation recognizes Blockchain and Smart Contracts technologies, Nevada Lawyer, August 2017 at 13).

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