CONTENTS

ABBREVIATIONS

ACCC	Australian Competition and Consumer Commission
AFME	Association for Financial Markets in Europe
AFME	Association for Financial Markets in Europe
AIFM	Alternative Investment Fund Managers Directive
AML/CFT	Anti-Money Laundering/Combating the Financing of Terrorism regulations
Art.	Article
Artt.	Articles
ASIC	Australian Securities and Investment Commission
BaFin	Federal Financial Supervisory Authority
B2B	Business to Business
B2C	Business to Consumer
CDD	Customer Due Diligence
CCPs	central counterparties
CHAP	Chapter
CIS	Collective Investment Scheme
CJEU	Court of Justice of European Union
CSA	Canadian Securities Administrators
CSD	Central Securities Depository Regulation
DAO	Decentralized Autonomous Organization
DL	Decree Law
DLT	Distributed Ledger Technology
DLTs	Distributed Ledger Technologies
ECB	European Central Bank
EFSI	European Fund for Strategic Investments
EBA	European banking Authority
ECSP	European Crowdfunding Service Providers
EIB	European Investment Bank
EIOPA	European Insurance and Occupational Pensions Authorities

EMIR	European Markets Infrastructure Regulation
ESMA	European Securities and Markets Authority
ESAs	European Supervisory Authorities
ETOs	Equity Token Offerings
EU	European Union
FAA	Financial Advisers Act
FCA	Financial Conduct Authority
FINMA	Swiss Financial Market Supervisory Authority
FSMA	Financial Services and Markets Act
GFSC	Gibraltar Financial Services Commission
GPL	Gross Domestic Product
ICO	Initial Coin Offering
ICOs	Initial Coin Offerings
ICTs	Information and Communication Technologies
ISO	International Organization for Standardization
IT	Information Technology
ITU	International Telecommunication Union
KYC	Know-Your-Customer
MAR	Market Abuse Regulation
MAS	Monetary Authority of Singapore
MEF	Ministry of Economy and Finance
MiFID	Markets in Financial Instruments Directive
MTF	Multilateral Trading Facility
NASAA	North American Securities Administrators Association
NSD	National Settlement Depositary
OTC	over-the-counter
P2P	Peer-to-Peer
PACTE	Plan d'Action pour la Croissance et la Transformation des Entreprises
PwC	Pricewaterhouse and Coopers
RAO	Regulated Activities Order
SAFT	Simple Agreement for Future Tokens

SFA	Securities and Futures Act
SEC	Securities and Exchange Commission
SFC	Securities and Futures Commission
SFO	Securities and Futures Ordinance
SRD	Shareholder Rights Directive
STOs	Security Token Offerings
TD	Transparency Directive
TEU	Treaty on the European Union
TFEU	Treaty on the Functioning of European Union
UK	United Kingdom
USA	United States of America
VC	Venture Capital

EXECUTIVE SUMMARY - ENGLISH VERSION

This dissertation, composed of three chapters, aims at supporting the regulation of a Blockchain-based tool, the Initial Coin Offering (ICO), as a further and innovative way to promote and improve Capital Markets Union (CMU).

The first chapter introduces the framework of Blockchain technology and Capital Markets Union. Blockchain is a form of Distributed Ledger Technology (DLT), meaning a kind of technology which permits to realize "peer-to-peer" (P2P) operations, such as the direct transfer, the recording, the sharing and the synchronization of certain transactions and data without the need for a central entity. The term Blockchain literally means “chain of blocks”, since its functioning consists of an encrypted chain, organized in a sequence of blocks, creating a chronological database of transactions in digital currency recorded by a computer network. Indeed, each block, depicting a number of transactions records, is chained up with each other through a digital signature, called cryptographic “block Hash” of data. When one of the members of the chain, the so called “nodes”, creates new blocks, a new and unique proof of work protocol is generated, so that each block is clearly distinguishable from the others and easily linkable to the main chain. Information related to the new block is shared throughout the network, embodying encrypted data to avoid the public share transaction details. For this reason, each node uses a private and a public key to execute the transactions and to unequivocally identify themselves. Hence, the block’s validity is collectively confirmed by the decentralized network, in accordance to a pre-defined algorithmic validation method, which is defined as the “consensus mechanism”. The described functioning shows how this technology allows disintermediation and greater transparency, since no entity can manage the system and so corrupt it. It is also based on an algorithmic code, reinforcing the immutability and the immediate verifiability of the transactions. Hence, this technology offers a much more resilient Cybersecurity system, because it ensures a more effective protection against the different types of cyberattacks. However, this technology is not perfect. In fact, beyond the technical-structural critics, the main problem concerns the absence of a specific and exhaustive regulation of the individual phenomena related to Blockchain application. The main sector of application is the financial one; with reference to those financial services,

beyond simple payments, this area shows the greatest potentiality of development, both for individual companies and the entire market.

Concerning the Capital Markets Union (CMU), it constitutes the leading project of the European Union, in the context of the Investment Plan for Europe. It aims at creating a more efficient system in which companies are encouraged to draw diversified sources of capital from any part of the Union and further opportunities are offered to investors and savers for managing financial instruments. In this designed system, small and medium-sized enterprises (SMEs) would be able to increase funding more easily. Hence, integrating these two realities would allow the capital markets strengthening, reducing the difficulties and realizing the ambitious CMU project. Indeed, Blockchain provides for the most innovative tools to enable the progress of capital markets and so the creation of the CMU at EU level: Crowdfunding and the main theme of the dissertation, the ICO.

The second chapter focuses on ICO as an innovative phenomenon which is significantly shaping the entrepreneurial finance. It is Blockchain-based instrument which allows to raise capital through the selling of cryptocurrency tokens, used to finance specific projects. The discussion proceeds outlining the different models of tokens (currency and payment, utility and investment tokens) and the functioning. Furthermore, the dissertation reports risks and advantages, also underlining the potentialities for corporate governance. In particular, among the advantages provided by ICOs for capital raising, HOWELL, NIESSER AND YERMACK (2018) outline the decentralization. In fact, it entails saving on intermediary costs and increasing the remuneration for the creators of open source applications and, in general, for the involved subjects. As consequence, decentralization incentives network development and enhances cooperation, as they constitute relevant premises to build a Union, in this case, it will be read in Capital Markets Union perspective. ICOs also deal with the immutability and non-negotiability of governance conditions and transparency. These are strongly useful in relation to potential frauds derived from the corruption of the system. The last advantage concerns liquidity, since this system might reduce costs and times, usually required for the execution and settlement of ordinary security trades. In fact, these last ones rely on intermediation, so the presence of many middlemen increases costs and timing. In addition, ICOs can be regarded as an innovative tool not only for capital raising, but also for corporate governance. In fact, all the benefits, brought by Blockchain, might result in greater transparency of ownership, thus deterring insider trading crimes; in the voting

system and, lastly, in real-time accounting. Therefore, all these advantages incentivize firms to embrace this innovation; especially SMEs and start-up would highly benefit from them, as they are they mainly operate in FinTech sector and share the difficulty to access to finance.

Moreover, a specific section underlines the similarities and differences between ICO and the two traditional financing instruments, meaning the Initial Public Offering (IPO) and Venture Capital. Then, ICO is also compared with another financing instrument more innovative, the Crowdfunding. ICO might be qualified as a further developed version of Crowdfunding, since they both consist in innovative and highly technological financing tools, relying on Blockchain technology and contributing to the growth and success of SMEs and start-ups in Europe. Anyway, they also show specific differences in the legal treatment under the current European legal framework. In fact, the European Commission launched in 2017 an initiative led to the drafting of a proposal for a regulation on European Crowdfunding Service Providers (ECSP) for Business, whose entry into force *"[…] would enable crowdfunding activities across the EU Single Market for early stage finance and alternative finance for SMEs, in line with the objective of the Capital Markets Union (CMU) […]."* Indeed, the Committee on Economic and Monetary Affairs released a Draft Report underlining that, on one hand, this regulation might provide for legitimacy requirements for ICOs, on the other hand, it cannot be recognized as a solution for regulating ICOs, since it does not provide for a focused and exhaustive discipline for this complex phenomenon.

The conclusive part of the second chapter deals with the applicable EU legislation. Indeed, European Securities and Markets Authority (ESMA) recognized, in a report dated February 2017, the importance of complying with existing regulation, as it provides for essential safeguards for the well-functioning of financial markets. Among the examined laws, there are those included in the so-called *"Lamfalussy process approach":* this system considered four Directives, that are the Prospectus Directive (now replaced by Prospectus Regulation), the Market Abuse Directive, the Transparency Directive and the MiFID II.

The third chapter deepens the regulatory action perspective on ICOs within CMU. It starts examining the strategy adopted by many Countries, highlighting a common action plan, based on the evaluation of specific situations through a case-by-case approach, consisting in evaluating whether domestic law can be directly applied to the concerned case. The main criterion consists in assessing whether a token can be considered as an

existing financial unit and thus applying the relative legislation. For instance, UK tries to associate tokens to collective investment schemes, alternative investment funds and electronic money. Switzerland considered similarities with derivatives and securities and USA applies the so-called *Howey test,* in order to verify whether a token can be assumed as an "investment contract", falling within the application of the Securities Act. In addition, also the promotion of regulatory sandboxes, as Canadian Authority did, could be an alternative way to test ICOs, allowing to better address their problems and to develop a more effective regulation. Within EU system, a common regulation on ICOs still lacks and many Countries simply decided to adopt the aforementioned case-by-case approach or, as Italy, to sidely incorporate ICOs issues in an existing law, such as the Italian Anti-Money-Laundering legislation, that recalls the EU law one. In this context, the most progressive EU Member State proved to be the French one. In fact, until now, only France introduced to the Parliament a regulatory draft, already approved by PACTE committee, a specific proposal on ICOs regulation that proposes a voluntary "ICO visa", with the scope not only to protect investors, but also to maintain French Blockchain projects in France. In addition, on the 9th January 2019, ESMA published a press release consisting in an advice to the EU Institutions, remarking the need of common EU-wide approach on crypto-assets in order to ensure investors protection. In fact, also recalling the objectives enshrined in the CMU, providing greater clarity and certainty about ICO regulation would allow to build a safer and more efficient system, speeding up the economy and making it more innovative and sustainable.

The dissertation also suggests a potential legislative approach either at international, either at EU level. Dealing with the potential EU legislative approach, the first issue concerns whether existing EU law can be applied or recalled with reference to specific ICOs aspects. Then, the discussion moves to outline a specific ICO law. This solution should also be suitable to address all the potential controversies that might arise from the use of ICOs. In fact, these may arise not only among all the involved subjects, but also among Member States, since it might potentially cause competition among legal systems, often derived from the way through which EU legal acts are implemented in domestic law. Hence, EU legislator should design a system capable of avoiding these contrasts. This might be represented by a focused regulation, as provided in article 288 TFEU, since this legal act would establish a more uniform implementation, and thus interpretation, of the designed framework. In addition, also an appropriate supervisory authority could be established to prevent and solve these controversies. Dealing with the

potential content, such a proposal would have complementary consistency with existing EU policy provisions in the concerned area and might also be assessed looking at the different proposal and solutions provided by the different States, as disclosed at the beginning of the third chapter.

The dissertation ends recalling the European Parliament resolution, dated 3th October 2018, entitled *"DLT and Blockchain: building trust with disintermediation"*. Assuming the continuous evolution requires a legal framework favorable to innovation, the European Parliament confirmed the need to encourage legal certainty and respect the principle of technological neutrality. In compliance with the position supported by this dissertation, the Parliament confirms how ICO constitutes an essential component for the creation of the Capital Markets Union. The definition of a clear legal framework will allow ICOs to be effectively combined with other financial vehicles and will stimulate business innovation funding and projects within the EU. As a consequence, it is expected that the position of the Union would emerge stronger not only from an economic and financial point of view, but also on an innovative and competitive level.

SINTESI – VERSIONE ITALIANA

Questo elaborato, che si compone di tre capitoli, mira a sostenere la regolamentazione di uno strumento basato sulla tecnologia *Blockchain*, l'*Initial Coin Offering* (Offerta Iniziale di Moneta), quale ulteriore e innovativa modalità di promuovere e migliorare la Unione dei Mercati di Capitali (UMC).

Il primo capitolo introduce la struttura della tecnologia *Blockchain* e spiega l'Unione dei Mercati dei Capitali. La tecnologia *Blockchain* è una forma di *Distributed Ledger Technology (DLT)*, un tipo di tecnologia che consente di realizzare operazioni "*peer-to-peer*" (P2P), come il trasferimento diretto, la registrazione, la condivisione e la sincronizzazione di determinate transazioni e dati, senza la necessità di un'entità centrale. Il termine *Blockchain* significa letteralmente "catena di blocchi", poiché il suo funzionamento consiste in una catena crittografata organizzata in una sequenza di blocchi, che costituisce un database cronologico delle transazioni, in valuta digitale, registrato da una rete di computer. Infatti, ogni blocco, che mostra un numero di transazioni, è incatenato l'uno all'altro tramite una firma digitale, chiamata crittografia "blocco *Hash*" di dati. Quando uno dei membri della catena, i cosiddetti "nodi", crea nuovi blocchi, viene generato un nuovo e unico protocollo di prova del lavoro, in modo che ogni blocco sia chiaramente distinguibile dagli altri e facilmente collegabile alla catena principale. Le informazioni relative al nuovo blocco sono condivise in tutta la rete, incorporando dati crittografati per evitare i dettagli delle transazioni di condivisione pubblica. Per questo motivo, ogni nodo utilizza una chiave privata e una pubblica per eseguire le transazioni e identificarsi in modo inequivocabile. Quindi, la validità del blocco viene confermata collettivamente dalla rete decentralizzata, in conformità con un metodo di convalida algoritmica predefinito, denominato come il "meccanismo di consenso". Il funzionamento qui descritto mostra come questa tecnologia consenta la disintermediazione e una maggiore trasparenza, poiché nessuna entità può gestire il sistema e quindi corromperlo. Inoltre, basandosi su un codice algoritmico, l'immutabilità e l'immediata verificabilità delle transazioni vengono potenziate. Dunque, questa tecnologia offre un sistema di sicurezza informatica molto più resiliente, poiché garantisce una protezione più efficace contro i diversi tipi di attacchi informatici. Tuttavia, questa tecnologia non è perfetta. Infatti, al di là delle criticità tecnico-strutturali,

il problema principale riguarda l'assenza di una regolamentazione specifica ed esauriente dei singoli fenomeni legati all'applicazione della tecnologia *Blockchain*. Inoltre, il principale settore di applicazione è quello finanziario; con riferimento a quei servizi finanziari, al di là dei semplici pagamenti, quest'area mostra le maggiori potenzialità di sviluppo, sia per le singole società che per l'intero mercato, ma anche rischi più elevati.

Per quanto riguarda l'Unione dei Mercati di Capitali (UMC), essa costituisce il principale progetto dell'Unione Europea, nel contesto del piano di investimenti per l'Europa. Si prefigge infatti di creare un sistema più efficiente, in cui le imprese siano incoraggiate ad attingere a fonti diversificate di capitali da qualsiasi parte dell'Unione e ulteriori opportunità sono offerte agli investitori e ai risparmiatori per la gestione degli strumenti finanziari. In questo sistema, le piccole e medie imprese (PMI) sarebbero in grado di aumentare i finanziamenti più facilmente. Di conseguenza, l'integrazione di queste due realtà consentirebbe il rafforzamento dei mercati dei capitali, riducendo le difficoltà e realizzando l'ambizioso progetto della UMC. Difatti, *Blockchain* fornisce gli strumenti più innovativi per consentire il progresso dei mercati dei capitali e quindi la creazione della UMC a livello UE: il *Crowdfunding* e il tema principale della presente tesi, l'*Initial Coin Offering (ICO)*.

Il secondo capitolo si concentra sulla ICO, quale fenomeno innovativo che sta modellando in modo significativo la finanza imprenditoriale. È uno strumento basato sulla *Blockchain* che consente di raccogliere capitali attraverso la vendita di *token*, utilizzati per finanziare progetti specifici. La discussione prosegue evidenziando i diversi modelli di *token* (*currency and payment, utility* e *investment token*) e la procedura mediante cui si svolge l'offerta. Inoltre, l'elaborato riporta rischi e vantaggi, sottolineando anche le potenzialità per la *corporate governance*. In particolare, tra i vantaggi forniti dalla ICO per la raccolta di capitali, HOWELL, NIESSER AND YERMACK (2018) delineano il decentramento. Di fatto, questo comporta il risparmio sui costi intermedi e l'aumento della remunerazione per i creatori di applicazioni *open source* e, in generale, per i soggetti coinvolti. Di conseguenza, il decentramento incentiva lo sviluppo della rete e migliora la cooperazione, che costituiscono premesse pertinenti per costruire un'Unione, in questo caso nella prospettiva dei Mercati dei Capitali. Le ICO garantiscono anche l'immutabilità e la non negoziabilità delle condizioni di *governance* e della trasparenza. Queste caratteristiche sono particolarmente funzionali in relazione a potenziali frodi che possono ricondursi alla corruzione del sistema. L'ultimo vantaggio riguarda la liquidità, poiché questo sistema potrebbe ridurre costi e tempi, solitamente

richiesti per l'esecuzione e il regolamento delle normali operazioni di sicurezza. In realtà, questi ultimi si basano sull'intermediazione, quindi la presenza di molti intermediari aumenta i costi e i tempi. Inoltre, la ICO può essere considerata uno strumento innovativo non solo per la raccolta di capitali, ma anche per la *corporate governance*. Infatti, tutti i benefici offerti da *Blockchain*, potrebbero implicare una maggiore trasparenza nell'assetto proprietario, limitando e disincentivando la commissione dei reati di *insider trading*, nel sistema di voto e, infine, nella tenuta della contabilità in tempo reale. Pertanto, tutti questi vantaggi incentivano le imprese ad abbracciare questa innovazione; in particolare le PMI e le *startups* potrebbero trarne notevoli benefici, in quanto operano principalmente nel settore *FinTech* e condividono la difficoltà di accesso ai finanziamenti.

Inoltre, una sezione specifica sottolinea le similarità e le differenze tra la ICO e i due strumenti di finanziamento tradizionali, ovvero l'Offerta Pubblica Iniziale (IPO) e il *Venture Capital*. Successivamente, la ICO viene anche confrontata con un altro strumento finanziario innovativo, il *Crowdfunding*. La ICO potrebbe qualificarsi come una versione ulteriormente sviluppata del *Crowdfunding*. Infatti, entrambi consistono in strumenti di finanziamento innovativi e altamente tecnologici, si basano sulla tecnologia *Blockchain* e contribuiscono alla crescita e al successo delle PMI e delle *startups* in Europa. Ad ogni modo, questi due strumenti svelano anche differenze specifiche nel trattamento legale nell'ambito dell'attuale quadro giuridico europeo. Di fatto, la Commissione Europea ha lanciato nel 2017 un'iniziativa che ha portato alla stesura di una proposta di regolamento sugli *European Crowdfunding Service Providers* (ECSP) per le imprese, la cui entrata in vigore *" […] consentirebbe l'attività di Crowdfunding in tutto il mercato unico dell'UE per finanziare le fasi iniziali e finanziamenti alternativi per le PMI, in linea con l'obiettivo dell'Unione dei Mercati di Capitali (UMC) […]. "* Il Comitato per gli Affari Economici e Monetari ha pubblicato un progetto di relazione che sottolineava che, da un lato, questo regolamento potrebbe prevedere requisiti di legittimità per le ICOs, d'altra parte, non può essere riconosciuta come una soluzione per la regolamentazione delle suddette offerte, dal momento che non prevede una disciplina mirata ed esaustiva per questo fenomeno complesso.

La parte conclusiva del secondo capitolo riguarda la normativa europea applicabile. In effetti, l'Autorità Europea degli Strumenti Finanziari e dei Mercati (ESMA) ha riconosciuto, in una relazione risalente a febbraio 2017, l'importanza di conformarsi alla normativa esistente, in quanto fornisce garanzie essenziali per il buon

funzionamento dei mercati finanziari. Tra la normativa esaminata, vi sono quelle leggi incluse nel cosiddetto “processo *Lamfalussy* ": questo sistema ha preso in considerazione quattro direttive, quali la Direttiva sul Prospetto (ora sostituita dal Regolamento sul Prospetto), Direttiva sugli Abusi di Mercato, Direttiva sulla Trasparenza e la Direttiva MiFID II.

Il terzo capitolo provvede ad illustrare una potenziale prospettiva dell'azione regolatoria della ICO nel contesto della UMC. Questo capitolo conclusivo inizia esaminando la strategia adottata da alcuni Paesi, evidenziando un piano d'azione comune, basato sulla valutazione di situazioni specifiche attraverso un approccio “caso per caso”, consistente nel valutare se il diritto interno possa essere applicato direttamente al caso in questione. Il criterio principale consiste nel valutare se un *token* può essere considerato come un'unità finanziaria esistente e quindi applicare la relativa legislazione. Ad esempio, il Regno Unito cerca di associare i *token* ad organismi di investimento collettivo, fondi di investimento alternativi e moneta elettronica. La Svizzera ha considerato le similarità con i derivati e titoli e gli Stati Uniti applicano il cosiddetto test di *Howey*, al fine di verificare se un *token* può essere assunto come un "contratto di investimento", rientrante nell'applicazione del *Securities Act*. Inoltre, anche la promozione di *sandbox* regolamentari, adottati dall'Autorità canadese, potrebbe costituire un modo alternativo per testare le ICOs, consentendo di affrontare meglio i loro problemi e sviluppare una regolamentazione più efficace. All'interno del sistema UE, manca ancora un regolamento comune sulle ICOs e molti Stati Membri hanno semplicemente deciso di adottare il summenzionato approccio “caso per caso” o, come l'Italia, di incorporare collateralmente le questioni inerenti alle ICOs in una normativa nazionale esistente, quale quella sull'antiriciclaggio, in conformità a quella europea. In questo contesto, la Francia si è dimostrato lo Stato Membro più progressista. Infatti, fino ad ora, solo la Francia ha presentato al Parlamento un progetto normativo, già approvato dal comitato PACTE, contenente una proposta specifica sul regolamento ICO che propone un "visto ICO", con lo scopo non solo di proteggere gli investitori, ma anche di mantenere i progetti francesi inerenti all’applicazione della *Blockchain* nei confini francesi. Inoltre, il 9 gennaio 2019, l'ESMA ha pubblicato un comunicato stampa contenente un parere alle istituzioni dell'UE, sottolineando la necessità di un approccio comune a livello europeo sui *cripto-assets* al fine di garantire la protezione degli investitori. Infatti, anche richiamando gli obiettivi della UMC, fornire maggiore chiarezza e certezza sulla regolamentazione della

ICO consentirebbe di costruire un sistema più sicuro ed efficiente, accelerando l'economia e rendendola più innovativa e sostenibile.

L'elaborato suggerisce anche un potenziale approccio legislativo sia a livello internazionale, sia a livello europeo. Affrontando il potenziale approccio legislativo europeo, la prima questione riguarda la possibilità di applicare o richiamare la normativa UE esistente in riferimento a specifici aspetti delle ICOs. Quindi, la discussione si sposta sulla possibilità di emanare una legge specifica. Questa soluzione dovrebbe anche essere idonea ad affrontare tutte le potenziali controversie che potrebbero sorgere dall' impiego delle ICOs. In realtà, questi possono sorgere non solo tra tutti i soggetti coinvolti, ma anche tra gli Stati Membri, poiché potrebbero causare concorrenza tra gli ordinamenti giuridici, spesso derivanti dal modo in cui gli atti legislativi dell'UE sono implementati e integrati nel diritto interno. Dunque, il legislatore europeo dovrebbe progettare un sistema idoneo ad evitare questi contrasti. Ciò potrebbe essere rappresentato da un regolamento mirato, come previsto dall'articolo 288 del TFUE, poiché questo atto giuridico garantisce un'implementazione e, dunque, un'interpretazione più uniforme della struttura progettata. Inoltre, potrebbe essere istituita un'apposita autorità di vigilanza per prevenire e risolvere tali controversie. Richiamando invece il contenuto potenziale, una tale proposta dovrebbe manifestare una coerenza complementare con le attuali disposizioni normative europee e potrebbe anche essere sviluppata prendendo in considerazione le varie proposte e soluzioni fornite dai diversi Stati, come analizzate all'inizio del terzo capitolo.

La tesi si conclude richiamando la risoluzione del Parlamento Europeo del 3 ottobre 2018, denominata *"DLT e Blockchain: costruire la fiducia con la disintermediazione"*. Assumendo che la continua evoluzione richieda un quadro giuridico favorevole all'innovazione, il Parlamento ha confermato la necessità di promuovere la certezza del diritto e rispettare il principio di neutralità tecnologica. In conformità con la posizione sostenuta nel presente elaborato, il Parlamento conferma come la ICO costituisca una componente essenziale per la creazione dell'Unione dei Mercati di Capitali. La definizione di un quadro giuridico chiaro consentirà alle ICOs di essere efficacemente combinate con altri veicoli finanziari e di incentivare i finanziamenti e i progetti di innovazione delle imprese all'interno dell'UE. Di conseguenza, si prevede che la posizione dell'Unione possa emergere più forte, non solo da un punto di vista economico e finanziario, ma anche a livello innovativo e competitivo.

CHAPTER 1

Blockchain Technology and Capital Markets Union.

1.1. Framework of Blockchain technology

This paragraph deals with the explication of the framework of Blockchain technology. After having provided for a technical description of Blockchain structure and functioning, within the context of DLT Technology and Peer-to-Peer operations, its potential benefits and challenges will be examined. Then, after having focused on the potential sectors of application, the analysis moves to explain how EU reacted to the innovation brought by the Blockchain. EU approach will be considered, either through EU initiatives and incentive, either through recalling the steps taken from the Digital Single Market (May 2015) to the establishment of EU Blockchain Observatory and Forum (February 2018).

1.1.1 Blockchain: DLT Technology in the peer-to-peer revolution

The current age represents the backdrop of the so-called "Digital Revolution": industrial digitalization is one of the main factors of a transformation, of a wider scope, which also includes the robotization and innovation concerning material sciences and new production processes. This phenomenon, called Industry 4.0, has already changed companies and society and will continue to do so. In particular, it requires an even greater flexibility, not only to economic operators, but also to national and EU legislators. In fact, the development of a uniform and effective regulation is also necessary to optimally promote and employ the potentialities offered by digital innovation. [1]

One of the most futuristic and controversial phenomena is represented by Blockchain Technology: a “new” mix of pre-existence technologies that allows the creation of decentralized currencies, automated digital contracts (smart contracts) and “smart” physical assets that can be checked via Internet (smart property), coordinating

[1] European Economic and Social Commitee, 2016, p. 3.

the activity carried out by individuals on the net, without a central authority ensuring that none has corrupted data. [2]

Officially, Blockchain was born in 2008, with the publication of "*Bitcoin: peer-to-peer Electronic Cash System"*, a whitepaper signed by Satoshi Nakamoto, a pseudonym which identifies a single person, or a group of people, supposed to have elaborated such paradigmatic technology. [3]

This system helps to solve a computer problem theorized by Leslie Lamport, Marshall Pease and Robert Shostak in 1982: it consisted in finding an agreement among different parts of the network, communicating through messages. This issue was denominate "The problem of the Byzantine generals". [4] The warlike metaphor recalled the situation in which, during a siege, several generals were dislocated in different strategic areas and could only communicate through trusted messengers in order to coordinate the final attack. In this context, the underlying risk was the presence of traitors

[2] Wright and De Filippi, 2015, p. 1.
[3] Gorini, 2018, pp. 138-139.
[4] Lamport, Pease, Shostak underlined how the reliability of computer systems depends on the capability to manage the malfunction of components which address conflicting information throughout the system. So, in “The problem of the Byzantine generals" they explained the concept through and abstract and warlike metaphor. They recalled the situation of a group of Byzantine generals camped with their troops besieging around an enemy city. Generals can communicate only by messengers and have to agree upon a common plan, considering the risk of traitors among them who aim at confusing the others. The issue lays in finding an algorithm employable to ensure the loyalty of generals in reaching a unitary agreement. The required algorithm must guarantee two conditions:
- All loyal generals opt for the same reasonable plan of action, regardless of what traitors do;
- A small number of traitors cannot prompt the loyal generals to adopt an unreasonable plan.

In order to satisfy the first condition, the same information must be obtained by every loyal general and must be used the same value, so “retreat” and “attack” must comply with the same meaning and objective. The second condition is the hardest to formalize because it demands to specifically define what a bad plan is. The authors highlighted that the problem can be overcome by the use of oral messages if, and only if, more than two third of generals prove to be loyal. Otherwise, if they use written messages, the problem is resolvable for any number of generals and potential betrayers. The definition of an oral message is enshrined in the following assumptions:
- Correct delivery of messages;
- The receiver knows the sender;
- Detection of the absence of a message.

The first two assumptions prevent a traitor from interfering with the communication between two other generals. The third one will foil a traitor who tries to prevent a decision by refraining from sending messages. So, each general should be able to send messages directly to every other general. Traitors' ability to lie makes the problem so hard to be solved, but restricting this ability, the solution appears easier. Hence, it has to allow the generals to send unforgeable signed messages, adding two more requirements:
- A loyal general's signature cannot be forged, detecting any alteration of the contents of his signed message;
- Anyone can verify the authenticity of a general's signature.

Achieving reliability facing arbitrary malfunctioning is more difficult, but, for instance, the authors assumed that a computer could fail to respond but will never respond incorrectly. In conclusion, the analyzed problem shows how decentralized systems can easily solve situations in which trust plays a decisive role; the application of this system is going to be increasingly and significantly employed in the most sensitive fields.

among the chosen messengers; therefore, the only way viable to conclude the attack, despite the high risk of betrayal, was acting through decentralized consent. [5]

The described metaphor permits to clearly understand the role played by "trust". This is usually provided by central authorities that control and authorize all the operations of a network. But its absence can be well replaced, with a distributed archive, equal and unchangeable for all the involved subjects. Simplifying the concept, we can recall the archives or ledgers kept by companies, banks, institutions or public administrations: they have always represented the certified transcription of all the operations and documents relevant to the institution and, because of their importance, they are kept in protected places and managed by authorized and highly qualified personnel in order to guarantee their integrity and truthfulness. Stored data can be consulted after the release of an authorization, following strict procedures and, in any case, under the supervision of the competent authority. Archives and ledgers have always been representing a physical idea of the trust enjoyed by the central authority responsible for their management. Naturally, this system discloses many limits and problems related to the risks caused by human error, violation, inefficiencies, corruption and catastrophic events independent from human will. This is the reason why the evolution of a system, aimed at eliminating the figure of the center, is demanded and it would imply the re-modulation of the cultural role played by the center. [6]

Thanks to Blockchain, as a form of Distributed Ledger Technology (DLT), this evolution is possible. since its structure and functioning can concretize the creation of a new form of decentralized archives and ledgers. Its structure and functioning can concretize the creation of a new form of decentralized archives and ledgers. This technology allows the shift from a trilateral relation, "user 1 ↔ center ↔ user 2", to a bilateral one, "user 1 ↔ user 2".

Distributed Ledger Technology (DLT) is a technology which permits to realize "peer-to-peer" (P2P) operations, such as the direct transfer, the recording, the sharing and the synchronization of certain transactions and data without the need for a central entity.[7] When these direct relations and practices among the users (hereinafter indicated using the

[5] Lamport, Pease, Shostak, 1982, pp. 382-401.
[6] Bellini, 2018, pp. 30-34.
[7] Bauwens et al., 2012, p. 6.

more technical language “node”) are translated in the economic contest, they assume the name of “Peer-to-Peer Economy”, as theorized by Micheal Bauwens. [8]

The Blockchain is included in the context of DLTs within the P2P revolution. The following are some principle and characteristic that could help explaining its functioning.

- Leaderless: the system lacks a "central government", so there is no entity that authorizes, manages and risks to corrupt the activity.
- Permissionless: the communication protocol, at the basis, is an open source code, not requiring authorization to use the service.
- Unstoppable: this technology cannot be decommissioned, even if it is abandoned by some specific user, it cannot cease to function because there is no central or directive core to be turned off, the only way is holding all the servers connected to the network, so it is almost impossible.
- Censorship resistant: censorship is not allowed, since there is no authority that can authorize its use, there is not even any power able to censor it.
- Code is Law: the code, that is the composition of the algorithm, is sovereign of the system; actually, those involved in developing the code can change it and, consequently, modify the rules. These procedures are very slow, subject to a broad consensus and, more importantly, are absolutely transparent.[9]

With regards to "Blockchain" functioning, this can be understood starting from its name itself. Indeed, it literally means “chain of blocks”. This is due to the fact that the functioning consists of an encrypted chain organized in a sequence of blocks, constituting a chronological database of transactions in digital currency recorded by a computer network. From a structural point of view, GORINI (2018) distinguishes the following main elements:

- Node: each user who joins the Blockchain, it is physically constituted by a server.
- Transaction: any operation involving data, such as values subject to exchange, which needs to be verified, approved and then archived.

[8] In particular, the term “Peer-to-Peer Economy” was coined by Michel Bauwens, a Belgian theorist, writer and researcher who describes a decentralized economy model in which several subjects interact in the exchange of goods and services without the intermediation of a third party. This type of economy is defined as "Sharing or Collaborative Economy", because the lack of central governance entails the implementation of direct practices among the involved subjects, granting greater openness to new perspectives, especially in terms of innovative models

[9] Gorini, 2018, pp. 135-145.

- Block: unit that composes the Blockchain register, containing all the transactions that are confirmed during the block generation phase; it is estimated that, on average every ten minutes, a new block is generated and added to the pre-existing Blockchain; this procedure, in case of transactions in digital currency, such as Bitcoin, is called "mining".
- Hash: non-invertible function that authorizes the mapping of a string of text or numbers of variable length, in a unique and univocal string whose length is instead determined, allowing the univocal and safe identification of each block.
- Wallet: file containing a collection of private keys communicating with the corresponding Blockchain.
- Private / Public Key: the private key is a sequence of secret data representing the "signature" through which is ensured that, during transactions, the transferred data are actually owned by the user who gave input to transaction, so is a randomly generated number that allows nodes to perform transactions on Blockchain. The public key is an asymmetric cryptographic key which, unlike the private key, can be exchanged to execute transactions and to prove to third parties to possess a private key which, on the contrary, has to be carefully kept as it allows access to the wallet data.
- Proof of work: an economic measure that represses the risk of denial of service attacks and other types of abuse by imposing some "work" to applicants; it usually consists in the time employed by a computer for data processing; it is an asymmetric system because the "job" has to be complex, but not impossible, for the applicant and, at the same time, easy to control for the service provider.[10]

As shown in Figure 1 and Figure 2 below, each block, depicting a number of transactions records, is chained up with each other through a digital signature. This signature, the Cryptographic “block Hash” of data, identifies the part of the chain which links them and allows to determine the correct chronological order of the block within the chain. It is firstly generated in in the “genesis block” and then in all the following blocks, by solving a hard proof of work protocol. When one of the members of the chain, the so called “nodes”, creates new blocks, a new and unique proof of work protocol is generated, so that each block is clearly distinguishable from the others and easily linkable to the main chain. Information related to the new block is shared throughout the network, embodying encrypted data to avoid the public share transaction details. For this reason,

[10] Gorini, 2018, pp. 135-145.

each node uses a private and a public key to execute the transactions and to unequivocally identify themselves. Hence, the block's validity is collectively confirmed by the decentralized network, in accordance to a pre-defined algorithmic validation method, which is defined as the "consensus mechanism". After the validation, all the nodes add the new block to their respective ledger, implying that each one has a full and identical copy of the whole ledger.

Figure 1: Blockchain structure. [11]

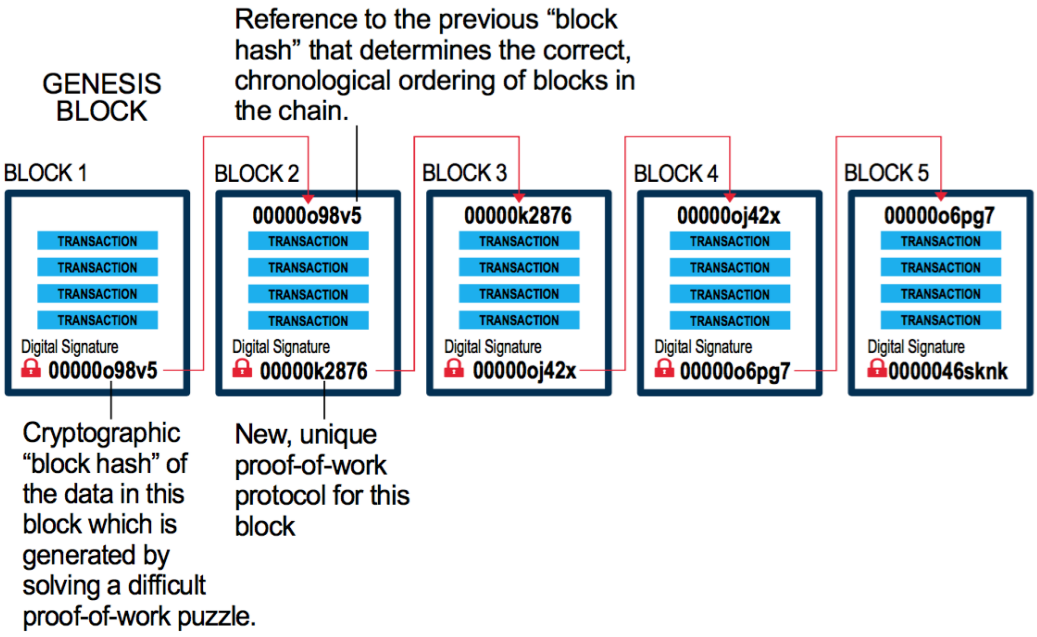
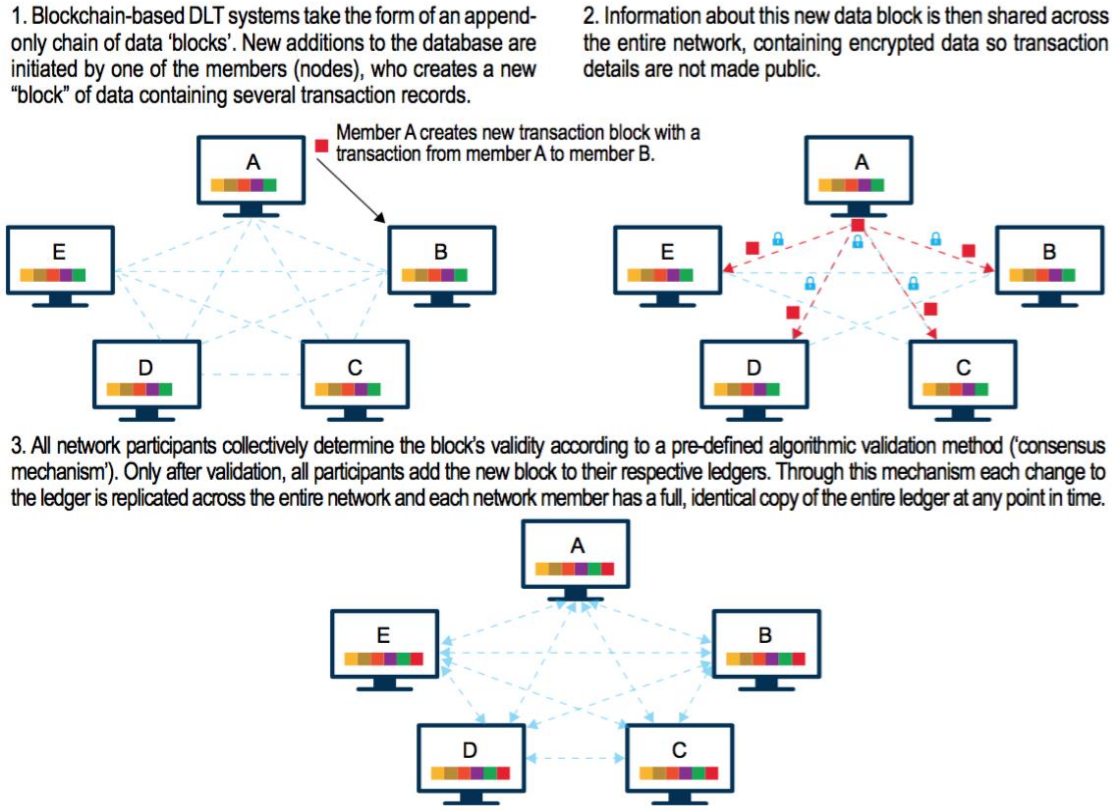


Figure 2: How Blockchain-based DLT works. [12]



[11] World Bank Group, 2017, p. 9.
[12] World Bank Group, 2017, p. 2.

As has been described, the nature of this innovation is still highly discussed: on the one hand, Blockchain is among those innovations enhancing well-known values, with a clear reference to the so-called Internet Value; on the other, it might be defined as a "Disruptive Innovation", because of its capability to expand horizons towards new values. So, from one point of view, this technology is pointed as an evolution of a phenomenon started in the 90s; from another, as a real revolution, since it allows to plan and implement new organizational models within the relations between companies, people and public administrations. [13]

1.1.2 Blockchain: potential benefits and challenges

After having analyzed the basic principles, the structure and the functioning of this form of DLT, it is essential to examine the potential benefits, but also the risks and challenges thrown to our society and, in particular, to our legislators.

The main advantages are inextricably linked to decentralization; in fact, the lack of a central authority implies disintermediation and greater transparency, because no entity can manage the system and so corrupt it. Moreover, the algorithmic code reinforces the immutability and the immediate verifiability of the transactions and entails easier control by the parties, since the possibility to change the code depends on a broad consensus. This system, automated and based on predetermined conditions, ensures greater efficiency without burdening the speed or the costs; the Blockchain-based DLT also provides for a more resilient Cybersecurity system, compared to traditional ones, ensuring a more effective protection against the different types of cyberattacks. [14]

Blockchain also provided for an answer to some previous problems of digital world, such as the so-called "double spending", which occurs when a user tries, voluntarily and maliciously, to spend its digital coins against two different receivers at the same time. In the past, digital coins could easily be multiplied, in fact their counterfeiting is easier, since distinguishing between authentic or false digital coins is much more difficult in comparison to fiat money. It entails the lack of confidence in digital currencies which, in fact, are subject to high monetary inflation and to an easy

[13] Bellini, 2018, pp. 9-13.
[14] World Bank Group, 2017, pp. 15-16.

decrease in value. Thanks to the Blockchain technology, this problem is solved through a confirmations validation system that is implemented when a user is waiting for a payment; therefore, the level of irreversibility of the transaction is directly proportional to the amount of validation confirmations received. [15]

Concerning the critics that can be moved to the system, these are specifically addressed to the technical and legal sphere. From a technical-structural point of view, DLT is still at an early stage of development and there are serious problems regarding its robustness and resilience, especially for large volume transactions, for the supply of standardized hardware and software applications, for the availability of qualified professionals and finally for the high environmental costs due to the excessive consumption of energy. In particular, relating to cross-border DLT systems, the most critical issues can be found in the legal and regulatory framework in terms of jurisdiction and complexity of regulation because of the lack of a political or economic entity controlling the blockade. Furthermore, to the end of adopting Blockchain in financial systems, the requirements of Know-Your-Customer (KYC) and Customer Due Diligence (CDD) have to be met in accordance with Anti-Money Laundering / Combating the Financing of Terrorism (AML/CFT) regulation directives. [16] The perplexity is caused by the capability of most of the DLT systems to mask the identity of the network members, using public-key cryptography and so undermining the compliance with the aforementioned regulations, with significant implications also in terms of privacy. In fact, the European Securities and Markets Authority (ESMA) [17] underlines that, although this technology can facilitate controls, preventing fraud risk or anti-money laundering, thanks

[15] Gorini, 2018, pp. 138-139.

[16] Know-Your-Customer (KYC) and Customer Due Diligence (CDD) constitute a set of laws concerning the information and transparency policy in financial matters, as enshrined in the fifth EU Anti-Money Laundering Directive (AMLD5).
The concerned directive was proposed in July 2016 as part of EU Action Plan against terrorism announced in February 2016, and entered into force on July 9th, 2018; Member States have to transpose and comply with the modified regulations into national law by latest January 20th, 2020. In particular, the AMLD5 broadened the KYC and CDD concepts as enshrined in articles 7 and 8 of AMLD: they aim at identifying, assessing, understanding and mitigating the risks associated to money laundering and terrorist financing through the development of internal policies, controls and procedures, operating model risk management practices, customer due diligence, reporting, record-keeping, internal control, compliance management. According to AMLD5, this data collecting practice, related to customers and enterprises, had to be applied to the FinTech sector. In fact, the directive introduces strict enhanced due diligence measures for financial flows from high-risk third countries and extends this practice to virtual currency platforms and wallet providers, tax related services and traders of art.

[17] ESMA is an independent EU Authority that contributes to safeguarding the stability of the European Union's financial system by enhancing the protection of investors and promoting stable and orderly financial markets. ESMA's main activities are assessing risks to investors, markets and financial stability, completing a single rulebook for EU financial markets, promoting supervisory convergence and, lastly, directly supervising specific financial entities.

to easier transactions traceability, speeding up the adoption of risk mitigation techniques is strongly required, above all, with reference to identities seal. [18]

Since 2008, the Blockchain system has been continuously and deeply innovated, allowing an even wider and more diversified application of this technology; up to this moment, GORINI (2018) indicates four steps of its evolution. [19] These are enshrined as follows:

- Blockchain 1.0: in this phase, the system mostly coincided with the protocol used to transfer and record transactions in digital currency, such as Bitcoin; so with Blockchain 1.0 we mainly mean a system that has been able to innovate the concept of money.
- Blockchain 2.0: at this stage, the possibility to apply the technology to contracts, the so-called Smart Contracts, in the economic and financial sector, is developed; a sector, entitled FinTech, has been evolved.
- Blockchain 3.0: the Blockchain-based DLT is widespread and can deploy its effects in the most varied areas, including not only the economic and financial ones, but also those referring to governance and politics, civil and artistic fields. [20]
- Blockchain 4.0: this stage does not exist yet, but is assumed to be close enough because this is a fast-developing system. One of the possible applications of Blockchain technology in 4.0 contest could be to capital markets, with the possibility to represent one of the tools employed to create the Capital Markets Union (CMU).

[18] European Securities and Markets Authority, 2017, p.9.
[19] Gorini, 2018, pp. 81-84.
[20] For instance, recalling what is examined in paragraph 1.1.3, Blockchain is employed in E-Voting and E-Residence systems, in digital demographic registries or for medical records. In relation to the artistic field, Piselli e Segnalini underline how the innumerable potentialities of this discipline can also influence the art market since it allows to rewrite the dynamics of the auction houses. In fact, the application of DLTs in this context would imply not only a better and easier identification of the original works of art, but would allow a more effective protection of art copyright. Furthermore, setting up a "Blockchain art" system would involve the creation of a much simpler and safer trading and payment system using smart contracts. Consequently, this technology would act as a tool to contrast the black market of art since it would allow not only to identify authentic pieces, but also to prevent them from being illegally traded and not easily traceable. The authors also point out examples such as Veritas and Maecenas. Veritas, is a startup that researches and verifies the authenticity of pieces of art and collections through Bitcoin Blockchain, in order to counter their falsification through a "hermetic" authentication method based on image recognition and on museums certification standards. Also Maecenas is a startup, it operates as a "decentralized" art gallery. This is a Blockchain platform, in which pieces of art are traded, that guarantees democratic access to who wants to invest in the concerned market.

1.1.3 Potential sectors of application

Following what has been analyzed in the previous paragraph, there appears to be a correlation between the stages of technology development, as assessed by GORINI (2018), and its application to different sectors. Therefore, it occurs to discern the aforementioned fields and to examine how Blockchain-based technology operates within them. Before focusing on the main sector, the financial one, it is appropriate to identify the other potential fields and methods of application. These are:

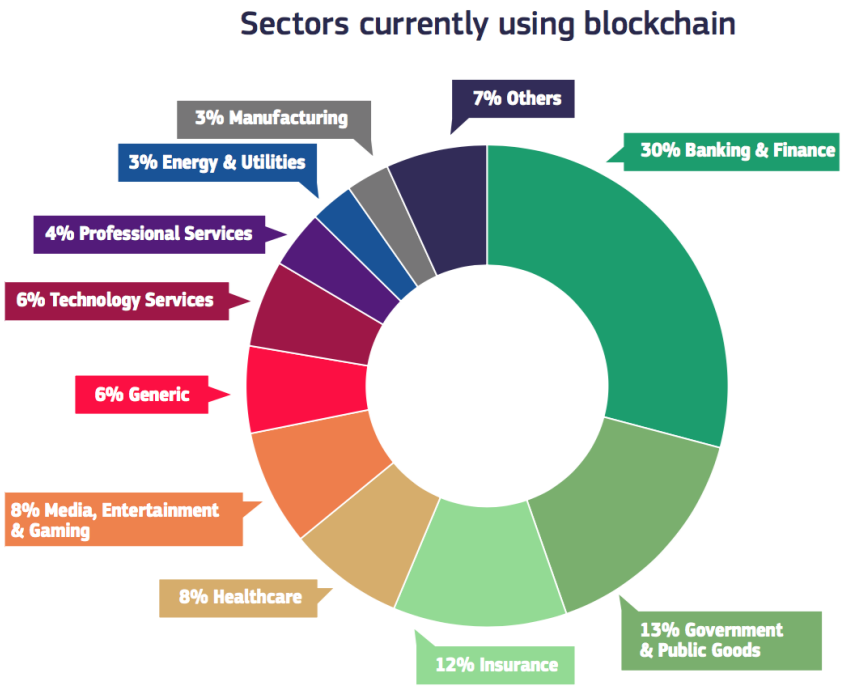
- Registries and demographic services: a Blockchain system could be used in the employment of digital demographic platforms and digital population registers for birth, marriage and death certificates. In this way, the administrative procedure of the individual units would be made much more efficient as the characteristics of this technology would bring significant advantages with reference to timing and transparency, speeding up the procedures and improving data retention. Moreover, the distributed system would allow the involvement of several competent subjects, integrating a real document management process that would be not only safer, but also more transparent.
- Trade and commerce: this technology might be applied to realize a more efficient supply chain management, to ensure more accurate inventory management, invoices and disputes. In addition, a functional employment could concern the authentication and the registration of intellectual property. Another smart use might concern the allocation of rewards and loyalty programs, as well as a tool to guarantee the origin and authenticity of the products, such as pharmaceutical products, works of art or jewels. For instance, Everledger, a London-based Blockchain startup company, has launched a global diamond certification and tracing system that, currently, has reached 980,000 recorder diamonds, allowing reliable registrations for all involved stakeholders.
- Agriculture: financial services in the agricultural sector mainly deal with insurance and adoption of technology for checking warehouse receipts with the scope to guarantee the origin of income crops. In addition, this technology might also promote the development of security programs related to the delivery of seeds, fertilizers and other factors of agricultural production.

- Healthcare: Blockchain could simplify the healthcare system through the adoption of electronic medical records with consequent decrease of mistakes in patients personal data management and cataloging which, in this context, are considered "supersensitive" and so subject to an even more severe treatment. Furthermore, a decentralized and safer system would also allow the immediate sharing of information among different healthcare providers.
- Humanitarian aid: in this field, the smarter application regards the monitoring of food, vaccinations and medicines delivery and distribution, as well as the improvement of transparency in spending money earmarked for aid.
- Governance: application of the system aimed at reducing and preventing fraud and errors in government payments, tax fraud and to protect the designated infrastructure from cyberattacks; [21] certainly, the most revolutionary applications, in this context, refer to the development of E-Voting systems (digital vote) [22] and E-Residence (digital residence) [23].

Figure 3 shows the result of a study made by European Commission on sectors currently using Blockchain, the sector in which Blockchain-based technology is mostly used is the financial one. In fact, considering that the graphic is based on eleven sectors and each sector does not reach more than 13%, the share achieved by the sector “Banking & Finance”, amounting to 30%, remarks its supremacy. Otherwise, the sectors in which the technology is less implemented are the “Manufacturing” and the “Energy & Utilities” ones, both reaching the 3%.

[21] World Bank Group, 2017, p. 22.
[22] Directorate general for Internal, 2016, pp. 4-28: E-Voting is a procedure whose purpose is promoting the functionality and the access to the right to vote, allowing voters to express their preferences from any place where Internet access is guaranteed; it involves a reduction in time and facilitates voters with reduced mobility or residing abroad. So far, the system has been tested in Estonia, Switzerland and Norway: while in the first two States there have been successful cases with stimulating results, in Norway, after the tests conducted between 2011 and 2013, the project was abandoned in 2014 due to critical issues concerning safety and the absence of an increase in participation levels.
[23] Juurikas, 2015, pp. 19-20: E-Residence is a title through which non-residents in a given State can obtain a digital identity, similar to the one issued to citizens of that State on their identity document, allowing "digital residents" to use services provided by that State; this program was introduced in Estonia in 2014 in order to accelerate the country's economic growth through the incentive, offered to companies, to establish its residence there, implying an increase in the registration of companies and, consequently, in work and turnover.

Figure 3: Sectors currently using Blockchain. [24]



Furthermore, the World Bank Group subdivides the financial sector into three macro-areas:

- Collateral registers and property registers: management of securities and real estate registers and related notary services, as well as modernization of the internal systems of financial service providers with the replacement of internal registers managed by large multinational financial service providers through the recording of information in different departments, branches or geographical areas.
- Money and payments: primary sector of application of the Blockchain, with specific reference to new digital currencies, the so-called cryptocurrencies, such as Bitcoin and Ethereum, and to their modus operandi, meaning the functioning of authorization systems to proceed with payment, settlement and their regulation, also considering cross-border transactions.

[24] European Commission, 2017, p. 2.

– Financial services beyond simple payments (see previous point): this area is certainly the most controversial but, at the same time, the one with the greatest potentiality of development, both for individual companies and the entire market. As a matter of fact, it provides for the most innovative tool to enable the progress of capital markets and so the creation of the Capital Markets Union (CMU) at EU level as will be discussed in detail in paragraph 1.2. These instruments can be traced back to both the financial and insurance sectors; if valued and correctly used, they would allow companies, operating in capital markets, to evolve new forms of financing and protection of their assets. These include the digital issue, the trading and settlement of securities, the application of technology to the disbursement of syndicated loans or pooled loans and, lastly, to Crowdfunding and Initial Coin Offering (ICO) as financing tools, which will be dealt with more exhaustively in the following chapter. [25]

1.1.4 EU initiatives and incentives for Blockchain application and innovation

European Union is called upon to play a fundamental role in supporting European industry, deploying the economic scope of Blockchain in most of the sectors pointed out in the previous paragraphs; this support has to be aimed at improving business processes in governments, companies and organizations, by enabling new business application models of P2P - economy. [26]

Currently, European Union is funding many research and innovation projects in "Horizon 2020" framework program. Horizon 2020 project is designed to enhance scientific excellence, competitive industry and social challenges through targeted funding that will ensure the fastest commercialization of the best ideas so that they can bring benefits to society in general. In fact, 83 million euros have been allocated in Blockchain projects and a potential budget up to 340 million is estimated to be used between 2018 and 2020. In addition, the European Union is actively cooperating in international standardization of procedures, in this context, it should be recalled the establishment of ISO 307, the Technical Committee for the standardization of Blockchain and Distributed Ledger Technologies and the International Telecommunication Union (ITU), the United Nations Agency for Information and Communication Technologies (ICTs). Since these

[25] World Bank Group, 2017, p. 22.
[26] European Commission, 2017, p. 2.

technologies are still developing and subject to rapid evolution, they need to be carefully tested, before being immediately available in the most sensitive fields, thus avoiding the violation of current regulation, of individual rights and damages to the market and the industry. [27]

Over 2018, European Union has been committed to work more on the Governance and Interoperability Framework of Blockchain Technologies, to promote the experiences and expertise sharing, organizing debates at European and international level and engaging with Member States with the purpose to consolidate initiatives at EU level, including the rise of funding for pilot projects in public interest areas. One of the most meaningful steps was the launch of the EU Blockchain Observatory and Forum in February 2018: the process that led to this result, the structure and its operation will be examined more accurately in the next paragraph. [28]

Despite the European Union tried to deal with this technology, in the most efficient and simultaneous way possible, its impetuous development did not entail to overcome some critical issues and resistances that still slow down the modernization not only of the EU as an institution, but also of EU markets. These barriers depend on the absence of adequate infrastructures, of a homogeneous and exhaustive regulation at EU level, on the lack of technical knowledge and on the diffidence that a large part of society still nourishes towards a system not physically tangible.

1.1.5 EU approach on Blockchain: from the Digital Single Market (May 2015) to the EU Blockchain Observatory and Forum (February 2018)

The creation of the Single European Market was one of the objectives of the Treaties of Rome (1957) that established the European Economic Community (EEC). The economic union was a necessary condition for the effective functioning of the EU as a political institution. As to guarantee the adaptation of the Single Market principles to the current era, called "Digital Age", the development of a focused strategy has been required, so that, “Digital Single Market Strategy” was presented on 6 May 2015.

The main objectives of this strategy refer to markets growth, to better allocation of services demand and supply, to the creation of new jobs, also through incentives to

[27] European Commission, 2014 (1), p. 7.
[28] European Commission, 2017, p. 2.

new startups and to achieve new horizons of economy growth and innovation. Moreover, the creation of the Digital Single Market can therefore help Europe maintain its position as a world leader in the digital economy. Among the specific core tasks of the strategy, can be also outlined the promotion of e-commerce, the modernization of the rules on copyright and the updating of audiovisual ones, the strengthening of the rules on Cybersecurity and the support to businesses, researchers, citizens and to public authorities, ensuring the optimal use of new technologies and allowing the development of the necessary digital skills and financing research. [29]

Therefore, the Single Market cannot be considered a static reality: in order to operate, it has to conform to and reflect the *current* reality. The inevitable interaction with innovative ideas and new business models is redefining the boundaries of our conception of economics and, in this context, the application of Blockchain technologies is introduced to ensure its functioning.

As highlighted by the European Commission in the communication concerning the mid-term review on the implementation of the Digital Single Market strategy, dated 10 May 2017, new approaches in the financial sector are opportune to improve and make companies more competitive, referring specifically to technologies linked to FinTech sector. In fact, FinTech companies have attracted substantial investments over the last few years, also increasing the public interest for them. Globally, investments in FinTech companies have increased from $ 9 billion in 2010 to $ 25 billion in 2016; also investments in risk capital have been subject to a constant and exponential increase: from $ 0.8 billion in 2010 to $ 13.6 billion in 2016. These figures have led to a fourfold increase in their market evaluations, with optimal performances in many sectors despite the global financial crisis. [30]

In addition, the Commission called on Member States to intensify their cooperation to implement the strategy more quickly and also announced the introduction, in 2018, of the "Digital Opportunities" program for cross-border traineeships in the digital sector. Among other initiatives, the Commission launched a public consultation to propose actions at European level within the CMU, underlining how Blockchain might have a significant potential impact in this area. [31]

[29] European Commission, 2015 (2).
[30] International Monetary Fund, 2017, p. 8.
[31] European Commission, 2017 (2), pp. 8-9.

As further proof of the fact, the project for the establishment of the Observatory and the European Forum on Blockchain, aimed at mapping, monitoring and developing this technology, was carried out at the beginning of 2018. Launched as an intra-sector pilot project of the European Parliament, it was proposed by the deputy von Weizsacker with the scope to support the work of the Commission on FinTech, as a political priority to achieve the objectives related to the development of the Single Market, the Banking Union, the Capital Markets Union and the financial services retail. The Vice-President responsible for Financial Stability, Financial Services and the Capital Markets Union, Valdis Dombrovskis, underlined how, among many technologies driving digital innovation, Blockchain is the one associated with the highest evolutionary potentiality for the financial markets. Moreover, he also specified how the monitoring and the information flow are necessarily instrumental for the development of an EU normative action. [32]

As indicated on the official website, the Observatory and the Forum are appointed to analyze and report important issues related to Blockchain, guided by Commission priorities and carried out through the contributions of its working groups and other involved stakeholders. They are open to the public through the online forum which involves a wide network of entrepreneurs, researchers, professionals and other parties interested in contributing to it by proposing inquiries, suggestions or comments. The project is managed under the aegis of the General Directorate of Networks, Contents and Technologies of the Commission (DG Connect) and boasts, among its main partners, the University of Southampton, the Knowledge Media Institute at the Open University, the University College of London and Lucerne University of Applied Sciences. [33]

The financial industry was the first sector to welcome these technologies and, in order for Blockchain to be widely spread and used in an optimal manner, the necessity to address the problems of scalability, governance and interoperability, as well as legal and regulatory aspects at EU and International level, highly increased. After the roundtable on cryptocurrencies, the most powerful and controversial form of application of the Blockchain, Vice President Dombrovskis released some observations regarding the progress and future evolutions of FinTech Plan. He underlined how, although the rapid developments of the last few years, EU still represents a small part of the global cryptocurrencies trading, which is why an eventual discussion and collaboration at G20

[32] European Commission, 2018 (1), p. 1.
[33] European Union Blockchain Observatory and Forum, 2018.

level is required to enable the harmonization and the conformity to international standards. [34]

1.2. Capital Markets Union (CMU)

This paragraph is focused on explaining the most important principles of the Capital Markets Union (CMU). This is an ambitious EU project, whose founding principles can be identified in the leading idea of creating a EU internal market, as enshrines in EU founding Treaties. The analysis moves from the introductive background of EU market to the explication of what is meant for CMU. Particular attention will be paid to the obstacles and policy challenges that this project is facing. Furthermore, CMU project will be dealt with in conjunction with other EU projects, such as the Investment Plan and the FinTech Action Plan, in order to understand their reciprocal importance. In fact, integrating these realities might lead to increase their potentialities.

As CMU might benefit from the innovative financial tools offered by FinTech, as ICOs, also these tools might find a strategic and useful application, when involved in capital markets field.

1.2.1 Background of European Union Market

The creation of a European market has always been at the basis of the European integration project and the term "Common Market" has been used for long time to describe what the European Union represents today. It was at the hearth of Treaty of Rome of 1957 which established the European Economic Community and acknowledged what was claimed in the Spaak Report of 1956 about the horizontal integration of the economy, progressively eliminating trade barriers, thus creating a real union customs: it was estimated that only in this way would have been arrested the international decline of Europe strongly perceived in those years. [35]

To achieve greater efficiency, increase in economies of scale and a higher level of competitiveness, initiatives were undertaken on three fronts. The first one dealt with the abolition of national protectionism, which created obstacles to free trade. The second one

[34] European Commission, 2018 (2), p. 1.
[35] Barnard and Peers, 2014, pp. 308.

concerned the regulation of business practices, that implied a distortion of competition. The last one was based on the definition of conditions for common growth through the assistance to the least developed countries, the modernization of methods of production and trade and the recognition of the freedom of movement of the factors of production. All this was programmatically summed up in the first period of article 3, paragraph 3, of the Treaty on European Union (TEU), according to which:

" […] 3. The Union shall establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment. It shall promote scientific and technological advance.
It shall combat social exclusion and discrimination, and shall promote social justice and protection, equality between women and men, solidarity between generations and protection of the rights of the child.
It shall promote economic, social and territorial cohesion, and solidarity among Member States.
It shall respect its rich cultural and linguistic diversity, and shall ensure that Europe's cultural heritage is safeguarded and enhanced. […] ".[36]

However, in order to create and guarantee the functioning of the internal market, the definition of substantial rules on the freedom of circulation and procedures, granting the European Union the power to legislate for this purpose, was highly requested. Article 26 of the Treaty on the Functioning of the European Union (TFEU), read in conjunction with art. 114 TFEU, still guarantees the recognition of this freedom. In particular, article 26 states:

"1. The Union shall adopt measures with the aim of establishing or ensuring the functioning of the internal market, in accordance with the relevant provisions of the Treaties.

[36] TEU, 2009, art. 3.

2. The internal market shall comprise an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured in accordance with the provisions of the Treaties.
3. The Council, on a proposal from the Commission, shall determine the guidelines and conditions necessary to ensure balanced progress in all the sectors concerned. […]".[37]

The last paragraph of article 26 TFEU implicitly refers to article 114 TFEU, which states that, for the achievement of the objectives indicated in the aforementioned article, *"[...] the European Parliament and the Council shall, acting in accordance with the ordinary legislative procedure and after consulting the Economic and Social Committee, adopt the measures for the approximation of the provisions laid down by law, regulation or administrative action in Member States which have as their object the establishment and functioning of the internal market. [...] ".* [38]

It was also fundamental to abolish many technical, legal and bureaucratic barriers that restricted free trade and free movement of goods (articles 28-32 TFEU), of persons (articles 45-55 TFEU), of services (articles 56-62 TFEU) and of capital and payments (articles 63-66 TFEU); nevertheless, there still are areas where integration has slowed due to obstacles, not yet overcome, as the fragmentation of national tax systems and the delay of the service sector – if compared to the goods one – that keep on implying substantial differences between Member States. [39]

With specific regard to the financial services market, EU is trying to stabilize and ensure it through the strengthening of financial institutions and the regulation of complex financial products. One example of that is the Banking Union, realized with the transferring of the banking supervision and the functioning of the resolution mechanism, from the national level to the European one. Anyway, in order to achieve the main objective, the establishment of the Union of Capital Markets at EU level is necessary. Only in that way it would be possible to reduce the fragmentation of financial markets, diversify sources of financing, strengthen flows of capital between Member States and improve the access to finance for businesses, especially small and medium-sized enterprises (SMEs). [40] In fact, the creation of a unified, stable and efficient system, would

[37] TFEU, 2007, art. 26.
[38] TFEU, 2007, art. 114.
[39] European Union, 2018.
[40] European Union, 2018.

allow to solve fragmentation problems and to improve the way through which businesses raise capital and operate on the markets. The innovation carried out by Blockchain could easily cope with all these issues, since it provides for tools, such as the Initial Coin Offering (ICO), whose employment would improve firms' way of raising capital and working, that will be dealt in the following chapter.

1.2.2 CMU: general framework

Notwithstanding the free movement of capital is one of the first objectives of the Single Market and progress has been made, the European capital markets remain fragmented and anchored to domestic internal lines. This is more true with particular reference to firms financing instrument. They still depend on the banking system. These aspects made these markets more vulnerable during the financial crisis, also because of the tightening of bank loans, as occurred from 2008 up today.

The Capital Market Union is a leading project of the European Union, in the context of the Investment Plan for Europe, which aims at creating a more efficient system in which companies are encouraged to draw diversified sources of capital from any part of the Union and further opportunities are offered to investors and savers for managing financial instruments. In this designed system, small and medium-sized enterprises (SMEs) would be able to increase funding more easily. Moreover, investment costs and access to investment products would converge across the EU and obtaining credit, through capital markets, would be exponentially simplified thanks to the removal of the superfluous legal and supervisory obstacles existing at national level. Improving capital markets sector does not mean weakening or excluding the role of the banking system. In fact, although these changes will channel the funding for the economy, banks will remain the key players in the capital markets. Banks will act as issuers, investors and intermediaries. Indeed, since banks play a fundamental role in EU market, either considered as whole, either as individual Member States, ruling them out would imply a total re-shape of EU economy. So that, CMU should involve banks as mentioned above, also considering their power and efficiency in guaranteeing funding channels and the functioning of information flows. [41]

[41] European Commission, 2015 (3), pp. 1.

Until the Commission intervention of 2014, whether CMU could be considered similar to the Banking Union was lively discussed; on this point, the Commission underlined how the objective of creating a single capital market was a separate project, but at the same time complementary to the Banking Union: the primary scope of the latter is breaking the link between banks and national finances behind Member States sharing the Euro coin. In particular, the single supervisory mechanism, the first pillar of the Banking Union, gives the European Central Bank (ECB) the responsibility for overseeing Eurozone banks; moreover, the Single Resolution Mechanism ensures greater efficiency in managing bank resolution through a Single Resolution Council and a Single Resolution Fund. The complementarity is enshrined in the fact that the CMU will be settled on the foundations of financial stability promoted by the Banking Union, so as to be able to diversify European sources of funding, with the scope to include non-bank financing sources, such as insurance companies, pension funds, hedge funds and other wealth managers. In fact, capital markets integration will contribute to the resilience of the Economic and Monetary Union and, as was erroneously believed at the beginning, such integration does not provide for an "anti-banking" policy, since the CMU does not mean the decrease in banking finance to capital markets, but entails an incentive for "high quality" securitization that would allow banks to lend more, expanding and diversifying the funding sources available for employment and growth. [42]

As starting point, the construction of a productive political debate on the topic presupposes a clear set of objectives and pillars; in particular, three complementary pillars have to be identified, covering the following aspects of the CMU:

- issue of capital markets instruments (supply side);
- investments in the capital markets (demand side);
- infrastructures for issuing and trading in financial markets. [43]

The priority actions to be carried out within each pillar might be weighed in relation to the reality of European capital markets, to the issuers and investors needs and to the existing regulatory framework. Recalling the above-mentioned pillars, the relative objectives, complementary to CMU, should provide for a global framework action and can be distinguished as follows:

[42] European Commission, 2015 (3), p.5.
[43] Association for Financial Markets in Europe, 2014, p. 5.

- development of more efficient and liquid markets for the issuance of financial instruments. Specifically, on one hand, the European sovereign debt markets and larger companies are generally more developed and integrated; on the other, market funding for small and mid-cap companies and infrastructure projects remains fragmented and expensive; in this context, CMU should eliminate regulatory and technical barriers promoting the elaboration of an efficient pan-European market for debt and equity securities, regardless of the size or capitalization of the operators involved;
- use of long-term savings to promote healthy long-term investments in European capital markets;
- promotion of an open and integrated infrastructure. Although important reforms are already under way, through the Markets in Financial Instruments Directive (MiFID), the European Markets Infrastructure Regulation (EMIR) and initiatives that facilitate completion of cross-border transactions, such as the Target 2 Securities project and the Central Securities Depository Regulation (CSD), the fragmentation of the European financial market infrastructure continues to increase costs for end users and hinder coordinated supervision. The CMU should therefore ensure practical measures for reducing cross-border transaction costs and expanding access to key market infrastructures. [44]

1.2.3 Obstacles and policy challenges

The integration and development of capital markets within the UE still are undermined by obstacles of a different nature, often deeply rooted and difficult to deal with: in particular, they are linked both to historical and cultural features, such as the historical preference of companies for certain financing instruments, and to the legal and economic frame. [45]

Dealing with legal barriers against cross-border capital flows, these are primarily addressed to various national insolvency laws and corporate, tax and securities provisions. In addition, the degree of integration of financial markets across the Union

[44] Association for Financial Markets in Europe, 2014, p. 6.
[45] European Commission, 2015 (4), p.9.

has been weakened by the crisis and, as a result, banks and investors have confined themselves to domestic markets.[46]

In 2015, the European Commission released a Green Paper on Building a Capital Markets Union in which remarked the relevant variation in the development of internal capital markets among the various Member States, as many of these are smaller and less evolved than others. As a further proof, in 2013, the national stock market capitalization, which defines the aggregate market value of the issued share capital of all publicly traded companies, exceeded, 121% of GDP in the UK and 98% in the Netherlands, whereas in countries such as Latvia, Cyprus and Lithuania, it did not reach 10%. However, it should also be underlined that even European stock exchanges, when compared with other economies, are less developed. In 2013, the capitalization of the US stock market was equal to 138% of GDP, while in EU it was close to a percentage equal to 64.5%. Considering the same year, also Chinese stock market overcame the European one, achieving 74% of GDP, exceeding EU by almost 10 percentage points. Hence, as highlighted by, European capital markets are, at the global level, uncompetitive: investor confidence in the European Union is not sufficient and differences in savings and investment models compromise integration and, therefore, the same European investments that, currently, are below their historical norm. [47]

From demand side, barriers relate to terms of access to finance, above all for SMEs, startups and long-term infrastructure projects, especially in areas such as transport and energy. These impediments include the difficulty in ensuring information flows suitable for the informed decision-making about investments across the EU, as well as the high costs of access to capital markets; consequently, these problems are accentuated in the Member States most affected by the crisis.[48]

From supply side, the constraints limiting the flow of savings in capital markets instruments by institutional investors, retailers and international investors, should be considered and, among these, can be included:

- the high costs of creating and marketing funds across borders;
- the lack of ad hoc treatment for infrastructure investments in relation to capital requirements of insurers and banks;
- difficulties in accessing to personal pensions beyond borders;

[46] European Commission, 2015 (3), p.1.
[47] European Commission, 2015 (3), pp. 1-2.
[48] European Commission, 2015 (3), p. 2.

- the fragmentation of risk capital market in EU;
- the general lack of confidence of retail investors in the financial markets and in intermediaries due to the crisis.[49]

In any case, should be stressed that, even in well-integrated financial markets, some of these critical issues will persist, but this does not mean that they cannot be mitigated in order to benefit from a fully integrated and functioning single capital market. Measures have to be adopted so that, from demand side, all the issues regarding access to finance and information flows can be overcome; from supply side, the diversified flow of institutional and retail investments is promoted, as well as the strengthening of investor confidence, thereby increasing both the flow of household savings in capital markets instruments, the competitiveness and the global attractiveness of European capital markets. Furthermore, the dimensional aspect of capital markets should not be disregarded: improving their efficiency would allow EU to obtain the benefits linked to a greater size and depth of the market, such as a higher level of competition, a wider choice and lower costs for investors, as well as more efficient distribution and risk sharing. Encouraging market integration would optimize the shock-absorbing capacity of the European economy and would incentive greater recourse to investment, without increasing debt levels and with even more positive consequences on the capital allocation in the economy, on entrepreneurial activities and on investments in new technologies. [50]

In February 2015, the Commission launched a consultation intended to identify the necessary measures to unlock investments within the EU, promoting a faster creation of the CMU. Related consultations were also launched on the Prospectus Directive and on securitizations, in response to which numerous feedbacks have been received from companies, investors, the financial sector, national parliaments, the European Parliament, the Council and European citizens. The over 700 received responses showed broad support for the CMU, highlighting the common interest around such project, as well as total support for the gradual approach proposed in the Green Paper of 18 February 2015. [51]

With particular reference to the Prospectus Directive, it indicates a regime, at European level, relating to prospectuses required within the capital markets, in case that an initial public offer is submitted or an admission to regulated market is requested.

[49] European Commission, 2015 (3), p. 2.
[50] European Commission, 2015 (4), p. 9.
[51] European Commission, 2015 (5), pp. 1-2.

Indeed, prospectuses are legal documents of informative nature that have to be used by companies looking for investments: they describe, in an analytical way, the key facts for investors to make informed decisions, providing a homogeneous level of investor protection throughout EU and a form of comparison among investor options for investors across the EU. However, the prospectuses are burdensome not only from an administrative point of view, but also for investors, due to the complexity of the information, and for the companies, in relation to their training, especially if SMEs. In fact, the amount of administrative, human and financial costs, as well as the resources for the elaboration of prospectuses, make the formation of the large package, necessary to attract the investments they need to grow up, too much burdensome for SMEs and startups, bringing them to renounce. Taking into account the need to improve access to finance, the revision of this directive has proved to be essential in the context of the CMU. [52]

The Prospectus Regulation (2017/1129) was enacted and entered into force on 20 July 2017, completely replacing the 2003 Prospectus Directive with direct effect, so it does not need to be implemented by the Member States, as it is directly applicable. The regulation has been qualified as Level 1 and is followed by a separate regulation with more detailed Level 2 requirements, scheduled to be published by 21 January 2019. The Regulation was adopted to simplify the formalities enabling the access to Public Offers (article 1 paragraph 4) and for the admission to regulated markets (article 1 paragraph 5), introducing further exemptions from the obligation to publish prospectuses. In particular, attention should be focused on simplification (reduction) of disclosure for SMEs and indication of an "EU Growth" prospectus; on simplification (reduction) of the information on secondary issuance after 18 months from the admission and on the introduction of a "Universal Registration Document", with shorter approval times for frequent issuers with approval / waiver available after the deposit for 2 consecutive years. [53]

In April 2018, ESMA provided for a technical advice, in relation to the Prospectus Regulation, concerning:

- the format and content of the prospectus;
- the EU growth prospectus;
- the control and approval of prospectuses pursuant to the new regulation.

[52] European Commission, 2015 (3), pp. 7.
[53] Clifford Chance, 2017, p.2.

This advice will settle the basis for the adoption of the delegated acts (Level 2) by the Commission by 21 January 2019; the main points in the final technical advice focus on the following aspects:

- indication of the case in which a previously published profit forecast or estimate is still pending and valid in a prospectus for a share issue (but not for a non-equity issue);
- abolition of the requirement for an auditor's report on a profit forecast or estimate, despite conflicting positions on the market, ESMA attributed to audit report a limited value for investors, considering it as a burden in terms of time and costs for issuers;
- abandonment of its proposal for a mandatory cover note, but one might be included on a voluntary basis; where cover note is included, it has to be limited to three sides of the A4 sheet);
- updating the capitalization and indebtedness statement for substantial changes between the statement date and the date of the prospectus either through updated data or narrative declaration;
- request for more information on how the shareholders will be diluted;
- alignment of the Operating and Financial Review with the condition of a management report in accordance with the Accounting Directive (2013/34/EU) designed be used in the prospectus. [54]

Thence, it is clearly understandable how the European Institutions and the involved stakeholders have been cooperating, for more than four years, to simplify and adapt the current regulations to the most current needs of capital markets in order to unify them. Furthermore, they are using the existing legislation, accompanied by the relevant opinions of the competent supervisory authorities, with the aim to create a solid basis for the formulation of new EU legislation on the subject, integrating it with the benefits offered by Digitalization, in particular, by the Fintech sector.

Besides the Community dimension, CMU should also present an international prospective because the development of Single Market needs to attract a broader selection of global investors, with different profiles and risk appetite and, to achieve this objective, the European capitals have to guarantee market integrity, financial stability and their protection. Moreover, a more pronounced integration of EU capital markets might place the Single Market in a reference position for best regulatory practices and convergence among jurisdictions, ensuring a uniform and consistent European position before global

[54] Linklaters, 2018.

headquarters. As regards this, the Association for Financial Markets in Europe (AFME) pointed out, in the Agenda published in 2014, the importance of strengthening the framework for global regulatory coordination: in fact, conflicting regulatory policies and divergent implementation of global standards constitute barriers to capital flows reducing market efficiency; for example, the proposal concerning the Transatlantic Trade and Investment Partnership, between the EU and the United States, and the International Organization of Securities Commissions (IOSCO), on cross-border regulation, were considered suitable initiatives to promote better regulatory coordination.[55]

1.2.4 CMU and other EU projects: the Investment Plan and the FinTech Action Plan

The creation of the CMU within EU is placed in a perspective that can be easily integrated with other objectives, such as those outlined in the Investment Plan and in the Fintech Action Plan which, beyond being consistent with the objectives to be achieved within the CMU, are also functional to its realization.

The Investment Plan, also entitled the Junker Plan after its promoter, was implemented to raise the low levels of investment caused by the global economic and financial crisis; to this end, collective and coordinated efforts and the mobilization of available resources across the EU were required. This Plan is designed not only to remove the obstacles to investment and to provide for visibility and appropriate technical assistance for investment projects, but also for a more intelligent allocation and use of financial resources. The Investment Plan is based on three pillars:

- the European Fund for Strategic Investments (EFSI), as an EU guarantee for the mobilization of private investments; in addition, the Commission has strongly collaborated with its strategic partner, the European Investment Bank (EIB) Group; [56]
- the European Investment Advisory Hub, a joint venture with the EIB Group, and the European Investment Project Portal; these provide for technical assistance and greater

[55] Association for Financial Markets in Europe, 2014, p. 8.

[56] The EIB is acronym used to define the European Union's bank: this is the only bank owned by EU Member States. It aims at representing the interests of Member States, working closely with other EU institutions to carry out EU policy objectives providing finance and expertise for the most innovative investment projects. In fact, EIB promotes all the sustainable projects eligible as tools contributing to growth and employment in EU. EIB operates in four main areas that are innovation and skills, access to finance for smaller businesses, infrastructure and climate and environment.

visibility of investment opportunities, thus allowing a faster implementation of the proposed investment projects.

– the removal of regulatory barriers to investment, both internally and at the community level, thus improving the business environment. [57]

The Plan focuses on certain strategic sectors where there is a proven ability to produce a positive impact on the European economy, including the strategic infrastructure sector, in particular digital, transport and energy, as well as areas related to education and training, research, development and innovation. Projects promoted in these fields, developed and financed in the context of the Investment Plan have to be commercially viable, economically and technically sustainable and have to contribute to the achievement of EU objectives, encouraging sustainable growth and employment. [58]

Focusing on these requirements, it ensures that FinTech Action Plan objectives are coherent with the logic behind the Investment Plan: thanks to the public consultation launched by the Commission in March 2017, was possible to gather opinions on the impact of new technologies on financial services was possible. Furthermore, in response to the above-mentioned consultation, it has been emphasized that FinTech, and technological innovation in general, is driving financial sector (re)evolution, since this is the main beneficiary of digital technologies within digital economy setting. The measures contained in the Fintech Action Plan are aimed at the growth of innovative business models and at the adoption of new technologies, without affecting information security and financial system integrity. Among the planned measures, beyond the establishment of EU Blockchain Observatory and Forum, the Commission has envisaged the institution of EU FinTech Lab. This laboratory was introduced with the FinTech Action Plan, with the aim to promote and raise the level of regulatory and supervisory capacity of national and European authorities. The first meeting was held on 20 June 2018 and focused on the use of the cloud in banking and insurance system. In addition, the Commission will consult on the best chances to promote the digitization of disclosures published by listed companies in Europe, also through innovative technologies able to interconnect national databases and simplifying the access to key information about their investment decisions. Another type of measure is the proposal of a plan on the best practices regarding regulatory sandboxes: these frameworks, promoted by regulators, encourage startups

[57] European Commission, 2014 (2).
[58] European Investment Bank, 2015.

operating in the FinTech sector and other innovators to conduct live experiments, in a safe environment, under the supervision of a regulator. [59]

In addition, the Commission never omits the dissertation about "Cybersecurity", since at the heart of EU policy action: protecting the financial sector from high-profile cyberattacks is indispensable, in particular, the cross-border nature of cyber threats presupposes a high level of harmonization of regulatory requirements and expectations at national level. Therefore, as the financial sector is increasingly dependent on digital technology, ensuring its security and resilience is required as well as an open collective approach, a significant training and awareness-raising activity, such as what is prescribed in the Digital Education Action Plan for the improvement of digital skills in Europe. The global nature of cyber threats has highlighted how international cooperation is vital to address these risks, revealing the reason why the Commission is proactively involved in G20 and G7 initiatives on cyber security in financial services. [60]

To conclude, FinTech Action Plan stands as one of the pillars of a broader strategic approach to post-crisis regulation; economy, citizens and industry will benefit from exploiting rapid technological advances and, at the same time, this will encourage a more competitive and innovative financial sector, also ensuring its integrity and stability. [61]

1.3 Open Issues

This chapter, at the beginning, has analyzed the functioning and the structure of the Blockchain technology and then the concept of CMU. Integrating these two realities would allow the capital markets strengthening, so as to reduce the difficulties and to realize the ambitious CMU project.

These fast-developing technologies, especially within companies operating in the FinTech sector, are a powerful engine for capital markets integration; unfortunately, European legislation and national company law have not been developing simultaneously with technological development. The use of the tools provided by FinTech, within capital

[59] European Commission, 2018 (3), p. 1.
[60] European Commission, 2018 (4) pp. 15-17.
[61] European Commission, 2018 (4) p. 18.

markets, might contribute not only to the reduction of burdens, but also to the establishment of a more efficient cross-border communication. [62]

The necessity to evolve a legislation integrating these two realities has become increasingly strong, as remarked by Vice President Dombrovskis, in the observations released at the end of the roundtable on cryptocurrencies held on the 26th February 2018. The purpose of the roundtable was to fuel FinTech Action Plan, focusing on three main themes, that are: the consequences of cryptocurrencies for financial markets; the relative risks and benefits and, lastly, the recent development of Initial Coin Offerings (ICOs). [63]

In conclusion, for the EU, a way to remain competitive on financial markets, could be to support Blockchain Technologies and its financial application while defining the substantial risks in which cryptocurrencies investors incur. Indeed, it could be realized through warnings and regulatory reference points, which must be transparent, understandable and frequent and in all jurisdictions. Specific attention must be paid to Initial Coin Offering (ICO), since its development is providing for a new and effective financing tool for companies. Anyway, this opportunity has to be balanced with the critical issues and substantial risks to which this system exposes investors, mainly due to the lack of transparency regarding the identity of the issuers and the related underlying business plans. The observations also underline how a proper assessment of the circumstances around the specific tokens and services, linked to cryptocurrencies, might ease the Commission to determine an appropriate approach, ensuring this tool and making it easily employable by companies. [64]

[62] European Commission, 2015 (4), p. 26.
[63] European Commission, 2018 (2), p. 1.
[64] European Commission, 2018 (2), p.1.

CHAPTER 2

The Initial Coin Offering (ICO)

2.1 ICO introduction: tokens and smart contracts

The ICO represents a new and complex phenomenon which is significantly shaping the entrepreneurial finance scenario. It consists in a Blockchain-based financing instrument used to raise capital through the distribution of tokens used to finance specific projects, on which the token gives some specific right. [65]

As highlighted in the previous chapter, the Initial Coin Offering (ICO) is one of the main topics on which the EU should focus to power the FinTech Action Plan. The present chapter analyzes the functioning and the current applications that this innovative financing tool has so far. In particular, for the optimal employment of this technology, it is necessary to highlight not only its potentialities, but also the critical issues and risks in which those who decide to use the ICO can incur. Indeed, in addition to its intrinsic financial function, this instrument could make EU capital markets much more competitive and innovative, if properly regulated and used. But above all, ICO development can contribute to *boosting* the creation of the Capital Market Union, thanks to the analyzed Blockchain potentialities and to the peculiar characteristic of this innovative financing instrument.

Although ICOs are financial application of Blockchain technology - a phenomenon which formally began in 2008 - they have enjoyed a disruptive growth since early 2017. This contributed to attract the increasing interest from entrepreneurs, investors and regulators. [66]

From a technical point of view, the way through which an ICO works is particularly complex. In order to simplify, the ICO is a more technologically advanced form of Crowdfunding. Each person, who participates in the fundraising, receives, against its monetary contribution, a kind of rights that can be exercised towards the company or the entity which released the fundraising. These rights are incorporated into a "token": an

[65] Howell, Niesser and Yermack, 2018, p. 2.
[66] Howell, Niesser and Yermack, 2018, p. 6.

innovative computer program that allows the participant to exercise their rights at the end of the collection. Different model of tokens will be analyzed in the next paragraph but, in order to understand their functionality and potentialities, it is necessary to examine in advance how these tools interact with Blockchain technology and Smart Contracts. [67]

From this point of view, the Blockchain could be identified as the infrastructure on which tokens are placed and through which their direct transfer takes place from the issuer to the users, as well as between users, without intermediaries. As specified in the previous chapter, the traceability of transactions and the immutability of information make the Blockchain a technology not only safe and reliable, but also extremely efficient and versatile, albeit without a central operator who manages the information and guarantees its correctness. [68]

In fact, based on the rules contained in the protocol regulating the Blockchain functioning, various operations can be implemented on a Blockchain network. Indeed, various software can be developed to perform functions for which they have been programmed to automatically satisfy predetermined conditions. This system works if, and only if, these conditions have been defined before the start of the execution. For this reason, these softwares, called Smart Contracts, are also perfectly suitable for fulfilling contractual services. [69]

Smart Contracts are indeed programs that *run* on a Blockchain network. They are built on a code that not only detects the *ex ante* agreed clauses, but also the operating conditions in which they must occur. Hence, once "the" conditions are satisfied, the contract is automatically executed and it is impossible to stop its function *ad nutum*. Another relevant aspect in the implementation of a Smart Contract is that, since it automatically performs, it completely lacks the human interpretation in relation to the interpretative details about the verification of established conditions. As consequence, the responsibility moves to whoever develops and signs the contract protocol, which must guarantee a very high level of detail, in order to repeal the possibility of interpretative considerations. [70]

In conclusion, tokens can be defined as the informatic result of a Smart Contract execution on a Blockchain. They are identified with real applications that guarantee the

[67] Furnari, 2018, p. 144.
[68] Furnari, 2018, p. 145.
[69] Furnari, 2018, p. 146.
[70] Bellini, 2018, pp. 74-77.

exercise of acquired rights, ensuring the execution, even automatically, of the predefined performance and allowing contributors to place particular trust in the issuer of the tokens themselves without any need for a central authority or any other intermediary. [71]

2.2 Models of tokens

As anticipated, the participant of an ICO receive in exchange for their participation a token which can be programmed to play a wide range of roles in the functioning of the company. Sometimes they serve as an internal unit of account to monitor services provided by users to the platform, such as validation and block-writing. In other case, they aim at intermediating transactions between buyers and sellers in the markets supported by platforms. Hence, tokens are adaptable tools which often help in ensure prevention on the chain, provide for proof of stake, or confer, upon token holders, some kinds of benefit, such as privileged access, the recognition of the right to a share of specific revenue streams, or rights of participation in the platform developing process. Regardless of all the functions which can be performed on the platform, crypto-tokens successfully proved to be an innovative early financing tool for startups. [72]

HACKER AND THOMALE (2017) outline three different archetypes of pure tokens: currency, utility and investment tokens. Hybrid token will be examined later.

Token classification is one of the most important legal issues of ICO. Indeed, he legal status of ICOs will depends on the unsettled nature of tokens. In fact, there is not a legal definition of tokens so it is quite difficult to enforce them through existing applicable rules or to create a new set of rules, without previously defining their nature. If tokens are identified with a form of currency, the issuing firms have to comply with Know Your Customer (KYC) and Anti-Money Laundering (AML) rules. If they represent a kind of stock or security, they have to apply Securities and Exchange Commission (SEC) regulations. Albeit conforming to the aforementioned requirements is certainly difficult and expensive, if firms fail to do so, the consequences might be serious. Otherwise, as CONLEY (2017) highlighted, the imposition of necessary controls is often against *"the philosophy of freedom, anonymity and privacy"* that stimulated the creation and development of Blockchain. [73]

[71] Furnari, 2018, p. 146.
[72] Conley, 2017, p. 1.
[73] Conley, 2017, p. 2.

2.2.1 Currency or payment tokens

Currency or payment tokens are used in ICOs in order to launch a new cryptocurrency or to exchange value. For instance, in the Ethereum ICO, users could receive Ether in return for Bitcoin offer. The term "cryptocurrency" points out the digital currencies developed with the Blockchain technology, whose cryptographic and decentralized techniques guarantee the security of transactions between the participants. Benefitting from the decentralized technology of the Blockchain, these currencies differ from fiat currencies as they are neither certified nor supported, by central financial institutions. In particular, their main characteristics are the same as those explained for the Blockchain in the previous chapter. In fact, in addition to the independence deriving from decentralization, cryptocurrencies are characterized by transparency, traceability, security and immutability but, above all, by another peculiarity: programmability. Programmability consists in defining the structure, the conditions and the functioning of a specific operation, in advance and on the basis of the code, that is the composition of the algorithm, as it sovereigns the system. [74]

This quality has an extremely incisive scope since it allows a greater openness to innovative services, constraining the execution of transactions upon the occurrence of predetermined conditions. According to BELLINI (2018), the latter connotation has considerable advantages in terms of security and traceability because, on the one hand, it would allow the reduction of fraud while, on the other one, it would secure the access to special financing sources, such as ICOs. Also from other perspectives, as programmable currencies, cryptocurrencies can provide for direct benefits to the banking sector because the programmability of the loans and their new forms of control can reduce the risk factors of banks and, consequently, facilitate the access for firms for financing or for the activation of financial services. [75]

The advantages for firms have also to be read in conjunction to the fact that capital markets are not highly developed in individual EU Member States, unlike in Great Britain and the United States. Firms operating in Europe refer to so-called "bank-centered" economic systems and to corporate governance models like the Rhenish one that, unlike the Anglo-Saxon and US models, are not strictly “financial” market-oriented. [76] As a

[74] Bellini, 2018, pp. 87-89.
[75] Bellini, 2018, pp. 87-89.
[76] Fiori and Tiscini, 2017, pp. 61-64.

result, strengthening the banking sector and European capital markets, through the development, regulation and application of cryptocurrency and its instruments, would have positive effects on firms operating in Europe, as these advantages will be analyzed later.

Specifically, among the main cryptocurrencies, the best known are Bitcoin (BTC / USD), Ethereum (ETH / USD) and Ripple (XRP / USD). Today, these cryptocurrencies present still many critical issues concerning not only the lack of a common regulation and monetary policy, but also high volatility. [77] The last one defines the "degree of dispersion" of the returns of an investment and is aimed at measuring the uncertainty of the returns. Hence, the higher the volatility, the higher the risk that returns show values very far from the average value, that is the potential for fluctuations in the return on an investment.

Moreover, even the limited knowledge of potential users about access mechanisms is a critical issue of cryptocurrencies. Otherwise, it can be solved through proposing initiatives or incentivizing the creation of startups that place, at the center of their activity, the satisfaction of the demand for access services to the Blockchain and cryptocurrencies. In fact, this would encourage new forms of business and actively contribute to raise the level of innovation and competitiveness within the EU. [78]

2.2.2 Utility tokens

Utility token are supposed to convey some functional utility to investors linked to the access for token holders to a product or a service (but also a simple discount on that product or on that service) that the issuers developed or still has been developing. [79] Notwithstanding the fact of being a currency token, also Ethereum can be defined as an utility token: it is not only a cryptocurrency but it also serves as a platform for Smart Contracts and for other tokens. [80] With regard to Ethereum case, GORINI (2018) states that the more a service is successful, the more the token is required on the market, until it becomes so required that it is switched for a currency, making the distinction between

[77] Bellini, 2018, p. 87.
[78] Bellini, 2018, pp. 87-88.
[79] One of the most notorious example of utility token is Filecoin: it promoted the most successful ICO in 2017 that collected more than $250 million. The main task of Filecoin is establishing a decentralized storage network which taps available storage space on computers worldwide.
[80] Hacker and Thomale, 2017, pp. 12-13.

utility tokens and payment tokens really difficult. In fact, in this context, hybrid tokens are enshrined: they have different components from those indicated by the archetypes, either presenting components common to two or more archetypes, either without a clear and full classification of them in one of the three analyzed categories. [81]

2.2.3 Investment tokens

The last archetype is the investment token, a general category that may include also equity, security and debt token. Investment tokens are meant as assets entailing investors positive future (crypto)cash flows. They manifest a financial value, a dematerialized and digitized version of a share, a bond or a fund. [82]

More specifically, equity tokens represent a share in the underlying company and they work as traditional stocks since they confer administrative and economic right, entitling to a portion of profits and to the voting right in the issuer. They differ from the traditional stocks in the method of recording ownership. In fact, traditional stocks are logged into a database and can be accompanied by a paper certificate; differently, equity tokens record corporate ownership on a Blockchain. [83]

Security tokens function as a traditional security asset. They constitute a stake in the wealth generated by a third party and their value is derived from that party's success or failure. Differently from equity tokens, security tokens can be defined as Blockchain investment products which do not attribute any ownership in the underlying company. Investors buy security tokens presuming that they will increase in value, with the aim to sell them later in order to collect a profit. [84]

The sales of this type of tokens has been recently called "Security Token Offerings" (STOs) and they are thought to be the next evolution of ICOs. This system would allow all the functionalities and benefits that traditional security market cannot provide for. Among these ones, STOs would enhance the ability to more easily track the security holders of a specific security. They would also grant a functional profit and losses distribution and allocate for security holders in public companies. Moreover, STOs' system would transfer and liquidate securities worldwide in a more efficient manner. [85]

[81] Gorini, 2018, p. 47.
[82] Hacker and Thomale, 2017, p. 13.
[83] Reed, 2018.
[84] Reed, 2018.
[85] Miami Crypto Exchange, 2018, p. 6.

This is due to the main advantages linked to Blockchain infrastructure. In fact, as remarked in paragraph 1.1.2, the lack of a central authority entails disintermediation and greater transparency. Furthermore, the algorithmic code ensures the immutability and immediate verifiability of the operations, implying easier control by the parties. This resilient system, automated and based on predetermined conditions, also provides for greater efficiency and avoid burdening the speed or cost of transactions. [86]

Therefore, this evolutionary system might entail global behavioral changes in investment patterns. In particular, it would imply a shift of focus from the concept of "shareholder" to that of "token holder". In addition, STOs would embody a new business model of transparency, becoming more recognized by the society. [87] The power of STOs lies in the possibility to equally benefit the traditional finance sector and the Blockchain. They take advantage of all their combined benefits, such as lower fees and so stronger profit margins, faster deals execution and instantaneous transaction times, larger investors based, service functions automatization and decrease in financial institutions manipulation risks. [88]

Otherwise, the main problem afflicting STOs is the same of ICOs: the lack of regulation. In fact, launching STOs might become a legal, regulatory and technical nightmare, since there is no competitive environment to ensure their market, service providers and a standard of quality. So that, the process is still slow and expensive, also because different jurisdictions have different rules and regulations. [89]

Lastly, also debt tokens can be considered as a specification of investment token general category. Even if they are not highly discussed as security and equity tokens, they are financial products representing a tokenized liability. The debt is recorded on the Blockchain, either through a self-executing smart contract or through a simple ledger format.

2.2.4 Hybrid tokens

As remarked above, token classification does not refer only to the three examined archetypes, the so called "pure token", assuming they only show their typical component

[86] World Bank Group, 2017, pp. 15-16.
[87] MOBU, 2018, p. 4.
[88] MOBU, 2018, p. 4.
[89] MOBU, 2018, p. 9.

(currency, utility or pure investment). In fact, tokens can also share different components at different levels; this form of token can be defined as hybrid because it does not fit a specific category but it merges two or more of them, making this tool much more nuanced. Three main forms of hybrid tokens can be defined:

- Hybrid Utility/Investment Tokens;
- Hybrid Currency/Investment Tokens;
- Hybrid Currency/Investment/Utility Tokens. [90]

The nature of the first form, the Hybrid Utility/Investment Tokens, lies in the fact that, according to some authors, sometimes tokens, mainly aspiring to be used as a utility token, might have an investment component. In this case, tokens might be bought, presuming their future increase in value, and then sold on "token exchanges", meaning the secondary market subsequent the ICO, with the aim to collect a profit. This Janus-faced nature of utility tokens fuel the problem about their classification under traditional EU securities regulation. [91] In this context, the risk of information asymmetry, between buyers and the issuer, increases but it might be addressed through a prospectus. [92] Hence, in order to outline whether prospectus law applies to utility token, is necessary to establish how much of the investment component is required. [93] However, these regulatory issues will be better addressed in the third chapter.

Concerning the second form, the Hybrid Currency/Investment Tokens, similar problems arise when currency tokens, primarily understood to be employed as means of payment, own an investment component. So, currency tokens might be used as an investment asset and sold for profit and, moreover, scholars in economics stressed that cryptocurrencies, such as Bitcoin, share more features with investment assets than with currencies, due to their volatility. Furthermore, pure currency tokens, just like the pure utility ones, should be excluded from the notion of security, in force of their function of

[90] Hacker and Thomale, 2017, pp. 33-36.
[91] Hacker and Thomale, 2017, p. 13.
[92] Hacker and Thomale, 2017, p. 33.
[93] From a functional point of view, on the purpose of Prospectus regulation, two assumptions might be possible. The first one argues that, if the investment component of the hybrid tokens does not imply any relevant financial risk, they do not fit the definition of a security. Otherwise, considering that there is always a significant financial risk in utility tokens, they are practically considered securities and they should be accompanied by a prospectus in order to address the risks. [93] The second solution distinguishes between two cases. The first one relates to whether profit is expected from the work of others; hence, information asymmetry concerns financial risks relevant to investors, so that they must be disclosed in a prospectus. On the contrary, in the second situation, profits are not expected; as consequence, a prospectus is not required, since does not provide for meaningful information and could provokes a confusing information overload among retail investors.

payment instruments. Anyway, this assumption and Court of Justice of European Union (CJEU) decision in Hedqvist case [94], explicitly recall the premise according to which any investment component is absent from tokens. The most important point of the decision is enshrined in paragraph 52, that rules: *"[…] it is common ground that the 'bitcoin' virtual currency has no other purpose than to be a means of payment and that it is accepted for that purpose by certain operators."* [95] Contrasting the last hypothesis, the development in tokens use and the larger openness they had in the last two years should be highlighted. Indeed, the aforementioned CJEU decision is dated 22th October 2015, so that, the system evolution implies that the investment component concerning the real (meaning opposed to pure) currency tokens clearly hinders this position. [96]

Dealing with the last hybrid token, the Currency/Investment/Utility Tokens, the same reasoning applies. Therefore, it is necessary to observe whether they mainly work as object of speculation or they serve as online means of payment. Moreover, the comparison with securities is always recalled on the basis of the criterion of factual expectations of profits. A prominent example of this kind of hybrid token is the Munchee token, which was intended to be mainly employed for payments in restaurants and for food review incentive, but also for secondary trading. [97] Its sale was stopped by SEC which underlined that a token with "utility" should convey an expectation of use and not of profits. [98]

2.2.5 Tokens evaluation models: an economic perspective

The view through which tokens are meant also affects how they should be examined from an economic perspective. For this reason, CONLEY (2017) elaborated different tokens evaluation models:

- the quantity theory of money;
- the present value theory;
- the efficient market theory;

[94] Skatteverket vs. David Hedqvist is a landmark case concerning Cryptocurrency regulation within EU legal frame. It deals with a preliminary ruling required by Högsta förvaltningsdomstol (the Swedish Financial Administration), in order to assess whether VAT Directive applies to activities entailing the exchange of virtual currency for traditional currency and vice versa.
[95] CJEU, 2015, para. 52.
[96] Hacker and Thomale, 2017, pp. 35-36.
[97] Hacker and Thomale, 2017, p. 36.
[98] DLA Piper, 2017.

– the metagame value theory. [99]

The first one, the quantity theory of money, applies when tokes are identified as a currency. According to this theory, an accounting identity considers the value of transactions, in a period (T), equal the amount of money in the economy, (M) times its velocity (V), meaning the number of times a currency unit changes hands in given period. The formula summing up this theory is "T= MV", so if there are a total M tokens issued, they must be valued as follow: "T/MV". [100]

The second one, the present value theory, views tokens as a security, hence, their value is identified with the present value of the associated flow of dividends. [101]

The third one, the efficient market theory, relies on the belief that today's price is the best predictor of tomorrow's price, meaning that the security or currency current price should combine all publicly available information that might have a positive or negative effect on it. [102]

The last one, the metagame value theory, underlines that token value might be more valuable when repurposed in a different context from that of its intended use. As consequence, firms should carefully outline the potential functions, paying attention to the cases in which their tokens could be employed for unintended purposes, harming their platforms, benefitting their competitors or breaking the law. [103]

2.3 ICO functioning

After having examined ICOs general background and their related forms of tokens, the analysis moves to its functioning, explaining the modalities through which an ICO takes place. In particular, roles and duties of the involved subjects will be firstly discussed; then the phases through which the procedure develops will be described.

2.3.1 ICO procedure

The ICO is a procedure promoted when a subject, the "founder" decides to place his own token on the system. According to the system organization, as elaborated by

[99] Conley, 2017, pp. 3-4.
[100] Conley, 2017, p. 4.
[101] Conley, 2017, p. 4.
[102] Conley, 2017, p. 5.
[103] Conley, 2017, p. 6.

Pricewaterhouse and Cooper specialists, the procedure through which ICO develops can be divided in two main stages. The first one approximately lasts between four and twelve weeks and concerns the planning of ICO; the second one, usually carried out in four weeks, deals with the its execution. These two stages are individually structured in other phases which will be exhaustively described in the following lines. [104]

In the first stage, three more sub-phases are distinguished: the business strategy, the economy and tokens design and the detailed planning. [105]

During the elaboration of the business strategy, the firm that decides to launch an ICO should take up, through its management, the following actions. In particular, it should elaborate a "project strategy", which allows to better decide where ICO would more profitable through the study and understanding of market landscape and industry pain point. Moreover, the firm should design and refine the business, financial and operating model, simply titled "business model". Then, after having conceived the object and the general conditions of business strategy, the firm should proceed with the key team buildout, deciding who are the most skilled subjects suitable to carry out the ICO.

In the second phase, the firm should design and refine tokens utility and functioning and the economic model. Here, the firm has to determine the sale mechanism, the economy behind the chosen kind of token and its evaluation. These tasks are firstly supported and summed up in the whitepaper and then confirmed in ICO readiness check. [106] During this phase, the firm should outline all the information such as those concerning target proceeds, token rights, distribution method and the so-called lock-ups and set-asides. This last one is linked to the determination of the fraction of total token supply sold. In fact, the founder might decide not to sell 100% of the token inventory, reserving a fraction to incentivize founders and employees or with the aim to reward developers, who contributed to build applications or acted as market makers on the platform. The last essential information to be provided is the pricing mechanism, which typically operated through a capped sale where a defined number of tokens are sold on a first-come, first-served basis at a fixed price. A slightly different approach has been to sell shares of the total token supply in proportion to the bid amount, but with an ex-ante fixed token price. Some issuers have sought price discovery through their sale. In addition, the intensification of the race to become a token buyer might be triggered if the issuer decides

[104] PwC, 2018.
[105] PwC, 2018.
[106] PwC, 2018.

to fix pricing tiers increasing over time. This system, advantaging early buyers, often cause the aforementioned *"Fear Of Missing Out"* (FOMO) with the negative implication that investors, without any sufficient knowledge and skills of Blockchain technology complexity, are attracted, becoming easy scam-victims. [107]

The last planning phase focuses on the selection of professional advisors, operating on legal and business fields, with the aim to support the procedure with rights advices on legal, tax, accounting, advisory and transfer pricing. Furthermore, a list of potential investors might be laid down in order to estimate who will be potentially attracted by ICO launch and so the potential success of the procedure. [108]

Before moving to the second stage, focused on ICO execution, a middle stage should be mentioned. Sometimes there might be a further stage, settled between the planning and the execution one, as meant as tokens placement on the market. This stage is called "pre-sale". Before the sale, tokens are offered, through a private offer, to a limited set of investors, which GORINI (2018) defines as "*Family, Friends & Innovators"*. In case of acceptance of this offer, these subjects take a greater risk and wait longer, in return for tokens on preferential terms, obtaining greater discounts and special bonuses. The purpose of the pre-sale is to obtain a first loan to support all the marketing activities that are functional to the launch of the official offer. [109]

In the execution stage, the sales take place publishing all the information, concerning the project related to tokens emission, through the company website. More specifically, execution stage might be subdivided in sales execution and business execution. During the sales execution, the main tool representing ICOs legal origin, relating to financial development relationship, is the "whitepaper", the company disclosure at firm level containing all the essential information for potential investors. Legal protection incentives private contracting without involving regulation or government. The standardization absence on disclosure entails that litigation is carried out by contract and tort law, making arise the uncertainty and potential costs for investors. Firm disclosure provides for a tool through which investors may easier ascertain whether the company is solid. Otherwise, complete entrustment has to be mitigate with the risk of information asymmetry, which could afflict them because of the lack of a controlling third party, aimed at ensuring information flows, as happens during IPOs. Anyway, ICO is a

[107] Howell, Niesser and Yermack, 2018, pp. 11-13.
[108] PwC, 2018.
[109] Gorini, 2018, pp. 48-49.

global based financing tool, whose sufficient monitoring is quite hard to be provided by a government or another authority. As consequence, the disclosure on company whitepaper depicts the main signal for investors; in fact, when disclosure quality rises, also investors trust in the project and positive attitude does so. [110]

Hence, during sales execution, the planned business and tokens models become of public domain together with all the aforementioned information that must be included in whitepapers. Another organizational aspect, communicated to investors, is how the budget is divided and used in relation to the type of expenditure, which can refer to research and development, legal, marketing or administration. This aspect is also linked to the indication of the various advisor teams collaborating in the evaluation and diffusion of the project. [111]

Behind this "public" side of execution, there is another one, called business execution, that attains to a more internal activity. Business execution deals with legal documentation drafting and review, accounting and budget monitoring, operational and governance framework design and other activities focused on concluding and maintaining strategic alliances and on Merger and Acquisition (M&A) advisory. All these activities are realized mainly through the insurance of sales document and KYC and AML process finalization. [112]

At the closing of the execution stage, the exchange of tokens and money (or other cryptocurrencies) takes place on the basis of a smart contract. Hence, tokens are transferred to the participants/investors wallets and money (or other cryptocurrencies) is transferred to the founder's account or wallet.

Finally, beyond the "direct" ICO, an alternative way of spreading new tokens, different from their direct sale to participants/investors, is a kind of "parachute distribution", called "Airdrop". Using this form, the issuer does not sell its tokens but gives them for free. The main purpose of Airdrop system is to speed up tokens diffusion, hoping they will be used more and more, so as to spread the following tokens at a more profitable price, thanks to their first diffusion that served as a success test. [113]

[110] Jiafu, Wenxuan and Xianda, 2017, pp. 16-17.
[111] Gorini, 2018, pp. 48-49.
[112] PwC, 2018.
[113] Gorini, 2018, pp. 48-49.

2.3.2 The involved subjects

This paragraph focuses on the the suggested role that shall be played by the involved subjects, in order to increase the possibility of ICO to succeed, and then to rights conferred to them. The concerned subjects are: the founders and the partecipants/investors.

In particular, founders should provide for a clear justification for the project in general and then for their own token. In addition, they shall choose a transparent legal structure, ensuring that funds and personal data are secured during and after ICO. In addition, they must guarantee to comply with law, not only in the country of registration, but also in all the countries where project operations and token use are planned and take place. [114]

On the other side, participants/investors should seize Blockchain transparency for "advanced due diligence", simply examining the usually available code of the smart contract and the platform. Another implicit duty might be represented by that of invest "*smart money*" through avoiding the so called "*FOMO*", meaning "*Fear Of Missing Out*", hence contributing to expertise, beyond the simple financing role. [115]

Within this context, partecipants/investors rights in ICOs should be assessed. These are: the dividend, the voting, and disclaimers rights. In general, partecipants/investors' aim is enjoying future cash flows, since equity (token)holders obtain dividends in return; this is the dividend right. Otherwise, the voting right constitutes a precondition for investors to weight on management decisions. [116]

Moreover, JIAFU, WENXUAN AND XIANDA (2017) argue that cash flow and voting rights might help to increase the raised fund in ICOs. In the case of ICOs, these two rights, the economic and the voting ones, are not often foreseen for investors. This lack can be addressed to two different explanations: the first deals with the fact that ICO plans were not subject to regulations, so that the contracts are flexible. The second one might be attributed to the agency problem, since boards typically do not exist in ICO firms.

In addition, the aforementioned authors underline that ICO whitepapers often include a disclaimer clause clarifying whether purchasing tokens do not represent an

[114] EY, 2017, p. 40.
[115] EY, 2017, p. 40.
[116] Jiafu, Wenxuan and Xianda, 2017, p. 12.

investment and token does not confer any right in company upon investors. Disclaimers task is the reduction of the litigation risks and the accountability of the managers.

Results of a study carried out by JIAFU, WENXUAN AND XIANDA (2017) underline that these three types of rights might influence the investor's decision making process and ICO performance. The mentioned study focuses on the relationship between token holders' rights and total ICO fund raise on firm level. In general, results present a positive link between ICO fundraising and token holders' voting right, whereas an unexpectedly indifferent relationship with dividend and disclaimer clause. On one hand, the supposed reason might be that token holders do not care about dividend payment, since they value the capital gain from their investment. On the other, it might be due to the investor's skepticism in the whitepaper from the ICO company. This last supposition is fueled by the absence of a third party as, for example, an exchange, a regulator, an auditor or an underwriter, as in IPOs, that it is aimed at ensuring company's promise in whitepaper. [117]

2.4 Risks, advantages and potentialities for corporate governance.

One of the key challenge of ICOs and issued tokens derives from the assumption that they belong to an emerging market where there is an avoidance of any form of fiduciary responsibility and clarity designed to protect consumers by issuers. [118] For this reason, addressing ICO risks and potentialities for firms corporate governance and finance might be a consistent way through which firstly understand this innovative financing tool and then deciding whether it is detrimental or suitable for firms.

2.4.1 ICO risks

Before outlining the main risks in which investors might incur, according to SEHRA, SMITH AND GOMES (2017) the little-known gambling sensation, known as Pachinko, shall be explained in order to gain a better understanding not only of ICO economics, but also of the potential risks.

"Pachinko" is a cultural Japanese phenomenon that draws similarities with contrived explanations and models aimed at distancing the ICO and issued tokens from

[117] Jiafu, Wenxuan and Xianda, 2017, pp. 14-15.
[118] Sehra, Smith and Gomes, 2017, p. 2.

securities. These elusion forms aim at leveraging regulatory arbitrage opportunities for the execution of undercover securities issuances. They might limit the vision and creativity necessary to understand the true scale of the ICO and digital tokens, relegating them to possible risks if they are not used in the proper manner. [119] Prior to legalization, happened in late 2016, gambling for cash was illegal in Japan. One of the most popular system to bypass gambling laws was employed by parlors who operated a pinball style arcade game, the so-called Pachinko. Indeed, Pachinko parlors represented one of the easiest ways for the Japanese market to fulfill its gambling demand, designing a contrived mechanism capable of eluding legal restrictions on casino style gambling with cash. In carrying out their activity, Pachinko parlors became a suboptimal substitute for an open gambling environment. In fact, they could only offer a simple game that could not be compared to the kind of games available in casinos and, if players intended to simply gamble, the gambling process within Pachinko was a bit inconvenient. The main point of their strategy was eluding the law forbidding cash price awarding system through giving "cash equivalent prizes" but, this alternative system was associated with a separate and independent business, located outside the parlor, whose task was "buying" the prizes for cash. [120]

Hence, translating the described concept to the concerned field, ICOs, as Pachinko, might constitute a tool through which is possible pursuing illegal objectives even if the applicable law is formally respected. In fact, ICOs might be used also to commit crimes, such as terrorism financing, or fraud in general. Hence, recognizing the risks allows to avoid borderline situation in which founders might commit crimes and investors might become scam-victims. In fact, risks understanding entails not only that involved stakeholders acquire a greater awareness of ICO scale, but also that legislators can easier develop a normative framework addressing all the pathological circumstances.

The main risks pertain information asymmetry, skewed incentives, the lack of disclosure framework, the low quality or the high variation and, at the end, the lack of assurance.

Information asymmetry is a problem that occurs when relevant information is not shared in a full and equitable manner among the involved subjects. As consequence, the fully-informed subjects can take advantage of their position, becoming detrimental to less-informed subjects. Hence, information asymmetry depends on the assumption that

[119] Sehra, Smith and Gomes, 2017, p. 5.
[120] Sehra, Smith and Gomes, 2017, pp. 3-4.

the flow of information is mostly one-sided, from seller to buyer. Moreover, this asymmetry is emphasized since social influencers are often aimed at the maximization of the overall hyped market sentiment holding cryptocurrencies as an upward trend. So, the token buying public, who might not deeply know the issuing organization and the technology behind ICOs, can only believe in founders and their spokespersons honesty, competence and commitment. But, in truth, only founders can totally know the background and the potential success of the procedure, without any fiduciary duty to the token holders. [121]

Referring to skewed incentives, they constitute distorted advantages since they allow issuers to disproportionately profit from a particular behavior. So, this kind of incentives entail that the potential gains outweigh any direct risks. Skewed incentives are due to a lack of accountability and a minimal time/financial cost associated with ICOs execution, so that founders can easily pass off low quality products as high quality ones. The key skewed incentive might be related to the following conditions:

- Perceived zero accountability for issuing companies concerning claims made during a pendent ICO: this is enforced by detailed disclaimers and small print. [122]
- Limited ongoing responsibilities: in many cases, ICO structure appears as an *"open source infrastructure layer"* [123], so that the financial contributions are viewed as donations in favor of an abstract "non-profit" co-operative. As consequence, the ongoing value of issued tokens is understood as not linked to delivering organization efforts of ICO team members; so that, SEHRA, SMITH AND GOMES (2017) remark that *"the ongoing performance is deemed to be a community responsibility"*. [124]
- Too much reliance on social media influencers: ICO execution requires a minimal upfront cost and complexity, limiting the biggest cost to the necessary time to build up a community following and to draft a whitepaper. This implies that often community following cost might be reduced by leveraging social media influencers. This hides a negative side, in fact, only influencers, feeling there is very little accountability or reputational impact on them if things go wrong, can agree on taking up the project. [125]
- Minimal Technical Requirements: the lack of requirements for a minimal viable product and/or detailed technical specification entails that entry technical barriers are

[121] Sehra, Smith and Gomes, 2017, p. 19.
[122] Sehra, Smith and Gomes, 2017, p. 19.
[123] Sehra, Smith and Gomes, 2017, p. 19.
[124] Sehra, Smith and Gomes, 2017, p. 19.
[125] Sehra, Smith and Gomes, 2017, p. 19.

limited to convincing and recruiting advisors and claims of future hires with key skills. This might imply that not all the products and people working on them are suitable and, in addition, they might damage ICO procedure and success. [126]

- Scarcity and liquidity: Fear of Missing Out (FOMO) might be driven by the implementation of a monetary policy based on token scarcity, the existence of liquid secondary market and claims for tokens demand in order to access to future products. These aspects cause the perception that issued tokens could increase in value in the short term, implying a tokens buying/selling rush. [127]
- Perceptions of growth: the positively skewed perception of ICOs and, in general, of cryptocurrency. The sentiment that market is reaching a peak is growing and, at that point, regulators will intervene and buyers will start exiting because of over inflated prices for subpar tokens. Furthermore, someone believes that short term token investors can make a quick gain and passing on their holdings to long term investors unaware of the liquid secondary market, until the bubble pops. [128]

The lack of disclosure framework represents a relevant risk that is emphasized in ICOs. In fact, difficulties and risks increase when the procedure is totally new and complicated, and so, not well known or easily manageable by investors/participants. Hence, a trusted disclosure mechanism might represent a key barrier to manage these problems. Anyway, assessing risks is always hard but doing so for an early stage company or project is more pronounced. Therefore, a potential ICOs disclosure mechanism is strongly needed and could be realized requiring mandatory information audits through a trusted source. Then, this opening information could be supported by some form of ongoing disclosure, such as financial reporting. Such frameworks would thus ensure the project by improving the transparency about the way in which finances and risks are managed, and thus outlining some form of accountability and responsibility. [129]

Another risk concerning ICOs world is linked to the low quality or the high variation of values. This issue derives from the fact that there is little or no economic analysis on the optimal monetary and fiscal policy. As consequence, the current functioning is driven by an initial rush of investor interest, without considering managing

[126] Sehra, Smith and Gomes, 2017, p. 19.
[127] Sehra, Smith and Gomes, 2017, p. 19.
[128] Sehra, Smith and Gomes, 2017, pp. 19-20.
[129] Sehra, Smith and Gomes, 2017, p. 20.

ongoing supply and flow. Thus, this entails lowering the general quality of ICOs and causing high variation of values implying negative effects on the economy. [130]

The last risk, that is going to be examined, deals with the lack of assurance. This is a kind of "summary" risk, because uncertainty is at the base of many economic actions related to financial investments. The "ordinary" market, is of course safer that cryptocurrency one, since it is guarantee by authorized authorities and subject to specific and strict laws. Nonetheless it is not ruled by certainty and stability, as the events from 2008 until now still prove. However, in ICOs tokens markets, all risks increase since there is no regulation and no authorized authorities empowered to intervene. Hence, also the lack of assurances by issuers enhances regulatory arbitrage and so uncertainty in the potential conflicts that might arise in ICOs. Assurances lack should be read in conjunction with disclosure framework lack and with skewed incentives. About the lack of assurances and disclosure, it is perceived since founders' responsibilities and accountabilities are distanced from what is delivered and the value attributed the issued tokens. Concerning skewed incentive structure, companies might deliberately or negligently lead the perceived tokens through impressive statements, while exempting themselves from any responsibilities related to tokens' market performance, if such assertions are not fulfilled. [131]

2.4.2 ICO advantages

As remarked above, ICO is an innovative financial tool and would provide for benefits, not only for individual firms, but also for the market. Otherwise, before looking at EU level, ICO has to be understood and accepted by companies and investors which need to trust ICOs potentialities in order to employ them and to invest in them. Hence, the following lines will firstly focus on ICO advantages for capital raising, then they will analyze potential corporate governance benefits.

According to HOWELL, NIESSER AND YERMACK (2018), ICO would provide for five main advantages for capital raising. They are: financing decentralized networks with diffuse contributors, incentives to token holders to scale up a network quickly, customers'

[130] Sehra, Smith and Gomes, 2017, pp. 20-21.
[131] Sehra, Smith and Gomes, 2017, p. 21.

rewarding for their roles as stakeholders in new platforms, establishment of immutable and non-negotiable governance terms and rapid liquidity. [132]

The first one, financing decentralized networks with diffuse contributors means that, since ICO is a Blockchain application, it is update and controlled by decentralized nodes on the basis of a protocol empowered to verify the correctness of transactions. Hence, Blockchain capability to enable the direct and secure transfer of value over the Internet, between parties that do not trust each other, is one of the main advantages of ICOs. Transacting value often requires the presence of intermediaries, but they, would not be necessary in open source systems, such as Ethereum. As consequence, all the costs related to intermediaries activieties would sharply decrease. Thus, thanks to Blockchain technology application, the mentioned value, previously attributed to intermediaries, can be directly used to remunerate the creators of open source applications, who were used to run their activity for free. Hence, ICOs might serve as financing vehicles for new decentralized networks development, since they might compensate the initial developers without conferring to them any more control of the network than other users once it has been launched. [133]

The second advantage is represented by the incentives to involve token holders in the development of the network. In fact, ICOs founders might decide to freely distribute tokens to their potential end-users, through the aforementioned "Airdrop" system, as it explained in paragraph 2.3.1. Indeed, HOWELL, NIESSER AND YERMACK (2018) argue that this way of distributing tokens would speed up and improve platform development, since token-holders would be more involved and thus becoming more motivated to help the platform succeed. End-users' contribution may consist in finding bugs or adding. As consequence, extending token holders involvement would lead to a productive cooperation. In fact, among the involved token holders, there might be highly specialized firms or talented individuals. Hence, if these ones were interested in the project, they could decide to share their know-how by contributing to platform development, also creating an active and stimulating environment. [134]

The third advantage is the customers' rewarding for their roles as stakeholders in new platforms. It derives either from the aforementioned cooperation, focusing on financial inclusion; either from decentralization. In fact, ICO can be considered as the

[132] Howell, Niesser and Yermack, 2018, pp. 7-8.
[133] Howell, Niesser and Yermack, 2018, p. 8.
[134] Howell, Niesser and Yermack, 2018, p. 8.

widest and most effective tool to democratize the access to investment opportunities in new companies. Indeed, financial inclusion is enforced by rewarding the role of stakeholders that is played by customers in new platforms. Moreover, this advantage is also linked to decentralization since this entails disintermediation. In fact, it allows to remove the typical financial intermediaries with the possibility to directly distribute gains from network development and to developers and consumers. [135]

The fourth advantage is immutability and non-negotiability of governance conditions. Indeed, once, tokens contracts have been launched and ICO has been concluded, the platform and its network will work regardless the changing will and actions of their founders. This aspect gains importance in the event that issuers act in bad faith or decide to flee with ICO revenues, defrauding the investors. Indeed, ICO gives controls to the contributors that may decide how the money sent to the promoter can be spent. As consequence, immutability and non-negotiability ensure much more protection against bad faith of the promoter, being this one of the worst problems affecting crowd-funded project today.

The last advantage is liquidity. Indeed, ICO allows to provide fast liquidity, as investors gain token incorporating the service - or, in general, the right - acquired and then can exchange their tokens in return for fiat currency on a secondary market. This liquidity aspect highly differs from venture capital and equity crowdfunding, instead constituting the primary parallel between ICOs and IPOs. This is true although two caveats need to be outlined. Firstly, lock-up periods may be required, meaning participants are forbidden to exchange their tokens for an established amount of time. Secondly, liquidity may not be guaranteed as there might not be sufficient third parties willing to buy tokens or research costs might be too high, or even prohibitive. [136]

2.4.3 Potentialities for corporate governance improvements

Using ICO to issue and trade corporate securities/tokens, would create benefits for firms not only in relation to capital raising, but also for their corporate governance. In fact, greater transparency, cheaper trade execution and settlement would improve that set of corporate rights established by the law. Corporate rights and duties, derived from the

[135] Howell, Niesser and Yermack, 2018, p. 8.
[136] Howell, Niesser and Yermack, 2018, pp. 8-9.

role played by shareholders and stakeholders in companies, would be reconsidered looking at new dynamics introduced by Blockchain innovation. [137]

Companies would strongly benefit from this technology since it provides for greater transparency of ownership. In fact, if a company had shares listed on a Blockchain, all its shareholders and stakeholders could be allowed to instantly ascertain their ownership arrangement and occurred changes.

Moreover, ICOs, being launched on public Blockchains, might be attractive for issuing companies since they provide for a kind of takeover defense. In fact, structure transparency would undermine the secrecy enjoyed by shareholder activists and corporate raiders when building hostile positions. The easiness level of parties' identification, while transacting on Blockchain, might be regarded as matter of debate. Many scholars argue that establishing a mandatory disclosure of traders' identifying codes would increase market welfare. This measure would imply the increasing demand for identification of ownership leading to specialist "de-anonymizing" research. This is not a novelty since would simply represent the modernization of de-coding methods that have been used for decades by Wall Street, with the scope to deduce buyers or sellers' presence in the market, through the analysis of details of the size, timing, and sequence of their trades.[138] Greater transparency should also be considered as a tool deterring insider trading crimes, so that investors and analysts might be incentivized to invest also in acquiring information. This would have not only a positive impact on governance level, by improving the outside monitoring of management, but also on the economy, since it would lead to greater allocative efficiency in the overall distribution of information. [139] Focusing on the impact on corporate managers, most of their incentives derive from stock compensation, stock options or restricted shares and, even if insider trading regulations refrain them from profiting from trades in their own shares, insider trading represents a *de facto* compensation system for them. Even when they trade within fixed legal boundaries, they implicitly exploit a certain amount of inside information. ICOs would potentially permit managers' trades observation in real time from the inside and from the outside. In fact, investors are interested in knowing when managers receive or liquidate equity in their own firms, since transactions change managers' incentives and they turn to be a signal private information about the firm. Therefore, real-time trading transparency would

[137] Yermack, 2017, p. 11.
[138] Yermack, 2017, pp. 17-18.
[139] Yermack, 2017, p. 22.

expose managers to greater scrutiny by their boards and shareholders, with the consequence to limit their trading activity in order not to send adverse signals to the market. In addition, this registration system would also impede managers to backdate their compensation instruments, in order to obtain profits and tax benefits. Furthermore, it would also clarify managers' ownership positions not only in their own firms, but also in other companies' shares, paying attention on those of competitor firms. [140]

As remarked above, liquidity is a key advantage of ICOs and should be read through a corporate perspective. Indeed, since ICOs constitutes a Blockchain application, they have the potentiality to reduce costs and times, usually required for executing and settling security trades. The ordinary trading system is based on intermediation, thus on the presence of many middlemen, thus increasing costs and timing. A stock sale on Blockchain systems would be settled more quickly since it would depend on the cycle time for adding new blocks and would not rely on middlemen activities. Hence, liquidity might exponentially grow in response to the lower cost and faster speed of settlement. Furthermore, cost savings on a Blockchain market would assume both direct and indirect forms. The first one would derive from personnel reduction and processes streamlining; the second one consists in limiting the need for firms to tie up assets in collateral, such bonding, during the settlement process. Therefore, improving liquidity could entail the increasing demand for stocks, with relevant effects on investment and ownership. In fact, if trading costs were reduced through this innovation, equity trading would become much more common.[141]

Cheaper and faster trade execution and settlement would directly increase liquidity and ease both entry and exit by major shareholders, promoting the ownership by institutions and activists. Then, once investors have purchased their position, they can exercise the power of influencing firm management through threating sale, exiting, or through negotiation and involvement in corporate voting, or voice. Reducing selling costs would lead to more emphasis on exit rights as opposed to voice ones, thus providing a tool for owners to induce managers to improve project selection. [142]

Focusing on the voting right, the most incisive administrative corporate right, voting system in corporate elections might be renewed by Blockchain application, since it is a viable substitute for the archaic corporate proxy voting system. This has been

[140] Yermack, 2017, p. 20-22.
[141] Yermack, 2017, p. 19.
[142] Yermack, 2017, p. 20.

remarked also by an announcement released by NASDAQ which affirmed that *"Blockchain technology will allow votes to be quickly and securely recorded, streamlining a proxy voting process that has historically been labor-intensive and fragmented."* [143] Hence, in ICOs issuing equity tokens, eligible voters would receive tokens, sometimes called "vote-coins", which might drive them to participate more directly in corporate governance. Greater speed, transparency, and accuracy could also solve current problems afflicting corporate elections, such as inexact voter lists, incomplete distribution of ballots and chaotic vote tabulation. [144]

The last corporate benefit refers to real-time accounting that could be automatically employed when the firm uses digital currency, since it could be done through tokenization. Therefore, the firm might permanently record accounting data with a time stamp, preventing it from being altered ex-post. Moreover, firm's entire ledger would be real-time visible to any shareholder, customer, lender, trade creditor, or other interested party. In addition, everyone could consolidate firm's transactions with an income statement and balance sheet without relying on quarterly financial statements arranged by the firm and its auditors, with two relevant benefits. Firstly, shareholders would increase trust in the integrity of the company's data. Secondly, costly auditors, being also themselves corruptible, would not constitute a necessary corporate figure for the accuracy of the company's books and records. Real-time accounting entails that consumers of financial statement information would only trust the certainty of data on the Blockchain. So that, as YERMACK (2017) foresees, if they do not want to disappear, accountants should reinvent their working competences, elevating themselves as interpreters of raw financial data. Another relevant side of real-time accounting deal with allowing observers to immediately distinguish suspicious asset transfers and other transactions which can be outlined as conflicts of interests or related party transactions.[145] On this last phenomenon, EU had to intervene, publishing the Amending Directive to the Shareholder Rights Directive (SRD II). [146]Article 9c (2) of SRD II, outlines that the *"announcement shall contain at least information on the nature of the related party relationship, the name of the related party, the date and the value of the transaction and other information necessary to assess whether the transaction is fair and reasonable from*

[143] Yermack, 2017, p. 23.
[144] Yermack, 2017, pp. 23-24.
[145] Yermack, 2017, pp. 24-26.
[146] SRD II, 2017.

the perspective of the company and of the shareholders who are not a related party, including minority shareholders". [147] In addition, even if the announcement must take place at the end of the transaction, there could be the obligation to publish, even earlier, when information must be considered as an inside one, according to article 17 of the Market Abuse Regulation. [148] Implementing Blockchain real-time accountability might cope with all these problems related with transparency, allowing also creditors to engage real-time control against fraudulent conveyances by managers of financially distressed firms. [149]

In conclusion, after having examined all the risks and, above all, the potentialities derived from Blockchain-based system, it is easier to understand why tools like ICOs might represent the innovation not only for the channels through which firms finance themselves, but also for their corporate governance. This technology can shape in a better way the role and the functioning of management and audit organs, reducing costs and timing and, in addition, improving the exercise of both shareholders and stakeholders' rights.

2.5 Similarities and differences with IPO, Venture Capital and Crowdfunding

In the present paragraph, first, a comparison between ICO and two traditional financing instruments, Initial Public Offering (IPO) and Venture Capital, will be presented; then ICO will be compared also with another financing instrument more innovative: Crowdfunding. The analysis moves from a brief explanation of the functioning of these tools, to the applicable legislation and thus to the similarities and differences with ICOs. This, in order to assess whether the existing law, applicable to them, might be applied to ICOs too.

In addition, this type of analysis will be useful to understand if a specific legislative intervention may be required. Existing law, concerning the aforementioned financing tools, might be used as a "guiding line" to outline an exhaustive legislative approach for ICOs, that will be discussed in the conclusive chapter.

[147] SRD II, 2017, art. 9c (2).
[148] MAR, 2014, art. 17.
[149] Yermack, 2017, pp. 24-26.

2.5.1 ICO and IPO

The first financing tool to be examined is the Initial Public Offering (IPO). IPO is a way to raise capital through a public offering of securities issued by a company with the final scope to list the shares offered on a regulated market. As it is known, in this way companies whose capital is held by a small group of people, decide to open up capital subscription to a wider investor audience. This decision is often dictated by the desire to collect more resources to expand the potentiality of the company.

An IPO can assume three different forms: public subscription offer, public offering for sale and public offer for sale and subscription. The first one, the public subscription offer, is implemented through the issue of new shares offered for subscription and is therefore related to a corresponding capital increase, implying a positive capital raising for the company. The second one, the public offer of sale, is made through the sale, partial or complete, of shares already held by shareholders. In this case there is no collection of capital for the company, but only a collection of liquidity for the bidders. Lastly, the third one is a public offering which is carried out by integrating the two mentioned methods, both by subscription and by sale. [150]

IPOs are a practical option for bigger companies but not for the smaller ones or startup, since they are quite expensive. For instance, according to CONLEY (2017), promoting and carrying out an IPO costs a few million dollars plus a variable general fee that is around the 7 % of the capital raised. [151]

Concerning the progress of the procedure, each Member State refers to a national discipline that indicates specific provisions that must comply with European legislation, especially with reference to information obligations. In general, we can outline 3 macro phases: the preparation, the admission and allocation phase. [152]

In the preparation phase, the starting point is the positive resolution of the administrative board, based on a management quotation project, which must be endorsed by the shareholders' meeting with their approval for the transaction. Following the shareholders' resolution, the sponsor, the legal counsel, the auditing company and the other consultants, who will follow the company during the listing, must be appointed. All these subjects will be called up at the “kick-off meeting” to assign the respective

[150] EY, 2015.
[151] Conley, 2017, p. 12.
[152] Borsa Italia, 2001.

responsibilities and plan the listing procedure timing, identifying the main steps. After this meeting, the economic, financial and legal due diligence process is carried out. The due diligence consists in an in-depth analysis of the company, identifying the critical and success factors and all the elements necessary for the assessment of the feasibility of securities value. Then, they move to the drafting of the prospectus, as the official document of solicitation of public savings. It is prepared by the sponsor, together with the company's management and legal advisors, on the basis of the results of the analysis carried out during the due diligence process and is intended to provide all information regarding the company and the global offer structure. This document, whose content must comply with the Prospectus Regulation [153], contains data on the company's economic-financial condition and on its performance. It also describes company position referring to competition, its management, objectives and strategies. [154]

The final version of the prospectus is filed with the competent authority at national level, which is empowered to authorize its publication. This is the admission phase, in which the competent authority deliberates and informs the issuer of the admission or rejection of the application. In the event that the company is admitted to listing on the regulated market, the administrative board proceeds to define a price range of the stock and to carry out marketing activities, in particular through roadshows. The roadshow consists of a series of meetings with the financial community in order to present the offering and start collecting the adhesions from institutional investors. This series of offers provides the issuer and the placers with data for the publication of the maximum offer price. Hence, the final price is decided to close the offer, shortly before the actual landing on the Stock Exchange.

Once these last conditions are established, the securities are placed on the market and trading and stabilization activities. [155]

As stated above, the European Union regulated the prospectus discipline in order to ensure that disclosure standards are homogeneously applied in all EU Countries; so that, investors can benefit from the same level of information. In fact, according to these rules, once a prospectus has been approved in an EU Member State, it is valid throughout the EU. Within the Capital Markets Union Action Plan, the EU adopted, in June 2017, the Prospectus Regulation, with the scope to improve the prospectus regime. The

[153] Prospectus Regulation, 2017.
[154] Borsa Italia, 2001.
[155] Borsa Italia, 2001.

regulation, which replaces the Prospectus Directive, aims either at facilitating and making cheaper for smaller companies to access capital, either at simplifying the procedure. [156]

In particular, article 2 (d) defines an offer of securities to the public as *"a communication to persons in any form and by any means, presenting sufficient information on the terms of the offer and the securities to be offered, so as to enable an investor to decide to purchase or subscribe for those securities. This definition also applies to the placing of securities through financial intermediaries"*. [157]

Article 3 assesses the conditions according to which the obligation to publish a prospectus or the related exemption arise. [158] The prospectus works as a "*European passport*" for securities admitted to official listing, under the home country control standards and monitoring. [159]

Moreover, article 6, establishes the prospectus content and thus all the information necessary and relevant for an investor to proceed to a conscious evaluation of the offer. [160] Such information must be minimal, sufficient, regular and adequate, meaning that each investor shall be supplied with all the necessary, relevant and appropriate information about criteria to be met, possible exemptions, holdings status and their changes. Information must satisfy the international requirement, since the principle of equivalence of disclosure requirement applies when to issuers located an extra-EU States. [161]

Chapter VII of the Regulation examines the functions and powers of ESMA and of national competent authorities that must cooperate with each other in order to achieve the proper implementation of procedures and investors and markets protection. These powers relate to the right of information and the duty of supervision; they can be applied

---

[156] Prospectus Regulation, 2017, para. 1.
[157] Prospectus Regulation, 2017, art. 2(d).
[158] Prospectus Regulation, 2017, art. 3.
[159] De Luca, 2017, p. 385.
[160] Prospectus Regulation, 2017, art. 6. Complying with article 6, the prospectus content shall include the following relevant information:
a) the assets and liabilities, profits and losses, financial position, and prospects of the issuer and of any guarantor;
b) the rights attaching to the securities;
c) the reasons for the issuance and its impact on the issuer.
Furthermore, the second period of paragraph 1 states that this information might vary according to the following elements:
a) the nature of the issuer;
b) the type of securities;
c) the circumstances of the issuer;
d) whether or not the non-equity securities have a denomination per unit of at least EUR 100 000 or are to be traded only on a regulated market, or a specific segment thereof, to which only qualified investors can have access for the purposes of trading in the securities.
[161] De Luca, 2017, p. 381.

to the authorization, suspension and prohibition of the procedure. Furthermore, the powers of these authorities are supported by the possibility of imposing administrative sanctions, as provided for in Chapter VIII. [162]

After having outlined IPOs background and EU applicable law, IPOs and ICOs will be compared, underlining the main similarities and differences. This comparison is carried out in order to assess to what extent IPOs discipline might apply to ICOs, with particular reference to the prospectus discipline.

In fact, starting from the similarities, both the procedures are preceded by a disclosure document, an approved security prospectus for IPOs and a so-called whitepaper for ICOs. [163]

Furthermore, IPOs and ICOs are both focused on funding companies and the payment is executed through currency transaction; otherwise, the currency nature may differs, since IPOs employs fiat currency and ICOs, usually, cryptocurrency.

Otherwise, the most interesting aspect concerns what investors obtain in return of the investment. In IPOs, investors acquire the issued securities; for instance, a share represents an indivisible unit of capital. Shares express the ownership relationship between the company and the shareholder and they confer economic and administrative rights upon the shareholder. In fact, the ownership of shares allows to receive an income that is represented by dividends, corresponding to the economic right. Their ownership also bestows administrative rights, such as the voting right in the company.

In ICOs, at the closing of the execution stage, there is the transfer of money or other cryptocurrencies to the founder's account or wallet in return of tokens to the participants/investors wallets. These tokens offer different functionalities as they depend on the nature of the issued ones. In fact, as clarified in paragraph 2.2, there are three main models of tokens. Hence, currency or payment tokens are used in ICOs to confer cryptocurrencies. [164] Utility tokens authorize the access for token holders to a product or a service that the issuers developed or still has been developing. [165] Investment tokens manifest a financial value, a dematerialized and digitized version of a share, a bond or a fund. Among these last ones, is necessary to underline that equity tokens represent a share and they work as traditional stocks. They confer upon their holder profits and to the voting

[162] Prospectus Regulation, 2017, chapters VII-VIII.
[163] EY, 2018.
[164] Bellini, 2018, pp. 87-89.
[165] Gorini, 2018, p. 47.

right in the company, so that ICOs issuing equity tokens is the tokenized version of traditional IPOs. [166]

Dealing with their differences, they might be outlined in relation to the status of regulation, to price and liquidity, to the involved parties and investors. [167]

Referring to the status of regulation, while for IPOs there is global convergence of established standards and it is a highly-regulated area; ICOs is characterized by uncertainty about regulatory environment and controversial allowance, ban, warnings and alerts releases by global regulators.

Relating to price and liquidity, IPOs system enjoys high liquidity and relative prices stability, whereas ICOs still suffer from high volatility of token prices. [168]

Lastly, focusing on the involved parties and investors, IPOs count a multitude of involved subjects, mainly the issuer, the lawyers, the auditor and investment bank; furthermore, their main investors are retail and institutional ones. Differently, ICOs promote disintermediation since they are based on Blockchain-decentralized technology. In fact, the involved subjects are the issuer, the promoter, the platforms and crowd investors on Internet. [169]

In addition, IPOs success factors deal with the access and visibility of capital markets, regulatory certainty, liquid trading on established exchange and the low level of price volatility and fraud. Otherwise, ICOs main advantages relate to the fact that there is no need for proven business, there are less initial requirements, ongoing obligations and required efforts in preparation. Moreover, there is no dilution of ownership or voting rights and transactions are faster. [170]

In conclusion, IPOs and ICOs are certainly different realities but, the evaluation of their advantages and success factors prove they are essential for companies to grow up. In fact, the interaction and "exchange" of their strength factors might improve their own function. Hence, if ICOs conformed to IPOs, in relation to the way they have been regulated, and IPOs welcomed the innovative and simplified ICOs technology, companies would have two different financing tools, equally recognized by States and EU capital markets would move a step forward.

[166] Reed, 2018.
[167] EY, 2018.
[168] EY, 2018.
[169] EY, 2018.
[170] EY, 2018.

2.5.2 ICO and Venture Capital

The second financing tool to be analyzed is the Venture Capital (VC). MAZZUCATO (2014) defines Venture Capital as *"[...] a type of private equity [171] which focuses on companies at the beginning of the activity and with high growth potential. Funding usually comes in the start-up phase or, at a later stage, as a support for growth: the objective of venture capital funds is to obtain a high return by placing the company on the stock exchange or through a merger or acquisition from another society. Venture capital fills a gap in funding for new businesses, which often struggle to obtain credit from traditional financial institutions such as banks and must rely on other types of lenders: the so-called business angels (a category that mainly includes relatives and friends), venture capitals, private equity. These alternative sources of financing are important especially for new knowledge companies, which seek to enter into existing sectors, or for new companies trying to create a new sector ". [172]*

Those who establish or manage a Venture Capital fund are called "Venture Capitalists" and, based on their classification, we can distinguish the private, public or mixed nature of the fund. In fact, a Venture Capital fund can be private, public or mixed. Private Venture Capital is founded and managed exclusively by private individuals. The public one provides for the intervention of a juridical person under public law, more generally the intervention of the State is meant. Lastly, the mixed one refers to the participation of both private and public subjects. There is also a further distinction: on one side, Venture Capital funds are constituted by the Limited Partners, on the other, by the General Partners. [173]

Furthermore, the establishment of a Venture Capital fund is subject to authorizations and conditions, because of their role; for example, in Italy, a Venture

[171] According to the definition given by the Treccani Encyclopedia, Private Equity means *"a medium-long term financial transaction, carried out by specialized investors and aimed at providing risk capital in a company (known as a target), generally unlisted, basing on a positive evaluation of his growth attitude. Technically it can be achieved through the assumption of a (majority or qualified) shareholding in the capital, or through the provision of loans intended to be converted into own assets, to such an extent as to guarantee the investor the assumption of an active role in the management."*

[172] Mazzucato, 2014, pp. 70-74.

[173] Limited Partners are institutional investors plus any family offices, holding companies, sovereign wealth funds, wealthy private individuals that are the first to bring venture capital. General partners are natural persons managing the fund and it is not excluded that a General Partner is also an investor, therefore a Limited partner of the fund.

Capital must have the legal form of the asset management company in order to be authorized. [174]

With regard to operations, Venture Capital requires the drawing up of a business plan in which it indicates the collection objective, represented by the formal commitment by its underwriters to provide for the funds when requested. Once this goal is achieved, Venture Capital can start operating, according to its investment focus. In fact, this focus can outline the boundaries, the sectors of interest, the life phase of the company in which it intervenes (seed, early-stage, growth), or the maximum or minimum amount of capital that can be disbursed in the single deal. With the investment, the Venture Capital acquires shares of the company and, moreover, can support the startup even at the operational level, providing for managerial skills, techniques, relationships that lead to improvement; or it can simply wait for the growth peak to make an optimal exit from the investment. In addition, Venture Capital often requires presence on the company board. [175]

Convincing a Venture Capitalist to invest in a company with an unproven track record and an inexperienced team can be difficult and, as a result, even if Venture Capital agrees, it will probably insist on getting a large share of the company and achieving control on many aspects of company management. On the one hand, this type of supervision can benefit a company whose founders are more focused on technology than on the business. On the other hand, it can weaken the personal factor that leads to the establishment of a business and the creation of a project. Therefore, what are the factors, convincing a Venture Capitalist to invest, should be taken in account. These can be summarized as follows: a solid and very competent team; a very large reference market; a product/service that already has a competitive advantage. [176]

European Union has decided to regulate this financing instrument. In fact, the European Commission works closely with EU Member States to improve the efficiency of equity markets, so that suitable investors can be found to finance solid projects. With the aim of moving towards a pan-European Venture Capital market, the EU adopted a regulation on European venture capital funds in 2013. Regulation 345/2013 [177] also introduced the "European Venture Capital Fund" and includes new measures to enable

[174] Startup Business, 2018.
[175] Startup Business, 2018.
[176] Startup Business, 2018.
[177] Reg. 345/2013.

Venture Capitalists to market their funds across the EU with a single set of rules. [178] In particular, we must pay attention to some provisions of the regulation.

Article 2 delimits the application of the regulation to managers of investment undertakings that meet the following conditions:

- their assets under management do not exceed the threshold of 500 000 000 Euro as indicated in Article 3 (2) (b) of Directive 2011/61 / EU [179];
- they are established in the Union;
- they are required to register with the competent authorities of their home Member State pursuant to Article 3, (3) (a) of Directive 2011/61 / EU; [180]
- they manage portfolios of qualifying venture capital funds.[181]

Article 7 establishes the principles of correctness, competence and diligence to be carried out in the exercise of the aforementioned activities and in relations with customers. In order to implement these principles, the application of appropriate policies and procedures is required to prevent unfair practices. Moreover, they also aim at avoiding damaging the interests of investors and businesses, as well as the integrity of the market. [182]

Article 10 (2) obliges managers to ensure and demonstrate at any moment their own funds are sufficient to maintain business continuity by communicating the reasons. This obligation to motivate is linked to the principle of transparency of the evaluation process which is enshrined in Article 11. [183]

Chapter III of the Regulation, entitled "Supervision and administrative cooperation", outlines how the national supervisory authorities must intervene and how they must work together to make this instrument easily applicable and controllable. In particular, Article 19 establishes the right of authorities to access documents and request information and, pursuant to Article 21, the power to take appropriate measures is recognized, in compliance with the principle of proportionality, when a fund manager brings actions contrary to the provisions of the Regulation. [184]

[178] European Commission, 2018 (5),
[179] Dir. 2011/61/UE, art. 3 (2) (b).
[180] Dir. 2011/61/UE, art. 3 (3) (a).
[181] Reg. 345/2013, art. 2.
[182] Reg. 345/2013, art.7.
[183] Reg. 345/2013, artt. 10 (2) e 11.
[184] Reg. 345/2013, artt. 19 e 21.

Having outlined the discipline applicable at European level, it is now necessary to focus on the similarities and differences between Venture Capital and ICO, in order to determine to what extent the legislation on Venture Capital can be applied.

First of all, both the ICO and the Venture Capital are financing instruments mainly used in the startup sector. This is particularly highlighted by Regulation 345/2013 establishes that Venture Capital *"[...] stimulate economic growth, contribute to job creation and capital mobilization, foster the establishment and expansion of innovative undertakings, increase their investment in research and development and foster entrepreneurship, innovation and competitiveness in line with the objectives of the Europe 2020 Strategy [...]".* [185] This ruling appears to be in line with the objectives and principles underlying ICOs.

However, it should be emphasized that, despite similar purposes, these two forms of financing considerably differ from each other in relation to the following factors: marketing and investors, community, risk and return, geography and accessibility and, lastly, press and media attention.

As far as marketing and investors are concerned, persuading thousands of individuals to buy tokens in an ICO is very different from raising capital through a Venture Capital. In ICOs, this is a B2C (business-to-consumer) sale, while Venture Capital is about a B2B (business-to-business) sale. As consequence, a startup that intends to carry out an ICO, can achieve the objective, setting an effective marketing strategy and writing a whitepaper, in which it will summarize its strategies and business objectives at the end of the ICO. On the other hand, a startup company that wants to be financed through Venture Capital will have to guarantee the correctness of the accounting entries and of the economic and financial transactions, so as to overcome the due diligence of the investment fund.

Focusing on the concept of community, a successful startup, relying on the ICO, benefits from the creation of a large number of investors who will probably be interested in the product offered by the company. Hence, they might become its first customers, creating a community where investors are identified with potential customers. Indeed, the involvement of a large number of involved subjects justifies a reference to the concept of

[185] Reg. 345/2013, para. 2.

"Wisdom of the Crowd" [186], as examined by SUROWIECKI (2005). The mentioned "wisdom" plays a relevant role within these innovative contexts since it helps in reducing bidders' personal risk and also contributes to fund seekers' benefits. In fact, two main problems entail startup failures: are the lack of specific know-how and the shortage of capital. Community participation in this type of projects might solve these issues. In fact, concerning lack of specific know-how, each campaign might attract people who own the necessary skills to cope with projects deals. Pertaining the shortage of capital, the community supplies with their personal investment, collecting small amount of money from a large number of people. [187]

Otherwise, a startup, funded by a Venture Capital, will not enjoy the support of a wide community. The direct consequence is also that they may have to use part of the funds for an extensive marketing campaign before the launch of its product, since the community aspect is not considered as it is within ICOs and Crowdfunding too, as treated in paragraph 2.5.3. [188]

With reference to the risk of return, in one ICO it is supported by thousands of token holders trusting that tokens will be used in the future. In a Venture Capital, the objective might only be focused on the expected profit that Venture Capitalists will obtain when the company is sold, or will be listed on the stock exchange and the shares will be traded at the market price.[189]

Moreover, as outlined in paragraph 2.4.1, among the main ICOs risks, the lack of assurances and disclosure, together with information asymmetry, leaves the founders free to pursue their own business objective, even at the expense of investors. Unfortunately, as already remarked above, this lack implies that founders' responsibilities and accountabilities are distanced from what is delivered and the value of the token being issued. [190] Otherwise, when venture capitalists invest in a company, they might be focused not only on the expectation of profits, as affirmed above, but also on acquiring a stake. Hence, they might be entitled to intervene at the operational level, providing for managerial and technical skills that can facilitate the success of the project. Furthermore, in Venture Capitals, control and sales powers might be conferred upon Venture Capitalist.

[186] This theme represents a sociological theory, according to which a large number of individuals, even if not professionally-skilled, could still respond to a question in a more adequate and correct way than a single expert.
[187] Willfort and Weber, 2016.
[188] Next Generation Currency, 2017.
[189] Next Generation Currency, 2017.
[190] Sehra, Smith and Gomes, 2017, p. 21.

This entails that, differently from ICOs, investors in Venture Capitals might have a more powerful inference on company/projects development.

With regard to geography and accessibility, the geographical allocation of capital is very binding for a Venture Capital, while ICO allows access to capital from all over the World. Hence, there are no geographical limits regarding the transfer of Ether, Bitcoin or other cryptocurrencies from one country to another. Indeed, who intends to launch an ICO is called to evaluate different factors, included in which country the ICO would be more profitable. In fact, ICOs are often launched in Countries other than those of founders because they prefer Countries in which the tax advantages are higher and regulation is more flexible.[191]

Finally, dealing with the press and media attention, funding through Venture Capital is positively welcomed by medias, while ICOs are the subject of a predominantly negative media coverage. This depends on the fact that, whereas the traditional loans must comply with all the regulations in force, ICOs are completely devoid of them. Hence, medias always highlight the lack of financial and legal protection for investors in ICOs. [192]

After having exposed the comparison between ICOs and Venture Capitals, we might conclude by stating that these two financing tools respond to different logics and purposes. On the one hand, ICOs, despite the well-known problems linked to low guarantees, represent a suitable way to obtain a substantial loan in a rapid and transnational manner. On the other hand, financing through Venture Capitals is more difficult to obtain but it guarantees greater protection for investors. Furthermore, the return can be very high if the company successfully trades on the stock exchange. However, unlike ICOs, the timing of recovery of initial capital is longer. [193]

2.5.3 ICO and Crowdfunding

The last financing tool to be analyzed is Crowdfunding. As the name suggests, Crowdfunding involves the capital raising from a larger number of individuals; moreover, it can be defined as a growing phenomenon supported by the power of Internet. Internet has made it possible to lower fundraising costs, thus facilitating the distribution of

[191] Next Generation Currency, 2017.
[192] Next Generation Currency, 2017.
[193] Next Generation Currency, 2017.

information concerning small projects. [194] The use of online platforms or websites, thanks to the capillarity of Internet, allows the promoters of the various projects to access to a larger audience of potential investors. [195] As a result, the use of this financing tool has grown exponentially. As shown by industry statistics, it is estimated that a total of $ 34 billion was raised worldwide through Crowdfunding in 2017. [196]

Its diffusion has led to the development of various models or types of Crowdfunding: Donation, Reward, Lending and Equity-based Crowdfunding.

The first type, Donation-based Crowdfunding is a model that innovatively reformulates the traditional concept of collection for socio-humanitarian purposes, albeit on a large scale. In fact, each participant is satisfied by the awareness of having participated in a morally commendable campaign. [197]

The second type, the Reward-based Crowdfunding, is the most used model today. Users are both from highly innovative companies and from traditional companies. They rely on this tool for the financing of individual entrepreneurial and non-entrepreneurial projects, characterized by a particular impact on certain categories of consumers. Compared to the pure donation, in the Reward Crowdfunding, the participants in the collection get a reward, as the result of the realization of the project that they financed by their content. For example, they can receive, in advance, real prototypes or products made by the company financed upon completion of the collection. [198]

In the third type, the Lending-based Crowdfunding, subjects who contribute to the collection make loans that the promoter of the collection undertakes to return increased interest. [199]

The last type is represented by the Equity-based crowdfunding. In this context, the object of the collection is represented by risk investments in the capital of companies, that are generally newly established and characterized by high innovative potential. [200]

In the context of loans and services to businesses, especially those operating in capital markets, attention must be focused on the latter two types of Crowdfunding, examining their functioning, potentiality and risks. In these types, the collection of credit

[194] Armour and Enriques, 2017, pp. 5-6.
[195] De Luca, Furnari and Gentile, 2017, p.159.
[196] Statista, 2018.
[197] De Luca, Furnari and Gentile, 2017, p.159.
[198] De Luca, Furnari and Gentile, 2017, p.159.
[199] De Luca, Furnari and Gentile, 2017, p.159.
[200] De Luca, Furnari and Gentile, 2017, p.159.

and risk capital is based on a trilateral structure transaction, in which a portal for raising capital transfers the financial flows between investors and issuers. [201]

In relation to the functioning and so to the execution of the procedure, both Lending and Equity-based Crowdfunding have three main phases: a first phase of preparation, a collection phase and a last phase following the offering.

Regarding Lending-based Crowdfunding, in the preparation phase, potential platforms and their characteristics must be examined. Here, it is necessary to be aware of the rules and legal requirements of the platform, choosing the one optimally responding to the needs of the company. The chosen platform will examine all the information provided and, if the application is accepted, can indicate in which risk category the company will be inserted. If the initiative is approved, it is loaded onto the platform to allow lenders to bid. Each lender will offer its own amount and the related interest rate. Once the target is reached, lenders can continue to offer lower interest rates, so the greater the popularity of the campaign, the better the terms will be achieved. Once the auction is over, the platform will contact the company to confirm the final average interest rate, therefore, it will transfer the bank account funds within an agreed term. Subsequently, the loan and interest will be reimbursed by the company according to the conditions agreed with the platform. Following the full repayment of the loan, the platform will confirm the repayment completion and the transaction will be completed. [202]

Concerning the Equity-based Crowdfunding, the preparation phase is similar to that foreseen for the Lending Crowdfunding, but with some peculiarities. In fact, it is necessary to familiarize with market trends, examining the level at which commitments are placed, in relation to current crowdfunding campaigns and what are the expected returns. This will be useful for having a reference term for the campaign and for verifying, in general, the requirements regarding the disclosure of applicable legal obligations. If the application on the platform is accepted, the need arises to perfect the business plan and the financial offering. It is in fact necessary to prepare a comprehensive documentation that demonstrates the estimated value of the company and the logic that underlies it, the financial performance, the quantity of shares that you give and the reason for the sale. At this stage it is essential to be supported by a good marketing strategy allowing to capture the crowd/public from the first moments. In the period of fundraising, the company must take an active attitude with the public, motivating it to invest and

[201] De Luca, Furnari and Gentile, 2017, p.160.
[202] European Commission, 2015 (6), pp. 20-21.

activating on communication channels, such as social media or interactions with journalists, in order to promote the campaign and attract more investors. Once the collection phase is complete, all administrative issues, such as registration of new ownership titles and changing the status of the company, must be addressed. In particular, the new structure of the company must be set up, implementing a new structure and new governance procedures. Investor relations should also continue to grow: depending on the structure of the company, the decision-making process can change, which is why taking new shareholders into account might serve to better keep on controlling the company. Finally, the exit of investors must be considered, hence, assessing the conditions and terms of repayment of investors is appropriate. [203]

The growing popularity of Lending and Equity-based Crowdfunding is due not only to the potential economic advantage of financial disintermediation, but also to the belief that obtaining a loan or raising capital, through them, is comparatively less complicated than receiving a bank loan or resort to a traditional placement. [204]

In support of the above, the Crowdfunding campaigns, to be successful, require technologically advanced communication systems, which are able to directly reach the "crowd". But it is also essential to use a specific rhetoric, capable of affecting the investor. For this reason, the enhancement of corporate social responsibility is one of the means through which promoting Crowdfunding. Moreover, with specific reference to the Equity Crowdfunding, the attention is focused on the exaltation of the advantages of a large audience participation in the project. In fact, it is emphasized that, thanks to the so-called *"wisdom of the crowd",* as already explained in paragraph 2.5.2, the promoter can test the validity of his business model based on the result of the collection itself. While investors will contribute to the project developed by the company, with the prospect of an economic return higher than that of a traditional investment. [205]

These advantages, however, must be balanced by the increased risks associated with the use of this instrument, such as fraud, information asymmetry, campaign failure and investment illiquidity. The risk of fraud is due to the use of an impersonal means of campaign diffusion, such as Internet portals. Lacking a common regulation, these platforms are responsible for verifying the identity and reliability of those who intend to launch Crowdfunding campaigns, both in the interest of investors and in their own. It is

[203] European Commission, 2015 (6), pp. 24-25.
[204] De Luca, Furnari and Gentile, 2017, pp.159-160.
[205] De Luca, Furnari and Gentile, 2017, p. 160.

always up to the platforms to guarantee information symmetry between promoters and investors. Moreover, due to the innovative content of the projects, the risk of issuers bankruptcy remains high and, even if the campaign is successful, the risk of illiquidity of the investment is also significant, owing to the absence of secondary markets for equity investments. For this reason, it is common to forecast exit mechanisms to be borne by companies, by majority shareholders or by those who collect majority shareholdings, also through tag-along clauses. [206]

A unitary discipline of the phenomenon would not only reduce the incidence of the mentioned risks, but it would also incentive and improve the use of this innovative financing instrument. [207] In the European Commission press release, dated 8 March 2018, the current difficulty for many platforms to expand into other EU countries was strongly highlighted. In fact, the lack of common rules across the EU implies that Crowdfunding is underdeveloped in EU, as compared to other major world economies. Moreover, EU market is strongly fragmented and this considerably raises compliance and operational costs preventing crowdfunding platforms from expanding across borders. [208] Since Crowdfunding has recently undergone an outright boom in Europe, the European Commission has been actively engaged with the concept of Crowdfunding since 2013. In fact, in October 2017, the Commission published a legislative proposal for an EU framework on crowd- and peer-to-peer financing, in order to allow stakeholders to effectively participate in pending consultation activities. Otherwise, although the Commission seems to be constantly exploring its possibilities, no specific EU-level legislation has been released. As consequence, EU Member States acted on a national level. In fact, by the end of 2014, Italy, the United Kingdom, Belgium and France implemented national laws on Crowdfunding. In addition, in 2015, also Austria published its federal act on alternative investment forms. [209]

Hence, legal aspects of crowdfunding, under the European legal framework, have to be addressed. In the absence of a common legislation, the involvement of several actors, in this kind of project, might raise problems in relation to the legal and contractual

[206] A tag-along clause formalizes a tag-along rights, also referred to as "co-sale rights". They represent contractual obligations employed to protect a minority shareholder, usually in a venture capital deal. If a majority shareholder sells his stake, it gives the minority shareholder the right to join the transaction and sell his minority stake in the company. Tag-alongs effectively oblige the majority shareholder to include the holdings of the minority holder in the negotiations with the aim to facilitate the possibility that a tag-along right is exercised.
[207] De Luca, Furnari and Gentile, 2017, p. 160.
[208] European Commission, 2018 (3).
[209] Gutfleisch, 2018, p. 73.

relations among the parties. If Crowdfunding platform plays the mere intermediary role, the contractual relationship between the platform and the crowd investors will typically be limited to a website agreement. However, should Crowdfunding platforms take over additional tasks towards the crowd investors, they regularly submit separate contracts. [210]

Furthermore, operating on internet, the legal and contractual interactions with the crowd investors are regulated by the E-Commerce Directive. [211] It assesses contractual relationships, concluded by electronic means, and mandates the EU Member States to ensure the validity of such contracts, providing for consumer protection requirements. Before, during and after the execution of an electronic agreement, the consumers/crowd investors are entitled to a certain minimum set of information, on the base of the relevant stage of the business relationship. In addition, such Directive introduces a limitation of liability in the case of a 'conduit', 'cashing' or 'hosting' of third-party information. As consequence, since the main task of Crowdfunding platforms is passing information to potential crowd investors on their website, they fulfil the definition of 'hosting' pursuant to the E-Commerce Directive. [212] Such limitation could potentially trigger vast consequences for the crowd investors, who would be excluded from claiming damages based on the published information from the Crowdfunding platform. [213]

Concerning the Consumer Rights Directive [214], it applies to distance contracts regarding the sale of goods and the performance of services. therefore, its main area of application relates to reward-based Crowdfunding projects, featuring pre-sale offers. The European Commission underlined that reward-based Crowdfunding campaigns, aimed at pre-selling new and innovative products, are often initiated to test the market and without already having produced and tested the final product. [215]

---

[210] Gutfleisch, 2018, p. 74.
[211] E-Commerce Directive, 2000.
[212] According to art. 14 (1) of E-Commerce Directive: *"Where an information society service is provided that consists of the storage of information provided by a recipient of the service, Member States shall ensure that the service provider is not liable for the information stored at the request of a recipient of the service, on condition that:*

a) the provider does not have actual knowledge of illegal activity or information and, as regards claims for damages, is not aware of facts or circumstances from which the illegal activity or information is apparent; or
b) the provider, upon obtaining such knowledge or aware- ness, acts expeditiously to remove or to disable access to the information."

[213] Gutfleisch, 2018, p. 75.
[214] Consumer Rights Directive, 2011.
[215] Gutfleisch, 2018, pp. 75-76.

Otherwise, the Commission referred, for financial return Crowdfunding, to Distance Marketing of Consumer Financial Services Directive. [216] In particular, it applies to certain investment and payment services, that are sold to the consumer through a distance-selling contract, under an organized distance sales or service-provision scheme established by the supplier. This Directive might apply to Crowdfunding platforms, since they might be regarded as a supplier or intermediary of financial services. [217]

Another substantial regulatory statute suitable to target financial return Crowdfunding is the Prospectus Directive [218] since it basically requires the setting-up, approval and publication of a prospectus, when transferable securities are offered to the public. [219]

In addition, the involved stakeholders might also rely on the Markets in Financial Instruments Directive (MiFID II) [220] and the Markets in Financial Instruments Regulation (MiFIR) [221] because they provide for the regulatory framework about investment services in financial instruments by banks and investment firms. Considering a Crowdfunding platform as acting under the MiFID II framework, the ESMA outlined several potential options. The first one deals with the fact that Crowdfunding platforms might be directly licensed. The second one concerns the possibility that Crowdfunding platforms are operated by an entity, such as an investment firm or credit institution, licensed under the MiFID II framework. Moreover, EU Member States might also opt for acting as so-called 'tied agent' to a licensed entity, which assumes the responsibility for the platforms' activities. Anyway, it must be ensured that the Crowdfunding platform is effectively complying with its obligations under the MiFID II and MiFIR.

Lastly, the the potential application of the Alternative Investment Fund Managers Directive (AIFM Directive) [222] might be considered. It established the rules concerning the authorization, operation and transparency of the managers of alternative investment funds (AIFs) in the EU. AIFM Directive might be applied on Crowdfunding. In fact, recalling article 4 paragraph 1 lett. a n. 1, AIFM Directive, an AIF is a *"collective investment undertakings, including investment compartments thereof, which raise capital from a number of investors, with a view to investing it in accordance with a defined*

[216] Dir. 2002/65/EC.
[217] Gutfleisch, 2018, pp. 75-76.
[218] Prospectus Directive, 2003.
[219] Gutfleisch, 2018, pp. 75-76.
[220] MiFID II, 2018.
[221] MiFIR, 2014.
[222] AIFM Directive, 2011.

investment policy for the benefit of those investors". [223] In addition, according to ESMA guidelines on key concepts of the AIFM Directive, certain key requirements for a Crowdfunding platform might fall under the AIFM Directive. Firstly, the Crowdfunding platforms are based on funds collection from various investors. Then, a defined investment policy for crowd investors benefits, must be outlined and strictly followed. Furthermore, in compliance with section IX of the ESMA Guidelines, [224] this investment policy might be regarded as investment guidelines, in relation to criteria enclosing, for example, to invest in certain categories of assets, or to conform to restrictions on asset allocation, to pursue certain strategies or to conform to other restrictions, designed to provide risk diversification. [225]

Comparing the ICO to Crowdfunding, the first one might be qualified as a further developed version of the latter one. They both consist in innovative and highly technological financing tools, they rely on Blockchain technology and they are contributing to the growth and success of SMEs and startups in Europe. Anyway, examining their specific differences in the legal treatment under the current European legal framework, the rather differentiated approach by the European legislator and regulatory authorities becomes clearer. [226]

From a civil-law perspective, the structural differences between Crowdfunding and ICOs have substantial effects. As stated above, for Crowdfunding, pre-sales reward-based projects usually fall within the application of the Consumer Rights Directive; whereas, Distance Marketing of Consumer Financial Services Directive might be applied to financial return Crowdfunding. Hence, the main requirement consists in ensuring whether the instruments, issued through Crowdfunding, comply with the scope of "investments" and are offered within an organized distance sales or service-pro-vision scheme. Differently, ICOs assessment must be more differentiated. First, equity or securities tokens might potentially comply with the scope of the Distance Marketing of Consumer Financial Services Directive, according to the same requirements of financial return Crowdfunding. Then, the European framework on consumer protection provides for a substantial risk of deficiencies for utility tokens, since these are regularly not considered as agreement for the direct sale of goods or services under the Consumer

[223] AIFM Directive, 2011, art. 4 (1) (a) (1)
[224] ESMA, 2013.
[225] Gutfleisch, 2018, pp. 76-77.
[226] Gutfleisch, 2018, p. 81.

Rights Directive. Thus, considering utility tokens might be regarded as "investments" so that Distance Marketing for Consumer Financial Services Directive might apply to them, supplying for as a possible safety net. Unfortunately, albeit this could be a good supporting argument, substantial legal uncertainty still persists. [227]

From a regulatory perspective, Crowdfunding and ICOs are subject to similar issues. The MiFID II regime and the Prospectus Directive potentially target financial return Crowdfunding projects. Further regulatory aspects on Crowdfunding deal with the issue whether the capital seeking company, and/or the Crowdfunding platform have to be licensed and comply with the organizational requirements of the AIFM Directive. Anyway, the regulatory framework on Crowdfunding can be considered as rather comprehensive legal basis. Moreover, concerning ICOs, the European regulatory framework might have an even wider impact. In fact, the respective national implementations of the Prospectus Directive, the AIFM Directive and the MiFID II, might also include utility token ICOs. Moreover, additional EU-level statutes may potentially be applicable. In fact, special types of tokens might be characterized by the tradability on public virtual currency exchanges or the acceptance as means of payment by third parties. Depending on these assumptions, also the last Anti-Money Laundering Directive might be extended to ICOs. [228]

In conclusion, capital seeking companies, intending to raise capital through these alternative financing tools, should plan, structure and conduct their financing project under the consideration of certain wide-reaching civil law and regulatory obstacles. The analysis of the two most innovative financing tools underlined how legal certainty might enhance their potentiality. So that, the European legislator is called to implement additional rules or, at least, to introduce further clarifications on the current legislation, also through soft-law measures. [229]

For this purpose, the European Commission launched in 2017 an initiative aimed at assessing the impact of a legislative proposal for an EU framework on crowd and peer-to-peer finance. The main scope was providing for broadening access to finance for innovative companies, startups and other unlisted firms is at the heart of the CMU Action Plan. Therefore, the initiative led to the drafting of a proposal for a regulation on

[227] Gutfleisch, 2018, p. 81.
[228] Gutfleisch, 2018, p. 81.
[229] Gutfleisch, 2018, p. 81.

European Crowdfunding Service Providers (ECSP) for Business [230]. According to the relative Commission Staff working document, the entry into force of the proposal *"[...] would enable crowdfunding activities across the EU Single Market for early stage finance and alternative finance for SMEs, in line with the objective of the Capital Markets Union (CMU) […]."* [231]

Indeed, the Committee on Economic and Monetary Affairs released a Draft Report underlining that, on one hand, this regulation might provide for legitimacy requirements for ICOs, on the other hand, it cannot be recognized as a solution for regulating ICOs, since it does not provide for a focused and exhaustive discipline for this complex phenomenon. [232] Until that moment, the best way to act is examining all the available solutions and looking at those States that decided to provide for an ICO legal framework. Doing so will allow to acquire a wider standpoint and opt for the most suitable solution which will be discussed in the conclusive chapter.

2.6 Applicable EU legislation

Blockchain technology development does not entail that its supporters, developers and users are liberated from the duty to comply with existing regulatory framework. Indeed, ESMA recognized, in a report dated February 2017, the importance of complying with existing regulation, as it provides for essential safeguards for the well-functioning of financial markets. Otherwise, the concerned Authority realized that DLT-based tools, such as ICOs, might change or exclude the role of certain intermediaries. But, although some regulatory requirements might become less relevant or no longer relevant, additional ones might be required to mitigate all the emerging risks. Moreover, ESMA did not identified impediments in EU regulatory framework that could prevent the emergence of these technologies in the short term. In fact, beyond the financial regulation, wider legal issues might concern Blockchain technology deployment. As explain in the previous chapters, these technologies are spreading in different field and firms; in particular, SMEs mostly benefit from their application. As consequence, corporate law,

[230] European Commission, 2018 (6).
[231] European Commission, 2018 (7).
[232] Committee on Economic and Monetary Affairs, 2018, p. 80.

contract law, insolvency law and competition law might be touched by their deployment. [233]

The purpose of this paragraph is analyzing existing regulatory framework, in order to understand whether it might apply to ICOs phenomenon. Many laws will be examined describing their scope, addressing the situations and subjects to whom they refer to and, lastly, the common ground that enables the concerned discipline to be applied to ICOs.

Among the examined laws, there are those included in the so-called *"Lamfalussy process approach"*[234]. This system considered four Directives, that are: the Prospectus Directive (now replaced by Prospectus Regulation), the Market Abuse Directive (now replaced by Market Abuse Regulation), the Transparency Directive and the MiFID II. This process is composed of four different levels of law making. At the first level, the EU Council and Parliament adopt a piece of legislation, establishing the framework principles and guidelines for its implementation. The second level deals with committee and regulators advising on technical details and setting out the implementing measures that actualized the above-mentioned principles. At the third level, Member States representatives vote new regulations, delegating national regulators to work on coordinating the rules with other States. The last level pertains the compliance and the enforcement of the newly-created law. [235]

2.6.1 Prospectus Regulation

The first law to be examined is the Prospectus Regulation. It is a EU legal act whose principal function is to level out information asymmetries between issuer and investors. Within EU, citizens and residents can freely invest in tokens. Anyway, the lack of a specific regulation aroused the issue concerning the extent EU securities regulations apply to ICOs and, in addition, whether the issuers are obliged to publish and register a prospectus with the aim to avoid criminal and civil prospectus liability within EU.

In accordance with paragraph 1 of the concerned regulation, it represents an essential step towards the completion of the Capital Markets Union, whose aim consists in helping businesses to raise diverse sources of capital from anywhere, within the EU.

[233] ESMA, 2017 (1).
[234] The term was coined from the name of Alexander Lamfalussy who was the chair of the EUAdvisory Committee who created the concerned approach.
[235] De Luca, 2017, p. 380.

Moreover, it would also make markets work more efficiently and offer investors and savers additional opportunities to put their money to work, enhancing growth and creating jobs. [236]

Article 1 establishes that Prospectus Regulation provides for the *"requirements for the drawing up, approval and distribution of the prospectus to be published when securities are offered to the public or admitted to trading on a regulated market situated or operating within a Member State"*. [237]

Such information provision enables investors to make an informed investment decision and ensures, together with rules on the conduct of business, the protection of investors. In addition, this prospectus constitutes an effective means of increasing confidence in securities and thus of contributing to the proper functioning and development of securities markets. [238]

The discipline concerning prospectus content is regulated at EU level. Otherwise, Member States, within a certain margin of appreciation, are enabled to draft their own liability rules, with regard to misrepresentations and who is to be held liable for them. In particular, if and to what extent these (supranational and national) regimes cover ICOs is still an open question. The ICOs, to which the previous line refers to, seem to be only those employing investment tokens but, in a view of specifically regulating ICOs, also those related to currency and utility tokens must be taken in account. [239]

HACKER AND THOMALE (2017) remark the pressing necessity of legal guidance for token sales at EU level. They tried to enucleate the concept of "security", as recalled above, with the aim to verify whether it can be applied to a variety of tokens forms to assess whether their regulation can pertain to the securities ones. EU law outlines three formal criteria and one substantive criterion to define a security. The formal ones are transferability, standardization and negotiability on capital markets, this last one is a kind of a subcase of transferability. The substantial one lies in the comparison between the issued entity and a list of examples, as shares or bonds. [240]

Concerning transferability, article 2 (a) of the Prospectus regulation establishes that EU prospectus regulation can be applied only to issued units that are transferable, meaning that units can be assigned to another person, regardless certificates that record

[236] Prospectus Regulation, 2017, para. 1.
[237] Prospectus Regulation, 2017, art. 1.
[238] Prospectus Regulation, 2017, para. 7.
[239] Hacker and Thomale, 2017, p. 14.
[240] Hacker and Thomale, 2017, pp. 19-20.

or prove existence of the units. [241] Hence, tokens are not represented by certificates, otherwise they can be sold on secondary market, so that they are typically transferable. Limits on a contractual basis can be impose upon tokens transferability and, as implicitly acknowledged by article 7 (7) (a) (v) of Prospectus regulation [242], according to which, the prospectus summary has to include information related to any restriction to the free transferability of securities. However, whether contractual restrictions are followed by technical limitations and make impossible the effective assignment of tokens to third parties, EU Prospectus regulation does not apply to those tokens, since they lack transferability.[243]

Standardization is a highly debated issue. Scholars agree on the fact that issued units must be sufficiently standardized to be considered securities under EU law. According to this point of view, article 4 (1) (18) MiFID [244] points out transferable securities as *"classes of securities"* with certain qualities. So that, issued units must own common characteristics to be considered a class. In addition, from a functional perspective, the lack of standardization refrains the issued unit from being easily traded on capital markets, since standardization allows to lower the search costs for investors. The wording of the aforementioned article, does not establish the level of abstraction or extension of classes. Therefore, from a functional perspective, we can reasonably assume that all tokens, issued by a single issuer in one round of financing, share the same relevant characteristics. [245]

In relation to negotiability on capital markets, it refers to the ease with which ownership can be transferred, whereas transferability recalls the passing on ownership in securities. Therefore, negotiability implies transferability, since, as remarked by the European Commission, the capability of being traded on a regulated market or multilateral trading facility (MTF) is a conclusive indication of their transferability. As consequence, the fact that tokens are traded on cryptocurrency platforms clearly implies that they are negotiable on capital markets. [246]

About the substantial criterion, the functional comparability with shares or other forms of securitized debt, article 4 (1) (18) MiFID combines the aforementioned formal

[241] Prospectus Regulation, 2017, art. 2 (a).
[242] Prospectus Regulation, 2017,7 (7) (a) (v).
[243] Hacker and Thomale, 2017, pp. 20-21.
[244] MiFID, 2004, art. 4(1) (18).
[245] Hacker and Thomale, 2017, pp. 22-24.
[246] Hacker and Thomale, 2017, pp. 21-22.

criteria with a non-exhaustive list of examples that constitute securities. The three main categories are:

- *"shares"* and equivalent issued units (lit. a): they are issued in exchange to an equity stake in a corporation;
- *"bonds and other forms of securitized debt"* (lit. b): they represent fixed-income securities which do not confer an ownership stake in the issuing entity. They are purely financial claims against the issuing company, usually tradable on capital markets and typically structured as loans;
- and *"any other securities giving the right to acquire or sell any such transferable securities or giving rise to a cash settlement determined by reference to transferable securities, currencies [...] or other indices or measures"* (lit. c). A typical example ascribable to this category are stock options. [247]

This list becomes relevant since it offers archetypical examples of securities, drafting legislator intentions when regulated these entities. HACKER and THOMALE (2017) argue that, in relation to their structure, tokens might be comparable to shares or bonds and, if they are, they clearly represent a form of securities. Comparability will follow two connected lines of inquiry: the first one focuses on the extent certain types of token own the essential characteristics of shares or bonds. The second one, recalls the wording of Recital 4 MiFID, concerning whether tokens *"give rise to regulatory issues comparable to traditional financial instruments"*. In fact, the possibility to compare these new financial instruments to the traditional ones implies the analysis of the subsequent regulatory issue. [248]

Otherwise, this discipline outlined for securities might be easily applied to ICOs tokens also in force of the similar role played by the prospectus and the so-called whitepaper.

The whitepaper represents the company disclosure at firm level and ICOs legal origin. Unfortunately, there is no standardization in the essential content of such a disclosure and this lack implies uncertainty and potential risks for investors. In fact, this uncertainty weakens the real aim of disclosure tools. ICOs whitepapers should constitute the main signals for investors and the main tools to ensure information flows and monitor ICOs progress. In the second chapter, five dimensions of disclosure in ICOs whitepapers

[247] MiFID, 2004, art. 4 (1) (18).
[248] Hacker and Thomale, 2017, pp. 24-25.

have been defined, these are: the risk, the use of proceeds, the management team, the roadmap and, lastly, the operating country. Regrettably, this has not been officially regulated yet, so it does not constitute a legally binding requirement. [249]

As consequence, in force of the similarities between tokens and the tools subject to prospectus discipline, as outlined in the second chapter, whitepapers content should be shaped on prospectus discipline. In fact, promoting content standardization entails more certainty and thus quality of information. In conclusion, while waiting for a specific ICOs regulation, Prospectus Regulation might be applied in order to improve ICOs progress, starting from their first act. In fact, when disclosure quality increases, also investors trust in the promoted project, and *de relato* in ICOs, does so.

2.6.2 Markets in financial Instruments Directive (MiFID II)

The Markets in financial Instruments Directive, better known as MiFID, represents a cornerstone of EU regulation of financial markets. It aims at improving financial markets competitiveness through the creation of a single market for investment services and activities, ensuring a higher degree of harmonized protection for investors. This directive outlines conduct of business, organizational and authorization requirements for investment firms in order to let them operate on regulated markets. Furthermore, it also sets out regulatory reporting and trade transparency rules to avoid market abuse. On 20th October 2011, the European Commission adopted a legislative proposal for the revision of MiFID. MiFID II and MiFIR were adopted and then published in the EU Official Journal on 12 June 2014 but they apply from 3th January 2018. This revision allows to strengthen investor protection and improve the functioning of financial markets with the aim to make them be more efficient, resilient and transparent. [250]

According to article 1, paragraph 1, of the aforementioned directive, it *"shall apply to investment firms, market operators, data reporting services providers, and third-country firms providing investment services or performing investment activities through the establishment of a branch in the Union."* [251] Moreover, the following paragraph states that the directive establishes all the requirements concerning:

- the authorization and operating conditions for investment firms;

[249] Jiafu, Wenxuan and Xianda, 2017, pp. 16-17.
[250] ESMA, 2018 (2).
[251] MiFID II, 2018, art. 1 (1).

- the provision of investment services or activities by third-country firms through the establishment of a branch;
- the authorization and operation of regulated markets and data reporting services providers;
- the supervision, cooperation and enforcement by competent authorities. [252]

Concerning ICOs regulation within MiFID II discipline, it is necessary to ascertain whether the coin or token is created, distributed or traded in a way suitable to involve those activities or services covered by this directive. Furthermore, also the aforementioned requirements would then apply, depending on the way through which the service is provided. [253]

For the purpose of this analysis, recalling the definition of "investment services and activities", given by the directive, is required. In compliance with article 4 paragraph (2), *"'investment services and activities' means any of the services and activities listed in Section A of Annex I relating to any of the instruments listed in Section C of Annex I."* [254] Hence, among the services and activities, Section A of Annex I lists the reception and transmission of orders, in relation to one or more financial instruments, and the underwriting of financial instruments and placing of financial instruments on, or without, a firm commitment basis. [255] Then, moving to Section C of Annex I, a list of financial instruments is provided. Among these, transferable securities and units in collective investment undertakings can be distinguished. [256] As already explain above, with reference to the Prospectus Regulation application, tokens might be compared to transferable securities. They might also comply with the definition of collective investment undertakings, as will be dealt with in the following paragraph.

Otherwise, this kind of case-by-case analysis implies that, every time an ICO takes place, the issued tokens should be compared to existing instruments, in order to verify which law could be applied. This is not a fully safe system, since it might make arise contrasting interpretation problems. So that, a full legal control over ICO would not be possible, easing an illicit deployment of such a tool. This un-harmonized system would be against the objectives carried out by EU and enshrined in the introductive paragraphs of MiFID II. In fact, paragraph 3 highlights that *"In recent years more investors have*

[252] MiFID II, 2018, art. 1 (2).
[253] ESMA, 2018 (1).
[254] MiFID II, 2018, art. 4 (1) (2).
[255] MiFID II, 2018, Section A of Annex I.
[256] MiFID II, 2018, Section C of Annex I.

become active in the financial markets and are offered an even more complex wide-ranging set of services and instruments. In view of those developments the legal framework of the Union should encompass the full range of investor-oriented activities. To that end, it is necessary to provide for the degree of harmonization needed to offer investors a high level of protection […]". [257]

2.6.3 Market Abuse Regulation (MAR) and Transparency Directive (TD)

Within this analysis, also Market Abuse Regulation (MAR), as applied to financial instruments, should be considered, since it aims at ensuring market integrity and minimizing inside trading and other forms of market manipulation. This regulation provides for certain prohibitions, such as on market manipulation, inside trading and managers' transaction. These are operated through the imposition of ad-hoc disclose inside information on issuers, with the aim to pro-actively prevent insider trading based on that information. As consequence, after an ICO, if investment tokens were to be traded on a regulated market, multilateral trading facility or an organized trading facility, issuers would have to comply with these prohibitions and obligations.[258]

As stated in paragraph 2 of this regulation, and recalled in article 1 concerning *"subject matter"* [259], *"an integrated, efficient and transparent financial market requires market integrity. The smooth functioning of securities markets and public confidence in markets are prerequisites for economic growth and wealth. Market abuse harms the integrity of financial markets and public confidence in securities and derivatives."*[260]

As consequence, the development of systems enabling this kind of control and prevention should be strongly welcomed by EU legislator. As mentioned in the second chapter, applying Blockchain-based system to corporate governance, would allow companies to benefit from the offered greater transparency of ownership. In particular, transparency constitutes a powerful tool to deter insider trading crimes, with a positive impact not only on corporate governance level, but also on the economy, thanks to greater allocative efficiency in information flow and control, that might be better performed by shareholders, stakeholders and competent authorities.

[257] MiFID II, 2018, para. 3.
[258] Hacker and Thomale, 2017, p. 14.
[259] MAR, 2014, art. 1.
[260] MAR, 2014, para. 2.

Furthermore, this is enhanced by the Transparency Directive (TD) [261] issued in 2004 and revised in 2013. According to paragraph 2 of the concerned directive, its objective consists in ensuring the *"[…] transparency of information for investors through a regular flow of disclosure of periodic and on-going regulated information and the dissemination of such information to the public"*. [262] Ensuring regulated information means releasing financial reports, information on major holdings of voting rights and information disclosed pursuant to the Market Abuse Regulation.

In addition, recalling paragraph 1 of Transparency Directive, *"[…] the disclosure of accurate, comprehensive and timely information about security issuers builds sustained investor confidence and allows an informed assessment of their business performance and assets. This enhances both investor protection and market efficiency."* [263] Hence, the purposes enshrined in Market Abuse Regulation, and strengthened in Transparency Directive, are fully in compliance with those objectives that EU legislator should consider while designing a specific ICOs regulation.

2.6.4 UCITS Directive, AIFM Directive and EMIR

As underlined in these chapters, tokens definition and regulation depend on their nature, so that the entity established via ICOs might assume different forms. For instance, if it was to be characterized as an undertaking for collective investment in transferable securities, it would have to comply with the Undertakings for collective investment in transferable securities (UCITS) Directive. [264] Otherwise, if it fails to do so, irrespective of its legal structure, the concerned entity might be qualified as an alternative investment fund, in compliance with the Alternative Investment Fund Managers (AIFM) Directive. [265] In addition, the constant attempt to extend regulation, aiming at catching up with the ever-changing forms of investment and speculation practices, could be strengthen by European Market Infrastructure Regulation (EMIR). [266]

The first law to be analyzed is UCITS Directive. It outlines a uniform set of rules on investment funds, allowing the cross-border offer of investment funds regulated at EU

[261] Transparency Directive, 2013.
[262] Transparency Directive, 2013, para. 2.
[263] Transparency Directive, 2013, para. 1.
[264] UCITS Directive, 2009.
[265] AIFM Directive, 2011.
[266] EMIR, 2012.

level. This directive refers to the undertakings for collective investment in transferable securities, defined by the Commission as *"investment vehicles that pool investors' capital and invest that capital collectively through a portfolio of financial instruments such as stocks, bonds and other securities".* [267] UCITS Directive aims at offering a wider choice of product at lower cost for investors, through a more efficient UCITS market in the EU, better investors information flow and a more efficient funds supervision. It also contributes to maintain investment sector competitive, within EU, by adjusting the rules to market developments. Among these rules, the most relevant ones concern:

- investors information via a standardized summary information document, to easily permit consumers to understand the product;
- the creation of a genuine European passport for UCITS management companies, allowing a management company located in one EU country to manage funds in other EU countries;
- marketing and mergers of UCITS in other countries;
- the enforcement of UCITS supervision of managing companies, also through enhanced cooperation between national financial services supervisors. [268]

Concerning the AIFM Directive, it provides for a legal framework for the authorization, supervision and oversight of managers of a range of alternative investment funds (AIFM), such as hedge funds and private equity. [269] As defined in article 4 paragraph 1 (a) (i) of AIFM Directive, an alternative investment fund is *"[…] a collective investment undertakings, including investment compartments thereof, which raise capital from a number of investors, with a view to investing it in accordance with a defined investment policy for the benefit of those investors […]"* [270]

Lastly, the EMIR establishes the rules concerning over-the-counter (OTC) derivative contracts, central counterparties (CCPs) and trade repositories. In particular, it aims at increasing transparency in the OTC market, providing for the information about all European derivative contracts that must be reported to trade repositories and made accessible to supervisory authorities, including ESMA. Moreover, EMIR is also intended to reduce all the systematic and operational risks, related to counterparty credit, setting out strict organizational business conduct and prudential obligations for CCPs. [271]

[267] UCITS Directive Summary, 2016.
[268] UCITS Directive Summary, 2016.
[269] AIFM Directive Summary, 2015.
[270] AIFM Directive, 2011, art. 4 (1) (a) (i).
[271] EMIR Summary, 2017.

Depending on how it is structured, an ICO could be residually qualified as one of the aforementioned tools. For instance, UCITS Directive might apply to ICOs when tokens issuers might be qualified as companies managing UCITS. According to article 2, paragraph 1, lett. b), a management company *"means a company, the regular business of which is the management of UCITS in the form of common funds or of investment companies (collective portfolio management of UCITS)".* [272] Hence, when tokens issuers comply with this definition, they have to be subject to UCITS Directive provisions.

Furthermore, considering the definition given above, if issued tokens represented the tokenized version of an alternative issued fund, AIFM Directive would be applicable to ICOs. Therefore, what has been explained in paragraph 2.5.3, pertaining the comparison of ICO to Crowdfunding, should be recalled. Since ICO might be qualified as a further developed version of Crowdfunding, ESMA guidelines on key concepts of the AIFM Directive could be read with reference to ICO. In fact, these guidelines establish that Crowdfunding platform might fall under the AIFM Directive. This is due to the fact that Crowdfunding platforms are based on funds collection from various investors. Hence a defined investment policy for crowd investors benefits, must be outlined and strictly followed. [273] As consequence, considering that ICO's platforms serve to collect funds from various investors, not only AIFM Directive might apply to ICOs, but also an ICO's investment policy for crowd investors benefits could be delineated in the future.

In addition, recalling EMIR, ICOs should comply with its provisions, since their main aim is increasing transparency. Indeed, market transparency and stability might be damaged by ever-changing forms of investment and speculation practices. [274]

Therefore, providing for residual applicable legislation is necessary to keep on granting capital, operational and organizational rules and transparency requirements. In fact, in case of controversial nature, and thus qualification of ICOs, while waiting for a specific and exhaustive regulation, the possibility to apply a broaden set of rules, able to protect investors from related systematic risks and to ensure market infrastructure, is the easiest and safer solution.

[272] UCITS, art. 2,
[273] Gutfleisch, 2018, pp. 76-77.
[274] Hacker and Thomale, 2017, p.15.

2.6.5 Anti-Money-Laundering Directive (AMLD V)

The last law to be considered is represented by the Anti-Money Laundering Directive. On 14th May 2018, the Fifth AML Directive was adopted in order to implement a closer regulation on public access to information on real owners of firms, customer verification for virtual currencies and lower threshold on prepaid cards. In particular, the second issue refers to the introduction of new measures, addressing the risks linked to prepaid cards and virtual currencies. The measures are intended to end the anonymity associated with virtual currencies, virtual currency exchange platforms and custodian wallet providers. Indeed, these last ones will be obliged to apply customer due diligence controls, including customer verification requirements. Moreover, the aforementioned platforms and providers will be mandatory registered, as well as currency exchanges and cheque cashing offices, and trust or company services providers. [275]

In particular, AML V introduced the following points in article 3 of the directive: *" […] 'virtual currencies' means a digital representation of value that is not issued or guaranteed by a central bank or a public authority, is not necessarily attached to a legally established currency and does not possess a legal status of currency or money, but is accepted by natural or legal persons as a means of exchange and which can be transferred, stored and traded electronically;*

'custodian wallet provider' means an entity that provides services to safeguard private cryptographic keys on behalf of its customers, to hold, store and transfer virtual currencies; […]"[276]

It also replaced paragraph 1 in article 47, stating that *"Member States shall ensure that providers of exchange services between virtual currencies and fiat currencies, and custodian wallet providers, are registered, that currency exchange and cheque cashing offices, and trust or company service providers are licensed or registered, and that providers of gambling services are regulated."*[277]

Furthermore, the replaced article 65 obliges the Commission to draw up a periodic report on the implementation of the directive, including *"an account of specific measures adopted and mechanisms set up at Union and Member State level to prevent and address emerging problems and new developments presenting a threat to the Union financial*

[275] European Parliament, 2018 (1).
[276] AML V Directive, 2018, art. 3.
[277] AML V Directive, 2018, art. 47 (1).

system". This requirement highlights the EU openness and attention to new and specific measures intended to ensure EU financial system, since it could be potentially shaped and threated by emerging problems and developments, such as ICOs illicit deployment.[278]

In addition, the concerned directive also applies to UCITS and investment firms trading in securities, imposing KYC and record keeping duties. These statutes, just like MiFID II, do not explicitly target ICO as such. The lack of expressed recognition and regulation, as aforementioned, is the biggest problem surrounding ICOs. In particular, within AML context, these statutes should be borne for two main reasons. The first one considers ICOs as potential part of the general enterprises environment and, therefore, their expressed regulation could have an influence on the question whether an ICO constitutes the right business choice. The second one focuses on a legal governance perspective. In fact, the evolutionary nature of EU investment law implies that, sooner or later, ICOs phenomenon will be specifically regulated, filling what is beginning to be perceived as "legal loop-holes". [279]

2.7 Regulatory challenges

This chapter designed ICO's background, through the explanation of its structure, tokens and functioning. Assessing how a phenomenon technically developed and works, allows to understand its potentialities and risks.

After having addressed the technical framework of this innovative financing tool, the analysis moved to the legal approach through which ICOs are defined. Since ICOs show similarities and differences with the functioning and objectives of other financing tools, they have been compared with them. In particular, the comparison with the IPO, the Venture Capital and, above all, the Crowdfunding, aimed at ascertaining whether their specific legislation might be applied to ICOs and, even better, whether their legal framework could help the EU legislator to conceive a suitable approach.

Then, the EU regulatory framework is examined with the aim to assess whether existing legislation might be applied to ICOs and whether outlining a possible approach to ICO regulation is necessary, also considering CMU perspective. In fact, if ICOs had to provide for an innovative tool for firms, their regulation should be specifically assessed.

[278] AML V Directive, 2018, art. 65.
[279] Hacker and Thomale, 2017, p. 15.

In fact, designing a system on which companies might rely on to raise capitals and, in general, to be financed, is an effective way to realize CMU, also thanks to the fact that ICOs overcome geographic and structural boundaries.

Moreover, as remarked above, the proposal for a regulation on European Crowdfunding Service Providers (ECSP) allows ICOs to prove their legitimacy, in compliance with its requirements. However, this cannot be considered as a specific ICOs regulation. Therefore, for the purpose to deal with these regulatory challenges, the following chapter will outline potential EU regulatory action perspectives within the purposes of CMU.

CHAPTER 3

EU regulatory action perspectives on ICOs within CMU

3.1 Introductive remarks

This conclusive chapter deals with EU regulatory action perspectives on ICOs within CMU. As outlined in the previous chapters, Blockchain technology and CMU project represent two different realities, whose integration could enable EU to remain competitive on financial markets. Indeed, capital markets development is clearly driven by FinTech innovation that might powerfully fuel capital markets strengthening, through the supply of alternative tools for firms. Among these, the ICO is the Blockchain application that can help reaching CMU goals. However, EU and National law did not simultaneously follow ICO fast technological evolution, so that, the ICO still lacks a specific and exhaustive regulation on which relying on.

This chapter first compares ICOs legal status within EU and non-EU countries. All the analyzed legislative strategies present a common action plan, especially at the beginning, based on the evaluation of specific situations, through a case-by-case approach. In particular, this approach consists in assessing whether domestic law can be directly applied to the concerned case. This analysis will provide for the base on which issuing potential suggestions to be deployed in outlining a possible approach to ICO regulation.

For this purpose, a potential approach, to be welcomed by EU legislator, will be disclosed to design a focused ICO regulation. It will concern not only hard law issues, such as the kind of legal act and its enforcement, but also other measures. Providing for different measures, meaning observatories, sand boxes and education projects, would imply a much more cohesive cooperation among all the subjects operating in the markets. This multi-sided approach would be much more effective and suitable for a fast-developing phenomenon, whose main problem lies in the lack of regulation.

Furthermore, designing this system presumes to address how CMU can be built and why Blockchain tools, such as ICOs, could promote this project. Otherwise, CMU faces obstacles of different nature, as mentioned in the first chapter. Unfortunately, the

current political and economic situation within EU, either as whole, either considering individual Member States, is weakening the possibility to carry out this ambitious project.

3.2 Comparative perspectives: legal status within EU and beyond

This paragraph aims at providing for a comparative perspective concerning the ICO legal status and current regulation approach within and beyond EU. In particular, this section will focus on how many States reacted to the innovation brought by ICOs. This type of analysis will be useful to understand the reason and the nature of the approach followed by different States with different backgrounds. As mentioned above, this might provide for illustrative models to be considered in assessing the potential EU approach in the elaboration of a common legal framework, that will be debated in paragraph 3.3.

3.2.1 EU

Although a specific ICOs regulation has not been issued yet, ICOs are allowed in EU, provided that they are carried out in compliance with the applicable regulation, with particular reference to AML/KYC practices [280] and the requested business licenses.

Indeed, on 13th November 2017, ESMA released a statement aimed at alerting investors about ICOs high risks. The Authority recognized the ICOs rapid growth and underlined that many investors might not deeply realize the high risks entailed by this innovative tool. According to ESMA, ICOs are highly speculative investment and their perils derive not only from the way they are structure, but also from the fact that they often fall outside regulated space. In these cases, investors do not benefit from the protection enjoyable in regulated investments. ICOs might easily serve fraud or illicit activities since they can ensure anonymity and raise large amounts of money in short timeframes. [281]

In the concerned statement, ESMA remarked the decisive role played by the implementation of an effective legislation in order to ensure investors and market

[280] Anti-Money-Laundering (AML) and Know-Your-Customer (KYC) constitute a set of laws concerning the information and transparency policy in financial matters, as enshrined in the fifth EU Anti-Money Laundering Directive (AMLD5).
[281] ESMA, 2017 (2).

protection. In fact, it stated: "*Depending on how they are structured, ICOs may not be captured by the existing rules and may fall outside of the regulated space. […]".* [282]

Within the European supervisory framework, indeed in December 2013, also the European banking Authority (EBA) [283] published a warning to consumers on virtual currencies. EBA started from assessing all relevant issues associated with virtual currencies, in order to identify whether and how virtual currencies and related activities could and should have be regulated and supervised, saying that is necessary to *"familiarize yourself with the risks associated with them",* that have been already examined in the previous chapter (paragraph 2.4.1). [284]

Moreover, the European Supervisory Authorities (ESAs) for securities (ESMA), banking (EBA), and insurance and pensions (EIOPA) [285] have issued on 12th February 2018, a pan-EU warning to consumers with reference to highly risky and unregulated products. [286]

Hence, all the main European Authorities, designated to supervise and ensure the financial market, proved to be concerned about the lack of a specific regulation on ICOs. All of them focused their attention on the risks since addressing them entails to outline a specific discipline and cover all the critical issues on which existing law cannot be applied.

Some attempt in this sense has been recorded although in a field near to the one of ICO: equity crowdfunding. In particular, as remarked in paragraph 2.5.3, while dealing with the comparison between the ICO and the Crowdfunding, the initiative undertaken by the European Commission in 2017 led to the drafting of a proposal for a regulation on European Crowdfunding Service Providers (ECSP) for Business. [287]

Indeed, the initiative would be in line with the objective of the Capital Markets Union, as enshrined in the relative Commission Staff working document. [288] Moreover,

---

[282] ESMA, 2017 (2).
[283] EBA is an independent EU Authority which works to ensure effective and consistent prudential regulation and supervision across the European banking sector. It aims at maintaining financial stability and at safeguarding the integrity, efficiency and orderly functioning of the banking sector.
EBA also plays a leading role in promoting convergence of supervisory practices and in assessing risks and vulnerabilities in the EU banking sector.
[284] EBA, 2013.
[285] EIOPA, together with EBA and ESMA, constitutes the ESAs and its responsibilities deal with supporting the stability of the financial system, the transparency of markets and financial products as well as the protection of policyholders, pension scheme members and beneficiaries.
[286] EBA, 2018.
[287] European Commission, 2018 (6).
[288] European Commission, 2018 (6).

it would also allow a further diversify Europe's financial system, benefitting of financial stability, investor protection and competition among market players. The concerned initiative aims at realizing two main objectives. The first one deals with the creation of a licensing regime to be used within EU without requiring further authorization in each EU Member State, enabling platforms to scale cross-border. The second one regards platforms empowerment to properly ensure their own management and to protect of providers' funds, through sound risk management and adequate information disclosure, thus increasing investors' trust to engage cross-border. [289]

Hence, a step forward, confirming the institutions' interest in the regulation of these innovative financing tools, was taken in August 2018. In fact, a Draft Report on the aforementioned proposal for regulation was released by the Committee on Economic and Monetary Affairs on 10th August 2018. The Committee remarked that this regulation is regarded as an opportunity to provide regulation also for ICOs. In fact, the draft Report states: *"[…] At present initial coin offerings are operating in an unregulated space and consumers are at risk from fraudulent activity taking place in this market. This Regulation gives the opportunity to ICOs that want to prove their legitimacy to comply with the requirements of this regulation. Whilst this regulation may not provide the solution for regulating the ICO market, it takes a much-needed step towards imposing standards and protections in place for what is an excellent funding stream for tech start-ups; […]"* [290]

In the meanwhile, many EU Member States, decided to act proving for a first national approach in regulating ICOs, while waiting for a common legal framework by EU.

3.2.1.1 Italy

For instance, Italy decided to regulate how service providers, using cryptocurrencies and crypto-assets, are required to communicate their operations to the Ministry of the Economy and Finance (MEF). According to MEF communication, dated 2nd February 2018, these requirements have been incorporated in Decree Law no. 90/2017 [291], concerning AML national law. [292]

[289] European Commission, 2018 (7).
[290] Committee on Economic and Monetary Affairs, 2018, p. 80.
[291] D. L. no. 90/2017.
[292] MEF, 2018.

In particular, Article 1, paragraph 2, of Legislative Decree 90/2017 outlines the definitions of "*Service Providers related to the use of virtual currency*" and "*Virtual Currency*":

"[...] ff) Service Providers related to the use of virtual currency: any natural or legal person who provides services to third parties, on a professional basis, functional to the use, exchange, preservation of virtual currency and their conversion from or into currencies legal tender; [293]

[...] qq) virtual currency: the digital representation of value, not issued by a central bank or by a public authority, not necessarily connected to a currency having legal tender, used as a means of exchange for the purchase of goods and services and transferred, archived and negotiated electronically. " [294]

Furthermore, article 1 paragraph 5 lett. i) of the mentioned decree introduces the figure of the "*Exchangers"*, as *"service providers related to the use of virtual currency, limited to the performance of the activity of converting virtual currencies from or into currencies having a forced course"*. Anyway, Exchangers do not fall into the category of other non-financial operators. [295]

Italy thus became the first EU Member State to introduce rules on Exchangers. Anyway the mentioned decree only provides for Exchangers' definition and delegates the issuing of specific implementing decrees to the Ministry of Economy. This derives from the necessity to timely adapt the discipline to the emerging contexts. While drafting this implementing acts, the Ministry of Economy should fully consider the virtual, decentralized and ubiquitous nature of these innovative tools.

In addition, last 14th December 2018, the Decree Law no. 135/2018 ("Decreto Semplificazione") [296] was published in the Official Directory. This Decree contains urgent provisions on support and simplification for businesses and for public administration. It worths to be recalled because in the original draft, as announced in October 2015 by the Italian Cabinet (Consiglio dei Ministri), article 2 outlined the first

[293] D. L. no. 90/2017, para. 2, lett. ff).
[294] D. L. no. 90/2017, para 2, lett. qq).
[295] D. L. no. 90/2017, para. 5, lett. i).
[296] D.L. 135/2018..

legal definition of DLTs. Unfortunately, this draft has been changed before the publication, deleting such definition. [297]

In the original draft, article 2, paragraph 1 defined DLTs as *"technologies and protocols that use a shared, distributed, replicable, concurrently accessible, architecturally decentralized registry on a cryptographic basis, allowing the recording, validation, updating and storage of data both, further protected by cryptography, verifiable by each participant, not alterable and not modifiable."* [298]

Furthermore, paragraph 2 of the aforementioned article added that *"the sharing of an IT document, through the use of technologies based on distributed registers, produces the same legal effects of the electronic time validation as referred to in article 41 of EU Regulation no. 910/2014."* Paragraph 3 continued assigning the task of setting the technical standards of the technologies based on distributed registers to the Agency for Digital Italy, within 60 days of the conversion of the decree into law, so that the recording of documents produces the effects of the time stamp. [299]

So far, considering the examined decrees, Italy has limited itself to describe and regulate the phenomenon only by providing definitions, relegating them to AML context. In fact, DLTs' definition was deleted from Decree Law no. 135/2018 and this seems to represent a step back. Otherwise, we could expect that Italy might decide to release, in the future, a specific piece legislation, exclusively focused on DLTs applications and, among these, also on ICO.

3.2.1.2 Germany

Concerning Germany, its financial services regulator, BaFin (Federal Financial Supervisory Authority) [300], published a document on the regulatory classification of crypto-assets and ICOs in March 2018.

The approach agreed by BaFin requires a case-by-case assessment in order to determine tokens legal classification. In particular, the German Authority outlines, case-by-case, whether a token constitutes a financial instrument within the meaning of the

[297] Innovation Post, 2018.
[298] Innovation Post, 2018.
[299] Innovation Post, 2018.
[300] BaFin is an autonomous public-law institution and is subject to the legal and technical oversight of the Federal Ministry of Finance.

German Securities Trading Act (Wertpapierhandelsgesetz – WpHG) [301] or the Markets in Financial Instruments Directive (MiFID II) [302]; or a security, according to the German Securities Prospectus Act (Wertpapierprospektgesetz – WpPG) [303]; or a capital investment, in compliance with the German Capital Investment Act (Vermögensanlagengesetz – VermAnlG) [304].

In this way, BaFin remarked that, from a regulatory point of view, ICOs do not occur in a vacuum. In fact, complying with such approach, legal classification and so the subjection to the relevant supervisory requirements depend on the features of issued tokens. The decisive factor for this assessment is represented by the rights associated with the respective token.

For instance, the German Securities Trading Act and MiFID II might apply to those tokens that can be regarded as financial instruments. Within the meaning of the German Securities Trading Act, Section 2, subsection 2(b) defines financial instruments as *"[...] securities within the meaning of subsection (1) [305], money market instruments within the meaning of subsection (1a) [306], derivatives within the meaning of subsection*

[301] WpHG, 1998.
[302] MiFID II, 2018.
[303] WpPG, 2012.
[304] VermAnlG, 2013.
[305] WpHG, 1998, section (2) (1): *"Securities within the meaning of this Act, whether or not represented by a certificate, are all categories of transferable securities with the exception of instruments of payment which are by their nature negotiable on the financial markets, in particular*

1. *shares in companies;*
2. *other investments equivalent to shares in German or foreign legal persons, partnerships and other enterprises as well as certificates representing shares; and*
3. *debt securities;*
    a. *in particular profit-participation certificates and bearer bonds and order bonds as well as certificates representing debt securities;*
    b. *other securities giving the right to acquire or sell securities specified in nos. 1 and 2 or giving rise to a cash settlement determined by reference to securities, currencies, interest rates or other yields, commodities, indices or measures.*

Units in investment funds (Investmentvermögen) issued by an asset management company (Kapitalanlagegesellschaft) or a foreign investment company (Investmentgesellschaft) are also deemed to be securities." .
[306] WpHG, 1998, section (2) (1a): *"Money market instruments within the meaning of this Act are any categories of receivables which do not come under the provisions of subsection (1) and are usually traded on the money market with the exception of instruments of payment."*.

(2) [307] *and securities subscription rights."* [308] Hence, if tokens constituete security within the meaning of the aforementioned Act, also German Securities Prospectus Act can be applied. Furthermore, in compliance with the scope of German Capital Investment Act, as enshrined in Section 1 subsection 1, *"This Act shall be applied to the drawing up, approval and publication of prospectuses for securities to be offered to the public or to be admitted to trading on an organised market."*. [309] As consequence, if issued tokens represented the tokenized version of securities, offered to the public and admitted to trading, they should also comply with German Capital Investment Act provisions.

In conclusion, albeit BaFin document is not able to provide for an exhaustive legislative framework, it supplies a guiding line for market participants, while pending the releasing of a law focused on ICOs. [310]

---

[307] WpHG, 1998, section (2) (2): *"Derivatives within the meaning of this Act are*

1. *firm contracts or option contracts in the form of acquisitions, swaps or in other forms which are to be settled at a future date and whose values are derived directly or indirectly from the price or value measure of an underlying instrument (futures and forward transactions) relating to the following underlying instruments:*
    a. *securities or money market instruments;*
    b. *foreign exchange or units of account;*
    c. *interest rates or other yields;*
    d. *indices of the underlying instruments specified in (a), (b) or (c), other financial indices or financial measures; or*
    e. *derivatives;*
2. *futures and forward transactions relating to commodities, freight rates, emission allowances, climatic or other physical variables, inflation rates or other economic variables or other assets, indices or measures as underlying instruments, provided*
    a. *they are cash-settled or grant the party to a contract the right to demand cash settlement without this right being contingent on default or another termination event;*
    b. *they are concluded on an organised market or a multilateral trading facility; or*
    c. *in accordance with Article 38 (1) of Commission Regulation (EC) No. 1287/2006 of 10 August 2006 implementing Directive 2004/39/EC of the European Parliament and of the Council as regards record-keeping obligations for investment firms, transaction reporting, market transparency, admission of financial instruments to trading, and defined terms for the purposes of that Directive (OJ EU no. L 241 p. 1), they have the characteristics of other derivatives and are not for commercial purposes and if the conditions set out in Article 38 (4) of this Regulation are not satisfied; and if they are not spot contracts within the meaning of Article 38 (2) of Regulation (EC) No. 1287/2006;*
3. *financial contracts for differences;*
4. *firm contracts or option contracts in the form of acquisitions, swaps or in other forms which are to be settled at a future date and are intended for the transfer of credit risk (credit derivatives);*
5. *futures and forward transactions relating to the underlying instruments set out in Article 39 of Regulation (EC) No.1287/2006 if they satisfy the conditions of no. 2. ".*

[308] WpHG, 1998, section (2) (2a).

[309] VermAnlG, 2013, section (1)(1).

[310] BaFin, 2018.

3.2.1.3 Gibraltar

Among many States in Europe, the United States and Asia, trying to penetrate the FinTech market, Gibraltar is certainly among the first one to have taken a step forward. Attracting businesses operating in the FinTech field has been considered a way to strengthen the thriving financial services sector. Gibraltar, the small British region, thanks to a favorable tax regime and an openness to these technologies, is preparing to become a major destination for companies and startups that will adopt Blockchain technology in their business model.

Hence, Gibraltar Financial Services Commission (GFSC) [311] eleased a Distributed Ledger Technology Regulatory Framework (DLT framework) [312] in January 2018. Complying with it, firms that carry out business, in or from Gibraltar, using of distributed ledger technology (DLT) for storing and transmitting values, subject to exchange and belonging to others (DLT activities), must be authorized by the GFSC as a DLT Provider. Hence, GFSC has outlined regulatory principles rather than concrete rules for DLT businesses. Among these, the main ones focus on AML and Cyber Security practices to prevent, detect and disclose financial crime risks, such as terrorist financing. In fact, in compliance with these principles, business must be conducted with honesty and integrity; fair and not misleading communication must be established and conserved with customers and all systems and security access protocols must be ensured to be maintained to appropriate high standards. [313]

In conclusion, Gibraltar confirmed its intention to become one of the most advanced States in FinTech regulation with the aim to attract companies operating in FinTech market. Otherwise, the goals pursued by this small Countries are driven by AML/KYC principles in order to defend its reputation as an innovation-leading country and to avoid simply becoming a "*ICOs Haven*", where ICOs are used to elude the law and to realize what is forbidden in other States.

[311] GFSC provides for financial services regulation in an effective and efficient manner, aiming at promoting good business, protecting the public from financial loss and enhancing Gibraltar's reputation as quality financial center.
[312] Distributed Ledger Technology Regulatory Framework, 2018.
[313] House of Commons Treasury Committee, 2018, p. 39.

3.2.1.4 France

The Assemblée Nationale, the lower house of the French Parliament, started a debate on a legal project presented by the Minister of Economy and Finance, Bruno Le Maire, in June 2017. This debate concerns the relevant changes of the French regulatory framework within the FinTech framework. In fact, this innovation, stimulated by Action Plan for business growth and transformation (PACTE - Plan d'Action pour la Croissance et la Transformation des Entreprises) is bringing France closer to the digital revolution led by Blockchain technology.[314]

In particular, article 26 of the new regulatory draft, already approved by PACTE committee in September 2018, if definitely confirmed in Parliament, will modify the French financial and monetary code, introducing new definitions. For instance, tokens are defined as "*immaterial elements, which represent in digital form one or more rights, which could be issued, compiled, stored and transferred via a shared digital tool, which allows you to identify - directly or indirectly - its owner* ". ICO is qualified by the analyzed draft as " *a public offer for subscription tokens, in any form* ". [315]

Furthermore, the approved ICO regulatory draft seeks to protect investors by introducing a voluntary "ICO visa" system and was proposed by the French financial market regulators AMF (the Autorité des marchés financiers). According to this new system, companies, seeking to launch an ICO, can apply for the "ICO visa" by sending their whitepaper to the AMF to be authorized. The whitepaper must include specific details and guarantees for investors, including:

- a description of the project related to the ICO and its roadmap;
- the rights conferred by the token;
- the competent Court in case of disputes;
- the economic purpose and use of funds collected during the ICO.

Hence, this new ICO visa will allow legitimate projects to access more easily to the banks and audit firm services, that, until now, has been difficult because of regulatory uncertainty in the sector. This developing ICO legal structure is part of a major incentive of the French Government aimed at maintaining French Blockchain projects in France, providing greater clarity and certainty about ICO regulations. [316]

[314] Cointelegraph.it, 2018.
[315] Cointelegraph.it, 2018.
[316] Assodigitale.it, 2018.

3.2.1.5 United Kingdom

Following the same approach adopted for equity crowdfunding [317], United Kingdom (UK) did not explicitly regulated ICOs. In fact, ICOs regulation in UK, as in many other Countries, depends on their structure and on tokens functionality. In fact, if tokens were considered as a transferable security such as shares and bonds, the Financial Conduct Authority (FCA) [318] regulatory framework would apply to the related ICO. Hence, all the involved subjects, in particular issuers, should comply with FCA's Principles and relevant rules. Moreover, falling within FCA regulatory perimeter would imply that this authority should be required to ensure an appropriate degree of protection for investors, since they represent 'consumers' in accordance with the purposes of the FCA's statutory objectives. Differently, whether tokens do not amount to transferable securities or other regulated products, their ICOs are not subject to FCA legal framework and supervisory. [319]

On 12th September 2017, FCA published a consumer warning about the risks related to ICOs, underlining their risky nature. FCA declared that *"You should be conscious of the risks involved […] and fully research the specific project if you are thinking about buying digital tokens. You should only invest in an ICO project if you are an experienced investor, confident in the quality of the ICO project itself […] and prepared to lose your entire stake."* This warning underlines not only the general riskiness associated to ICOs, but also suggests to potential investors to adopt a proactive behavior in order to increase consciousness about ICOs nature, functionality and consequences.

Furthermore, FCA listed the main ICOs risks, highlighting the unregulated space, the lack of investors protection, price volatility, potential use to commit fraud and inadequate documentation. Indeed, the fraud risk is due to the fact that some issuers might not be willing to use the raised funds in the way set out when the project was marketed. Additionally, the inadequate documentation increases this kind of risk, since the

[317] De Luca, Furnari e Gentile, 2017, pp. 159-160.
[318] FCA is an independent public body funded entirely by the firms it regulates, by charging them fees. It is accountable to the Treasury, which is responsible for the UK's financial system, and to Parliament. Its strategic objective consists in ensuring the relevant markets correct functioning and its operational objectives regard consumers and financial markets protection, and competition promotion.
[319] House of Commons Treasury Committee, 2018, pp. 18-19.

whitepaper might be unbalanced, incomplete or misleading, thus creating information asymmetry. [320]

Before analyzing the existing UK regulation applicable to ICOs, the House of Commons Treasury Committee underlines that ICOs must comply with AML and Market Abuse rules. According to Fifth AML Directive, crypto-asset exchanges will have to comply with Anti-Money-Laundering and Counter-Terrorist-Financing rules. The Committee also believes that the FCA should be empowered as the relevant supervising regulator for Anti-Money-Laundering. The Committee also underlines how the current lack of regulation of crypto-asset exchanges foster an environment where consumer manipulation risk would be too high. Indeed, being crypto-asset markets particularly vulnerable to manipulation and falling outside the scope of market abuse rules, the Committee incentives FCA to outline an effective approach against market manipulation. [321]

So, in compliance with Committee's suggestion, Crypto-asset, and thus ICOs regulation, might be introduced in two different ways. The first one concerns the incorporation of crypto-asset activity into the existing regulation; the second one consists in designing a new and specific regulation framework. [322]

The first solution entails the application of the Financial Services and Markets Act 2000 (FSMA) [323] and of the Financial Services and Markets Act 2000 (Regulated Activities) Order (RAO). [324] In particular, ICOs promoters might be required of authentication whether the offering will involve activities regulated. In fact, Section 19 FSMA states that *"a person may not carry on a regulated activity in the UK, or purport to do so, unless they are either an authorized person or an exempt person.". [325]* Moreover, among the most frequently used specified investments within an ICO and the regulated activities, that may be undertaken, the collective investment schemes, the alternative investment fund and the electronic money are mentioned. Section 235 (1) FSMA defines collective investment fund as *"any arrangements with respect to property of any description, including money, the purpose or effect of which is to enable persons taking part in the arrangements (whether by becoming owners of the property or any part*

[320] FCA, 2017.
[321] House of Commons Treasury Committee, 2018, pp. 28-29.
[322] House of Commons Treasury Committee, 2018, p. 35.
[323] FSMA, 2000.
[324] RAO, 2001.
[325] FSMA, 2000, section 19.

of it or otherwise) to participate in or receive profits or income arising from the acquisition, holding, management or disposal of the property or sums paid out of such profits or income.". [326] An alternative investment funds constitute a collection of investment undertakings aiming at raising funds from a plurality of investors; if tokens are engaged in activities subject to FSMA regulation, they have to comply with FSMA general guidelines. Lastly, since issuing electronic money falls within the application of FSMA guidelines, when tokens are used as means of payment for certain transactions and they are accepted by any individual or legal entity, other than the token founders, they are regulated by FSMA guidelines, since they apply to electronic money issuing.[327]

Therefore, the Committee decided to agree with the second way, concerning the design of a new specific legal framework concerning crypto-asset. It remarks that the introduction of regulation could lead to positive outcomes for the crypto-asset market since its implementation might enable the development of a mature business model, improving consumer outcomes and entailing sustainably. Planning and implementing a specific legal framework would entail the entry of institutional investors into the market, increasing liquidity and increasing the inherent current risks. The Committee highlights that an appropriate and proportionate regulatory environment for crypto-assets would bring beneficial to society and industry, placing UK as a global center for this activity, raising the standards breaking crypto-activities association with criminality. This conclusive lines underline the common frame in ICOs regulatory approaches followed by many States. Indeed, the understanding of regulation and standards introduction, within ICOs field, remark the common intention to build a system where both involved people and operations are efficiently defended from cyberattacks and criminality in general. In fact, as already mentioned, AML/KYC practices are conceived to avoid that these innovative tools are used to commit crimes. [328]

3.2.2 Switzerland

The Swiss Financial Market Supervisory Authority (FINMA) recognizes the innovation and the potentiality of Blockchain technology, welcoming and supporting all

[326] FSMA, 2000, section 235 (1).
[327] Sterling Law, 2018.
[328] House of Commons Treasury Committee, 2018, p. 34.

efforts to develop and implement all these innovative solutions in the Swiss financial system, among these, the ICOs.

In 2017, FINMA underlined, in Guiding Lines n. 4/2017, the lack of any specific regulation on ICOs, either globally or in Switzerland. Moreover, the authority added that among the activities performed by financial intermediaries, equity and debt capital-raising are enforced by existing laws with the aim to protect the investors and the proper functioning of the market. [329]

Considering these common purposes and the specific features of ICOs, this financing tool might be regulated by existing law, meaning provisions on combating money laundering and terrorist financing, Banking law, securities trading and collective investment schemes legislation. [330] In fact, considering the closer proximity, in some areas, of ICOs and token-generating events with transactions in conventional financial markets, the scope of application of financial market laws might involve ICOs discipline. [331]

For this reason, FINMA published ICO guidelines on 16th February 2018, setting out the approach through which it intends to apply financial market legislation to ICOs. These guidelines define the required information to deal with ICOs enquiries and the principles upon which it will built its responses. This action was mainly due to the sharp increase in the number of planned or executed ICOs in Switzerland and thus to the corresponding increase in the number of enquiries about the applicability of regulation. These Guidelines surely create greater clarity on the ICO ecosystem. However, although the guidelines define some basic principle, each case must be decided on its individual merits and so financial market law and regulation are not applicable to all ICOs. Hence, even FINMA has come to the same principle, meaning the aforementioned case-by-case approach. In fact, is required to assess whether existing law has to be applied on the concerned ICO, depending on the manner in which it is designed. [332]

The adopted guidelines enable FINMA to respond effectively ICO organizers, in a more transparent way. For this reason, FINMA agrees on a process, subject to a fee, through which enquiries can be submitted to FINMA's FinTech Desk in one of Switzerland's official languages (German, French and Italian) or in English. This FinTech

[329] FINMA, 2017.
[330] FINMA, 2017.
[331] FINMA, 2017.
[332] FINMA, 2018 (1).

Desk will analyze the submitted enquiries exclusively from the perspective of existing financial market regulation. Hence, market participants remain responsible for evaluating and complying with other obligations. In fact, submitting an enquiry on the compliance of the ICO with financial market law, will not exempt from the liability arising from civil and tax law obligation, in case of civil law violation or tax elusion. [333]

Additionally, in order to enable FINMA to respond quickly and precisely to enquiries, minimum information requirements are set out in the appendix. They regard the following information:

- General information, concerning the name of the project and details about the company and all persons involved, distinguishing whether they are granted by licenses, under financial market law in other countries.
- Project description, providing for the project name, goals and plan, the key features of the service to be developed, potential restrictions and more information about the project timing organization and technologies to be used
- Token issues, relating to technical standards, used technology, ways of transferal to the investors and detailed description of their functionality. Furthermore, also the right to be acquired by investors must be assessed, documenting the specific participation and issuing conditions.
- Transfer and secondary market, dealing with all the matters related to token transferability, such as compatible wallets and technical standards. Moreover, this set of information must also include details about how and where can the token be acquired or sold after the issue, simplifying, whether there are any secondary market platforms. [334]

In addition, FINMA decided to shape its own approach on tokens categorization relying on their economic function, so whether they can be considered as securities or deposits.

Considering the first case, FINMA will base its determination on the following legal definitions. In accordance to article 2 (b) of Financial Market Infrastructure Act (FMIA) [335], securities can be distinguished in standardized certificated or uncertificated or derivatives and intermediated securities. Uncertificated securities represent rights which, based on a common legal basis, are issued or established in large numbers and are

[333] FINMA, 2018 (2), p. 2.
[334] FINMA, 2018 (2), pp. 9-11.
[335] FMIA, 2015, art. 2 (b).

generically identical. Moreover, complying with article 973c (3) of the Code of Obligations (CO) [336], the only formal requirement consists in keeping a book in which details of the number and denomination of the uncertificated securities issued and of the creditors are recorded. FINMA agrees that this requirement can be accomplished digitally on a Blockchain, hence is suitable for ICOs tokens. As legal implications, if ICOs tokens fall within the meaning of securities, they are covered by the securities regulation. In particular, the creation and issuance of derivative products as defined by FMIA to the public on the primary market is regulated in accordance to article 3 (3) of Stock Exchange Ordinance (SESTO), that states: *"Derivatives firms are securities dealers who, in a professional capacity, create derivatives and offer them to the public on the primary market for their own account or for the account of third parties".* [337] Recalling also article 3 (2) recital [338], if conducted with professional capacity, publicly underwriting and offering tokens, constituting securities of third parties, on the primary market, is a licensed activity. Lastly, the issuing of tokens, analogous to equity or bonds, might also result in prospectus requirements under the Code of Obligations. In addition, prospectus requirements will be enforced since they will become part of supervisory law, according to article 37 of the draft Financial Services Act (FinSA), [339] entering into force on 1st January 2019. [340]

Dealing with the second case, the issuing of tokens is not generally associated with claims for repayment on the ICO organizer. As consequence, such tokens cannot be considered as deposits. Anyway, liability with debt capital character might arise, so that the raised funds are coped with as deposits and a requirement under the Banking Act obliges to obtain a license, unless exceptions apply. [341]

Moreover, it is opportune to focus on the applicability of the Collective Investment Schemes Act [342] and the Anti-Money Laundering Act. [343] The purpose of the first one is investors protection and it also aims at ensuring the proper functioning of the market for investment fund products. Hence, its provisions acquire relevance only whether the funds accepted in the context of an ICO are managed by third parties.

[336] CO, 1911, art. 973c (3).
[337] SESTO, 1996, art. 3 (3).
[338] SESTO, 1996, art. 3 (2).
[339] FinSA Draft, 2018, art. 37.
[340] FINMA, 2018 (2), pp. 4-6.
[341] Banking Act, 1934.
[342] Collective Investment Schemes Act, 2006.
[343] AMLA, 1997.

Concerning the Anti-Money Laundering Act, its main scope consists in financial system protection from money laundering and the financing of terrorism. Thus, this regulation applies only when the issued tokens are means of payment, so not to utility tokens, as long as they can be transferred technically on a Blockchain infrastructure. In particular, this regulation makes arise a range of due diligence requirements, such as establishing the identity of the beneficial owner and the obligation, affiliating to a self-regulatory organization or being subject directly to FINMA supervision. These requirements can be fulfilled in the case in which funds accepted via a financial intermediary, already subject to this regulation in Switzerland and exercising, on behalf of the organizer, the corresponding due diligence requirements. In these cases, an ICO organizer does not have to be affiliated to a self-regulatory organization or to be licensed directly by FINMA. [344]

Once again, Switzerland has proved to be a reference country for the financial markets. Indeed, being a country very open to innovation and new technologies, Swizterland continues to attract many FinTech companies. The publication of the ICOs Guidelines and their efficient integration with existing legislation, required by the case-by-case approach, has contributed to design a coherent system. The protection of the involved people is guaranteed not only by the respect of the AML / KYC practices, as almost of the other States. In fact, also from an interpretative point of view, protection is ensured through the introduction of the FinTech Desk, in order to clarify the methods of definition and documentation, as well as the terms and conditions of the ICOs in the planning phase.

3.2.3 North America: United States and Canada

This paragraph analyzes the position, towards the ICOs, assumed by the United States and Canada. These two Countries legally admit ICOs, trying to ascertain whether tokens can be considered as investment contracts and, *de relato*, as securities. As a result, the authorities and applicable legislation are the same as those eligible for the regulation and supervision of ordinary securities. In particular, in addition to adhering to these regulations, ICOs must comply with AML / KYC practices.

United States and Canada should be considered together since they strongly cooperate in planning and implementing regulatory and investment actions in order to

[344] FINMA, 2018 (2), pp. 6-7.

supervise ICOs proceedings and to protect investors and markets. As evidence, these two Countries are bound by their adhesion to the North American Securities Administrators Association (NASAA). [345] This is enforced by their active participation in NASAA's ongoing initiative called "*Operation Cryptosweep*." [346] Operation Cryptosweep, launched in April 2018, aims at coordinating a series of investigations, into ICOs and cryptocurrency-related investment products, through an organized task force of NASAA Member States and provincial securities regulators. Until now, more than 200 inquiries and investigations and nearly 50 enforcement actions related to ICOs or cryptocurrencies, has been carried out. Moreover, NASAA Members are conducting additional investigations that might result in additional enforcement action. [347]

Starting from United States, like most of the examined Countries do, the first step to assess their approach toward ICOs regulation starts from establishing whether a novel type of financial instruments complies with the definition of securities. If it does so, US securities legislation has to be applied and a prospectus needs to be registered with the Securities and Exchange Commission (SEC). [348] In particular, when ICOs tokens are qualified as securities, the Securities Act of 1933 [349] and the Securities Exchange Act of 1934 [350] must be applied. Moreover, section 2(a) of Securities Act of 1933 [351] offers a list of instruments to be considered securities; it includes not only stocks or bond, but also the general category of *"investment contracts"*. [352]

In defining whether a security might be qualified as investment contract, courts and authorities still use the so-called *"Howey test"*. It derives from a groundbreaking definition given by the United States Supreme Court in a case dated 1946: *SEC v. Howey Co*. [353] In compliance with this leading decision, and subsequent case law, an investment

[345] The North American Securities Administrators Association (NASAA) is the oldest international organization aimed at investors and consumer protection. This voluntary association was established in 1919. NASAA and it consists of 67 state, provincial, and territorial securities administrators in the 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, Canada, and Mexico. NASAA members license firms and their agents, investigate violations of state and provincial law, file enforcement actions when appropriate, and educate the public about investment fraud. Moreover, its members also participate in multi-state enforcement actions and information sharing.
[346] NASAA, 2018 (1).
[347] NASAA, 2018 (2).
[348] SEC is an independent agency of the United States federal government. Its primary responsibility consists in enforcing the federal securities laws, proposing securities rules, and regulating the securities industry, the nation's stock and options exchanges, and all the other activities and organizations, such as, for instance, the electronic securities markets in the United States.
[349] Securities Act, 1933.
[350] Securities Exchange Act, 1934.
[351] Securities Act, 1933, section 2(a).
[352] Hacker and Thomale, 2017, pp. 17-18.
[353] US Supreme Court, 1946, SEC v. Howey Co.

contract can be qualified as such when it overcomes the *Howey test*. According with paragraph 4 of the decision, *"The test of whether there is an "investment contract" under the Securities Act is whether the scheme involves an investment of money in a common enterprise with profits to come solely from the efforts of others; and, if that test be satisfied, it is immaterial whether the enterprise is speculative or non-speculative, or whether there is a sale of property with or without intrinsic value."* [354] To sum up, the test is fulfilled when the following four conditions are met:

- investment of money (into);
- common enterprise;
- (with) the reasonable expectation of profits (derived);
- (from) the entrepreneurial or managerial efforts of others.

Indeed, whenever profits are expected from significant efforts of others, a principal-agent conflict and hence information asymmetry arises between investors and promoters. Within this context, promoters must explain their intention and capacity to deliver on their promises. Hence, it is precisely from a classical economic perspective, a prospectus with all the detailed information is required. [355]

One of the first application of the mentioned test by SEC was in regard to the DAO tokens, in July 2017. [356] From the 30th of April 30 to the 28th of May 2016, the DAO launch an ICO and sold approximately 1.15 billion DAO Tokens in exchange for a total of approximately 12 million Ether. On June 17, 2016, an unknown individual or group, called "Attacker", began rapidly diverting ETH from the DAO abusing of a bug in the DAO smartcontracts, causing approximately 3.6 million Ether to move from the DAO's Ethereum Blockchain address to an Ethereum Blockchain address, called the "Attack", controlled by the Attacker. In order to secure the diverted Ether and return it to DAO Token holders, an "Hard Fork" to the Ethereum Blockchain was endorsed. The "Hard Fork", is a safety measure that allow a change in the Ethereum protocol on a going forward basis, with the aim to restore the DAO Token holders' investments as if the Attack had not occurred. This incident caused SEC intervention, demonstrating that

[354] US Supreme Court, 1946, SEC v. Howey Co., para. 4.
[355] Hacker and Thomale, 2017, p. 18.
[356] DAO means digital decentralized autonomous organization, it was a form of investor-directed venture capital fund. Its main objective consisted in supplying a new decentralized business model for organizing both commercial and non-profit enterprises. It was a set of contracts among people established on the Ethereum Blockchain and its code was open-source. Since it was a stateless fund, questions about how government regulators would intervene arose.

specific laws should be developed and implemented in order to monitor risks and to promptly intervene in case of violations. [357]

In this famous case, SEC established that DAO tokens constitute investment contracts and, by extension, securities. In order to reach this conclusion, SEC adopted the following approach. [358]

Firstly, the SEC highlighted that it was immaterial that consideration for the tokens was not given in dollars, but rather in a cryptocurrency, Ether. Hence, buyers did "invest money" because Ethers were a valuable contribution to the issuer. Therefore, SEC confirmed previous case law stating that cryptocurrency investments are counted as investment of money. [359]

Secondly, SEC implicitly assumed the DAO vehicle as a common enterprise [360], because investors, when they sent Ether to the DAO's Ethereum Blockchain address in exchange for DAO Tokens, reasonably expected to gain profits through DAO. In fact, according to the various promotional materials and the information released by DAO co-founders, the DAO was qualified as a for-profit entity, whose objective was to fund projects in exchange for a return on investment. [361]

Thirdly, considering promotional materials and issuer communications, SEC stated that investors had a reasonable expectation of profits, within whose meaning, dividends, other periodic payments, the increased value of the investment must be included. [362]

Fourthly, it concluded that these profits were expected either from the interplay of market forces, either from the substantial efforts of the DAO promoters. In fact, according to US case law, it ought that the promoters make significant efforts, *"those essential managerial efforts which affect the failure or success of the enterprise"* [363]. SEC considered last criterion of the *Howey test* to be fulfilled because investors were not even on equal footing with promoters, in relation to the maintenance and curation, as well as daily strategic operations of the DAO. [364]

---

[357] DAO report, 2017, section II.
[358] Hacker and Thomale, 2017, p. 18.
[359] Hacker and Thomale, 2017, p. 18.
[360] Hacker and Thomale, 2017, p. 18.
[361] DAO report, 2017, section III-B, para. 3.
[362] Hacker and Thomale, 2017, p. 18.
[363] DAO report, 2017, section III-B, para. 4 (a).
[364] Hacker and Thomale, 2017, p. 18.

Although *Howey's decision* was issued in 1946, far from the current years of Blockchain technologies development, the parallel between the original situation in *Howey case* and the *DAO case* demonstrates how finding clear guiding criteria, especially in those legal systems ruled by the principle of *"binding precedent"* [365], constitutes a powerful tool for the interpretation and resolution of disputes, even in the most innovative and modern areas. Moreover, the *Howey test* requirements are used not only in the United States, but they have implicitly become a guideline for Canada, as will be highlighted below.

In addition, the assumption that, complying with US law, some tokens are securities, had effects in industry, too. In particular, the Simple Agreement for Future Tokens (SAFT) is intended to create an incubator for tokens that are securities in their development phase. [366]

In fact, the SAFT Whitepaper enshrines the following main objectives. It aims at introducing token networks and at providing a description of the "direct token presales" occurring in the market today, with an explanation of the reasons why those direct presales almost always create securities. The mentioned Whitepaper also promote investigation about some of the money services laws and tax risks associated with the direct presale model. Among the objectives, also a proposal SAFT framework is outlined, setting forth its benefits and detriments over the direct presale model. The SAFT Whitepaper also introduces a call for discussion and development of the framework, including harmonization with international standards.[367]

After having examined the US approach, the Canadian one is outlined. The Canadian Securities Administrators (CSA) release two documents concerning ICO, the first one, SN 46-307, in August 2017 [368], and the second one, SN 46-308, in June 2018. [369] These notices outline how securities law requirements may apply to initial coin offerings (ICOs), initial token offerings (ITOs), cryptocurrency investment funds and the cryptocurrency exchanges trading these products. In SN 46-308, CSA recalls SN 46-307 case-by-case approach, since every offering is unique and must be assessed depending on its own characteristics. Moreover, ICOs might entail the distribution of securities since

[365] The principle of "Binding precedent" is followed in common law jurisdictions, such us US. It means that courts are bound to follow a precedent or an existing law. Generally, "binding precedents" relates to the doctrine of "stare decisis", meaning "stand by the decision".
[366] Hacker and Thomale, 2017, pp. 18-19.
[367] SAFT Whitepaper, 2018.
[368] CSA, 2017, SN 46-307.
[369] CSA, 2018, SN 46-308.

the offering might involve the distribution of an investment contract and/or the issued tokens might fall within the meaning of securities. In order to assess whether it involves the distribution on an investment contract, case law endorses a purposive interpretation aiming at investor protection. According to the recital of this notice, that strongly recall the requirements enshrined in the *Howey test,* ICOs relates to investment contracts whether the offering involves:

- An investment of money;
- In a common enterprise;
- With the expectation of profit;
- To come significantly from the efforts of others.

Furthermore, in carrying out this analysis, CSA remarks that *"businesses and their professional advisors should assess not only the technical characteristics of the token itself, but the economic realities of the offering as a whole, with a focus on substance over form"*. [370]

In addition, whether ICO tokens are considered securities, it must comply with prospectus requirements or exemptions, in accordance with memorandum exemptions provided in National Instrument 45-106 Prospectus Exemptions. Moreover, securities, distributed through capital-raising Prospectus Exemptions, are also subject to the resale restrictions in National Instrument 45-102 Resale of Securities. [371]

CSA concludes its notice underlining its welcome to digital innovation and recognizing that new FinTech businesses might not completely fit into the existing securities law framework. Therefore, they launch an initiative with the scope to support FinTech businesses seeking to offer innovative products, services and applications in Canada. This is called "*CSA Regulatory Sandbox*" and will allow firms to register and/or be exempt from securities law requirements, through a faster and more flexible process. It will consent to test their products, services and applications throughout the Canadian market, generally on a time-limited basis.[372]

In conclusion, this commitment highlights that both United Stated and Canada are strongly motivated to include financial tools based on Blokchain-technology, such as ICOs, in their financial system. This does not mean that they will allow ICOs to damage their markets, so that they will always rely on a strict and coordinated supervision and

[370] CSA, 2018, SN 46-308, pp.1-2.
[371] Ontario Securities Commission, 2009.
[372] CSA, 2018, SN 46-308, pp. 7-8.

potential enforcement actions. Also on those countries has been understand that ICOs constitute innovative weapons to break up territorial boundaries affecting the financial markets; hence, their effective regulation, supervision and enforcement, should be based on a common framework but also on jurisdictional dialogue among States and Authorities.

3.2.4 Australia

The present paragraph will examine the Australian approach enshrined Information Sheet no. 225, dated 1st May 2018. This document, released by Australian Securities and Investments Commission (ASIC) [373], enlightens about the potential application of the Australian Corporations Act [374] to entities willing to raise funds through ICOs.

ASIC is aware that issuing and trading of crypto-assets, and specifically ICOs, must be conducted in a manner that incentives consumer trust and confidence and complies with the relevant laws. Considering that a range of ICOs and crypto-assets are available in Australia, assessing whether existing law applies is necessary to ensure investors protection. Otherwise, laws applicable to a crypto-asset or ICOs might differ depending on whether these constitute (or do not) a financial product.

In general, Australian law prohibits misleading or deceptive conduct in trade or commerce, also in connection with financial services. Therefore, for ICOs and crypto-assets constituting financial products, the Corporations Act rules against misleading and deceptive conduct. Moreover, Regulatory Guide no. 234 [375], on advertising financial products and services, enucleates a good practice guidance. It contains guidance to support businesses to comply with their legal obligations, in order not to perform false or misleading statements or engage in misleading or deceptive conduct. Furthermore, ICOs and crypto-assets, that are not financial products, are subjects to the same prohibition but they are covered by the Australian Consumer Law. [376]

[373] ASIC is Australia's integrated corporate, markets, financial services and consumer credit regulator, aimed at building and maintaining a fair, strong and efficient financial system. It is an independent Commonwealth Government body, set up under and administering the Australian Securities and Investments Commission Act 2001 (ASIC Act), in compliance with the Corporations Act.
[374] Corporations Act, 2001.
[375] Regulatory Guide no. 234, 2012.
[376] ACL, 2010.

Breaching Australian law through performing misleading or deceptive conduct, activate the power of ASIC, in coordination with the Australian Competition and Consumer Commission (ACCC) [377], to take.

In addition, ASIC Information Sheet underlines an interesting parallelism between ICOs and IPOs. When an ICO is created to fund a company, the rights enshrined in the tokens issued by the ICO might comply with the definition of a share. Hence, an ICO is understood as an offer of "shares" and the issuer will need to prepare a prospectus, since these ICOs are compared to IPOs. Unfortunately, ICOs might not offer the same consumers protections and they might imply risks in liability for the issuer and those involved. As consequence, issuers should release a prospectus and, if that document does not contain all the information required by the Corporations Act, or includes misleading or deceptive statements, investors might be able to withdraw their investment before the tokens are issued or pursue the issuer and those involved for the loss.

In conclusion, Australia decided not to intervene through a specific legislation but applying the existing laws, in compliance with a case-by-case approach, depending on the nature of ICOs. This does not mean that Australia is not interested in ICOs framework, it rather prefers to create stability assessing whether these financing tool can be covered by Corporations Act or Australian Consumer Law. In addition, ASIC and ACCC power to enforce the law and intervene in case of misconduct, represents an effective tool to ensure ICOs performing, contributing to build a safe and effective legal framework around this phenomenon introduced by FinTech innovation. [378]

3.2.5 Honk Kong and Republic of Singapore

In this paragraph, the positions towards ICOs assumed by Honk Kong and the Republic of Singapore will be analyzed. In fact, both have taken a positive approach by allowing ICOs, unlike other country such as China and South Korea. Honk Kong and the Republic of Singapore became centers in which the flow of businesses and investors has settled. Although also other Asian states, such as Japan and Taiwan, have recognized

[377] The Australian Competition and Consumer Commission (ACCC) is an independent Commonwealth statutory authority whose role is to enforce the Competition and Consumer Act and a range of additional legislation. It promotes competition, fair trading and regulating national infrastructure for the benefit of all Australians. It is composed of a Chair, two Deputy Chairs, and three Commissioners, whose appointment involves participation by the Commonwealth, and state and territory governments.
[378] Information Sheet no. 225, 2018.

ICOs, Honk Kong and Singapore remain the preferred states for ICOs launch. This is due to the fact that these states are houses of many financial institutions, which could act as potential investors for ICOs. What is more, they do not impose capital gains taxes and they also provide for a vibrant community of cryptocurrencies.

Dealing with Honk Kong, the Securities and Futures Commission (SFC) [379] released a statement concerning ICOs on the 5th April 2017, after having noticed a stunning increase in ICOs use to raise funds in Hong Kong and elsewhere. This statement explains that, depending on the facts and circumstances of an ICO, offered or sold digital tokens might be regarded as "securities" in compliance with Securities and Futures Ordinance (SFO) [380], and so, they are subject to the securities laws of Hong Kong. Although digital tokens offered in typical ICOs are often qualified as a "virtual commodity", the SFC recognized that certain ICOs have terms and features that might mean that they can be considered securities. ICOs tokens can assume different forms in relation to their functionalities. If they represent equity or ownership interests in a corporation, these tokens may be regarded as "shares". Tokens aimed at creating or to acknowledging a debt or liability owed by the issuer, they might be qualified as a "debenture". Lastly, when token proceeds are managed collectively by the ICO scheme operator, in order to invest in projects aiming at enabling token holders to participate in a share of the returns provided by the project, the digital tokens represent an interest in a "collective investment scheme" (CIS). Therefore, since shares, debentures and interests in a CIS all fall under the definition of securities, ICOs should be regulated in compliance with Securities and Futures Ordinance (SFO). In addition, SFC warned investors, suggesting being mindful of the potential risks involved in ICOs and investment arrangements with digital tokens, since they could be exposed to heightened risks of online fraud. Moreover, digital tokens traded on a secondary market might cause the risks of insufficient liquidity or volatile and opaque pricing. A full understanding of the features of the products or business projects to invest in, is required and investors have to carefully weigh the risks against the return before making such an investment. [381]

[379] The Securities and Futures Commission (SFC) is an independent statutory body set up in 1989 to regulate Hong Kong's securities and futures markets. It derives its investigative, remedial and disciplinary powers from the Securities and Futures Ordinance (SFO) and subsidiary legislation. Operationally independent of the Government of the Hong Kong Special Administrative Region, it is funded mainly by transaction levies and licensing fees.
[380] SFO, 2002.
[381] SFC, 2017.

On 1st August 2017, the Monetary Authority of Singapore (MAS) [382] underlines that whether a digital token constitutes a product regulated by securities laws administered by MAS, its offer or issue must comply with the applicable securities laws. For this reason, MAS release a Guide to digital token offering on 15th November 2017. This document provides a general guidance on application of the securities laws, such as Securities and Futures Act (SFA) chapter 289 [383], and the Financial Advisers Act (FAA) chapter 110. [384] MAS followed the same approach of SFC, since it assumed that ICOs might be considered securities in certain circumstances. In particular, according to point. 2.1 of the aforementioned Guide, *"Offers or issues of digital tokens may be regulated by MAS if the digital tokens are capital markets products under the Securities and Futures Act (SFA). Capital markets products include any securities, futures contracts and contracts or arrangements for purposes of leveraged foreign exchange trading."* [385] The Guide also addresses some case studies in order to outline how the Singaporean securities laws would apply. Anyway, point 4.1 underlined that the illustrated potential solutions are *"not indicative or conclusive of how the securities laws will apply to a particular case involving an offer or issue of digital tokens"*. [386] In addition, MAS remarked the duty to avoid this innovative financing tool becoming a tool to commit crimes, so that their discipline and application must comply with all legislation for combating money laundering and terrorism financing. [387]

After having examined both the approaches of Honk Kong and Republic of Singapore, the same approach can be highlighted. They both represent a lively financial community since they house many financial institution and established a flexible taxation system. For this reason they both shown great openness towards ICOs, differently from neighboring States. MAS followed the same approach of SFC, recognizing that ICOs tokens can assume different forms in relation to their functionalities. Furthermore, these authorities warned investors about the potential risks and remarked the necessity to

[382] MAS is Singapore's central bank and aims at promoting sustained, non-inflationary economic growth through appropriate monetary policy formulation and close macroeconomic surveillance of emerging trends and potential vulnerabilities. It is also an integrated supervisor overseeing all financial institutions in Singapore, such as banks, insurers, capital market intermediaries, financial advisors, and the stock exchange.
[383] SFA, 2005, chap. 289.
[384] FAA, 2002, chap. 110.
[385] MAS, 2017, p. 2.
[386] MAS, 2017, p.8.
[387] MAS, 2017.

comply with anti-money laundering and terrorism financing legislation since this innovative financing tool might easy work as tool to commit crimes.

3.2.6 Russia

Russia is listed among the States that have been in favor of the regulation of the emission, trade and storage of tokens cryptocurrencies. In particular, on 25th January 2018, the Russian Ministry of Finance published the text of a draft law that, in addition to regulating these aspects, would introduce specific legal requirements for the parties that promote and intend to join tokens trade and ICOs.

This bill would allow holders of cryptocurrencies to exchange them with other digital assets, rubles, foreign currencies or "other properties", but only through exchanges in compliance with current regulations. These must be carried out in accordance with articles 3 - 5 of the Federal Law on the Securities market. In addition, legal entities, promoting and trading any legal form of cryptocurrency trade, must comply with the Federal Law on Organized Trade. [388]

The bill establishes that the information flow must be guaranteed among the parties, making various information available to the public. These information have to include the full name of the issuer of the tokens, the location of the issuer's executive body and the address of the issuer's website. Furthermore, also the information disclosure relating to any central authority validating blocks or issuing tokens on the Blockchain, should be ensured. Moreover, transparency of token prices and issuing procedure must be guaranteed in addition to the completeness of the information. An accompanying document on the website of the Russian Ministry of Finance emphasizes that the procedure for offering tokens is similar to that of securities IPOs.

However, according to the explanatory document on the website of the Ministry of Finance, the Russian Central Bank exceptionally pronounced on the provision about the possibility of exchanging decentralized cryptocurrencies with other digital resources and with foreign and domestic fiat currency. The Ministry claims that such control over the exchange of cryptocurrencies is justified by the risk related to the use of digital resources by criminal organizations. In fact, this bill is aimed not only at regulating an innovative financing instrument, but also at significantly reducing the risks of fraud and

[388] Federal law n.325-FZ.

money laundering. It could contribute to the creation of a transparent tax regime for cryptocurrencies transactions, increasing revenues from the Russian budget.[389]

On 20th March 2018, the Russian government issued a statement pledging to support a bill that would regulate the ICO, entitled "*On alternative ways of attracting crowdfunding*", providing some amendments to the proposed law are made in January 2018. The revisions requested to include the bill writing of the maximum annual amount that "unqualified" investors can put in ICO (600,000 rubles of funds, or about $ 9,630 at the time of press) rather than referring to another invoice in which this amount is listed. It also required more details regarding the inspections proposed by the Russian Central Bank in relation the activities of the investment platform operators. [390]

Finally, two Russian financial institutions, the National Settlement Depositary (NSD) and the Sberbank CIB, are preparing to test a new regulatory platform in order to make ICOs safer and more transparent.

The main activities of both banks include asset management and investment banking. The proposed platform will examine the supply and distribution of ICOs to make them safer and more transparent to customers and investors of the bank. NSD, which acts as a central securities depository for the entire Russian Federation, will register tokens, issue and provide clearing and regulation for ICOs, also holding digital securities. Sberbank CIB, the asset management branch of the Russian Central Bank, will act as the issuance coordinator and anchor investor in tokens. Level One, the company that operates the largest commercial conference hall in Moscow, will be the issuer of the tokens.

As almost the analyzed States above, Russia's approach is focused not only on ICOs regulation, but also on the reduction fraud and money laundering risks. Otherwise, Russia proved to be more open than other States and decided to follow a much more "public" approach. In fact, beyond the developing legislative initiative, Russia decided to involve National Settlement Depositary (NSD) and the Sberbank CIB, the asset management branch of the Russian Central Bank. This interaction would allow to test the mentioned new regulatory platform in a more efficient manner. Hence, this confirms that the main aim is making ICOs safer and more transparent. This is also underlined by the fact that inspections on the activities of the investment platform operators would be proposed by the Russian Central Bank. [391] In addition, test feedback would be essential

[389] Reese, 2018.
[390] Cryptomonetae, 2018.
[391] Cryptomonetae, 2018.

since it would allow the improvement of the platform before it is released to the public. This initiative highlights the intention to promote this tool in a proactive and functional way to the forthcoming entry into force of an appropriate legislative framework, on which Russia is already working to institutionalize and disseminate this type of financial innovation. [392]

3.3 Potential legislative approach to ICO and suggestions

As concluded in the previous paragraph, ICOs, in force of its evolutionary nature, should be soon regulated through an innovative approach. The necessity to design this new and specific approach relies in the required shift in the way the role of law is perceived, as consequence of the deployment and mainstream adoption of this technology.

This paragraph will firstly outline the interaction between innovation and regulation, from an historical perspective. Then, it will focus on two different legislative approaches: the first one operates on international law level, the second one is developed within EU law.

After having provided for a set of best practices, aiming at assessing the conducts that might lead to ICOs success, conclusive observations on the expected consequences and development of ICO discipline and the creation of CMU will be outlined in the conclusive paragraph.

3.3.1 Innovation and regulation: an historical perspective

From an historical legislative perspective, the development of business and technology laws has always been caused by the emergence of new realities, never faced before. Above all, these emerging laws have never been, at the beginning, officially recognized and enforced by sovereign authorities.

A meaningful example is represented by *Lex Mercatoria*, the archetype of what is today the business law. It was a customary law regulating domestic trade within a specific kingdom, but, as the trade was no longer limited to one kingdom, domestic customary rules could no longer apply. As consequence, a new set of rules and principles were

[392] Zmudzinski, 2018.

established with the aim of regulating trade within and among different kingdoms. *Lex Mercatoria* was not dictated nor recognized by any specific kingdom. Furthermore, it was not enforced by any sovereign authority, since royal courts avoided international trade cases and refused to recognize the validity of these contractual deals: it emerged from merchants' interactions. In fact, they strongly needed to regulate their activities, extending their reach and reducing the uncertainty surrounding their trade. [393]

In the 1990s, a similar trend emerged within the diffused adoption of the Internet. Hence, the rise of private trade/ordering, as main regulating tool for online interaction, implied a new transnational conception of law, challenging the traditional one as based on national boundaries and jurisdiction. This phenomenon has been called *Lex Informatica*. It is perceived as a natural extension of *Lex Mercatoria* since, as this last one did, it relies on self-regulation. In fact, *Lex Informatica* is a system of customary and technical rules, or standards, that online users elaborate for internal use within the community. The peculiarity of this system is its capability to operate transnationally, across borders, independently from national boundaries and so domestic laws. This system is not a direct expression of legislator's will, but rather, of who is enabled to establish the technical norms and so to develop the concerned platforms. This is a typical regulation by code, which regulates a widespread variety of relationships on the Internet. Indeed, *Lex Informatica*, concerns many areas of the Internet application in trade, such as contractual, copyright, privacy, and Cybersecurity law. [394] For this reason, the legislator was called to intervene, in order to ensure all these situations, designing a new idea of law and space, developing the concept, and then the specific sets of laws, of *Cyber Law* and *Cyber Space*. [395]

Today, a similar inflection point in the history of the Internet is being faced because of development of DLTs and, in particular, Blockchain technology. In fact, this

[393] Wright and De Filippi, 2015, pp. 44-45.
[394] Wright and De Filippi, 2015, pp. 45-48.
[395] Recalling the definition provided by the Treccani Encyclopedia, the term "*Cyber Space*" appeared in the first time in a science fiction story, titled "*Burning Chrome*" (1989), by WILLIAM GIBSON. With this term, GIBSON identified an imaginary place of technological fantasies and hallucinations, as opposed to real space. Then, the term assumed a different meaning, becoming commonly used in the Third Millennium, with the widespread diffusion of innovations in the fields of information and communication. Although it is more correct to extend the scope of the term to all digital systems of connection, acquisition and sharing of information, the term "*Cyber Space*" operates as a synonym for the Internet. In fact, spatial metaphors are widely used in this field: the use of the network is usually defined navigation and often the names of the browser evoke practices of travel, exploration or spatial appropriation (Navigator, Explorer, Safari). As consequence, "*Cyber Law*" concerns that field of law that regards "*Cyber Space*" and, in general, the way through which Internet and all the technological and electronic elements, including computers, software, hardware and information systems interact with each other.

current phenomenon might give rise to another body of laws, based on self-executing Smart Contracts and decentralized organization. This evolution might bring from *Lex Informatica* to the so-called *Lex Cryptographia*. Preserving all the opportunities and potentialities introduced by Blockchain technology, such as ICOs, and avoiding, or reducing to the minimum, all its possible risks, would be possible if a new paradigm of law was devised. In fact, only the development of specific laws could balance the power of Blockchain technology and emerging autonomous systems, promoting economic growth, free speech, democratic institutions, and the protection of individual liberties.[396]

Hence, technology and regulation should closely interact. On one hand, since technology alters financial service attributes and market structure, financial regulation has to be adapted, in order to be effective. On the other hand, regulation exercises great influence over technology development. The reasons why financial sector regulation is required lies in the necessity to address vulnerabilities and imperfections in financial markets, able to weaken financial stability, to undermine market efficiency and, lastly, to expose consumers to risks. Financial regulation might contribute to support trust in the financial system, since a lack of trust, in financial intermediaries and processes, might hinder the functioning of financial markets. [397]

Moreover, emerging technologies could raise financial stability risks. In fact, the development of financial services without the supervisory and regulatory framework might trigger the emergence of new risks. So that, oversight and regulation of algorithms underlying FinTech innovations are required with the aim to ensure financial stability and so to create confidence in those systems based on them. [398]

Therefore, considering that new technologies work and develop across borders, international cooperation becomes essential to ensure an effective regulation of such phenomena. Actually, as shown while dealing with comparative perspectives, in paragraph 3.2, there is little consistency in regulatory approaches across jurisdictions. This entails the weakening of regulation at national level, since it potentially implies regulatory arbitrage. As consequence, greater harmonization between national regulatory frameworks might level the playing field and, above all, it might ease the adoption of these technologies on a global scale. [399]

[396] Wright and De Filippi, 2015, pp. 48-57.
[397] International Monetary Fund, 2017, pp. 14-15.
[398] International Monetary Fund, 2017, pp. 15-16.
[399] International Monetary Fund, 2017, p. 18.

3.3.2 Potential legislative approach: International law level.

With reference to the international legislative approach, an international convention on Blockchain technology, with a focus on ICOs, would significantly favor the regulatory landscape surrounding this phenomenon. Such a convention should be able to address which investor and consumer protection regimes are applicable and at which venues victims of fraud or misrepresentation might sue token sales responsible subjects. Hence, the international ICOs landscape might be evocative of the debates on the law applicable to contents uploaded on the Internet. This entails a twofold danger. Firstly, regulatory overkill would take place, since overlapping regulatory regimes would excessively burden developers. Secondly, regulatory perplexity will be triggered by the fact that contradictory regime content might effectively undermine investor and consumer protection. Otherwise, as reasonable as the case for international regulation might appear at first glance, the incentive to a ubiquitous ratification, of what HACKER and THOMALE (2017) define as "Crypto-security Convention", becomes less easy as a matter of fact. The strategic objective would be represented by the supremacy of the advantages derived from ratification, as being part of an integrated legal area for Blockchain tools regulation, over the idiosyncratic ones derived from non-ratification. For this reason, such a convention should be accompanied by unilateral prohibitive regulation aiming at shutting down the national markets for foreign crypto-security issuers that do not comply with such convention. Therefore, releasing this kind of convention presumes a resourceful preparation. This might be achieved through the work of the Hague Conference of International Law, the UNCITRAL and the UNIDROIT, the International Law Commission or the Hague Academy of International Law. In fact, the aforementioned institutions seem to be perfectly able to work on drafting articles and on projecting an intelligent implementation strategy. [400]

3.3.3 Potential legislative approach: EU law level.

Moving to EU law approach, a potential strategy to be welcome by the European legislator might be laid down. First of all, the legal basis and the compliance with EU principles will be presented. Then, the kind of legal act to be adopted and its enforcement

[400] Hacker and Thomale, 2017, pp. 42-43.

should be determined, also outlining the potential content with reference to the aforementioned issues, as explained in relation to applicable existing regulation.

Concerning the legal basis and the compliance with EU principle, the explanatory memorandum of the proposal for a regulation on European Crowdfunding Service Providers (ECSP) for Business might be recalled, in force of the similarities between ICOs and Crowdfunding, as analyzed in the second chapter. Indeed, both ICOs and Crowdfunding might be related to the priority of establishing CMU, as supported by the Commission. The concerned tools would broaden access to finance for innovative companies, startups and other unlisted firms, in particular, those ones qualified as SMEs. In fact, these last ones face many difficulties in accessing to finance, especially when they move from the startup into the expansion phase, because of structural information asymmetries. This initiative, as the Crowdfunding one, would also comply with the FinTech Action Plan, since ICOs technology would become a driver in the digital transformation either of financial sector, either of our society. Hence, such technologies are modifying the way consumers and firms access services; so that, the Commission should aim at opting for a more innovation-oriented approach to build a regulatory environment for FinTech. [401]

The legal basis for such a proposal lies in article 53, paragraph 1, TFEU. [402] This provision permits to adopt the necessary measures to approximate national provisions dealing with the access to the activity of investment firms, regulated markets and data service providers. Article 5 paragraph 1 TEU establishes that *"[...] The use of Union competences is governed by the principles of subsidiarity and proportionality"*. [403] In particular, with reference to the principle of subsidiarity, paragraph 3 states that *"in areas which do not fall within its exclusive competence, the Union shall act only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States, either at central level or at regional and local level, but can rather, by reason of the scale or effects of the proposed action, be better achieved at Union level [...]"*. [404] Furthermore, concerning the principle of proportionality, paragraph 4 determines that *"the content and form of Union action shall not exceed what is necessary to achieve the objectives of the Treaties."* [405]

[401] European Commission, 2018 (6).
[402] TFEU, 2007, art. 53 (1).
[403] TEU, 2009, art. 5 (1).
[404] TEU, 2009, art. 5 (3).
[405] TEU, 2009, art. 5 (4).

In particular, article 4 paragraph 2 TFEU lists, among the areas of shared competence, between the Union and the Member States, the internal market; the economic, social and territorial cohesion; the consumer protection; the trans-European networks and, lastly, the area of freedom, security and justice. [406] In addition, paragraph 3 establishes that *"In the areas of research, technological development and space, the Union shall have competence to carry out activities, in particular to define and implement programmes; however, the exercise of that competence shall not result in Member States being prevented from exercising theirs."*. [407] All the mentioned areas are suitable to be touched by FinTech innovation tools. In fact, their functioning and their impact on EU financial market strongly concern, directly or indirectly, the areas provided by the Treaty.

As regards the choice of the instrument, article 288 TFEU provides for different legal acts through which the Union can exercise its competences. These are regulations, directives, decisions, recommendations and opinions. For the purpose of this topic, attention should be paid to regulations and directives. According to paragraph 2 of the mentioned article*, "a regulation shall have general application. It shall be binding in its entirety and directly applicable in all Member States."* Otherwise, the following paragraph establishes that *"a directive shall be binding, as to the result to be achieved, upon each Member State to which it is addressed, but shall leave to the national authorities the choice of form and methods."* [408]

As underlined in the fifth introductive paragraph of MAR, the adoption of a regulation, instead of a directive, would establish a more uniform interpretation of the designed framework. In fact, a regulation would define rules entirely and directly applicable in all the Member States. Therefore, this solution would limit, if not remove, the significant distortions of competition, that might result from divergences between national laws. This paragraph also highlights that requiring that all persons follow the same rules within the Union would reduce regulatory complexity and firms' compliance costs, especially those one operating on a cross-border basis. [409]

Dealing with the potential content, such a proposal, as already assessed for the Crowdfunding one, would have complementary consistency with existing EU policy provisions in the concerned area. [410] In fact, its potential content should recall the issues

[406] TFEU, 2007, art. 4 (2).
[407] TFEU, 2007, art. 4 (3).
[408] TFEU, 2007, art. 288 (1) (2) (3).
[409] MAR, 2014, para. 5.
[410] European Commission, 2018 (6).

of the examined applicable legislation. In particular, it would be done in a way to shape these issues on ICOs specific structure, functioning and objectives.

Hence, as most of EU legislation structure, the first provisions would provide for the scope and the main definitions related to ICOs. In particular, the main scope will comply with the objectives of CMU, especially focusing on the raising capital function. Then, among the main definitions, the first ones would be those of "ICOs" "token", distinguishing among "investment token", "utility token" and "payment token".

Furthermore, also the involved subjects would be outlined, defining who they are and their competences, meaning the "founder", the "investors" and all those empowered to work on the procedures. In addition, the definition of "Exchangers" would also be introduced as Italy did it in article 1 paragraph 5 lett. i) of Decree Law no. 90/2017. In fact, the definition of "European Exchangers" could be shaped on that given in paragraph 3.2.1.1, in compliance with the aforementioned provision. [411]

Moving to the functioning of the procedure, the first issue to be addressed should be the whitepaper legal content. This discipline has to be shaped on the Prospectus Regulation, since, as clarified above, the whitepaper and the prospectus play the same role. Furthermore, the introduction of a "simplified whitepaper" could be envisaged. It would constitute a simplified prospectus that can be used by the company, if it meets certain requirements and demonstrates the implementation of precise IT procedures for investors protection. This whitepaper, compared to an "ordinary" one, would reduce costs and time related to its preparation. Moreover, the reduction of costs and time would allow the use of this tool also for SMEs. Hence, this would be in compliance with the objectives of the CMU, as they also include the facilitation of access to finance for SMEs.

In addition, this potential ICOs regulation should recall other EU law in order to underline the will to comply with EU general framework. In particular, the objective to preserve market integrity and minimize inside trading and other forms of market manipulation have to pursued, as established by MAR Regulation.

Moreover, the "ICOs Regulation" should comply with MiFID II, since this directive constitutes the general framework for financial market regulation and this "regulation-to-be" would represent a complementary law.

---

[411] D.L. 90/2017, art. 1 (5)(i), "Exchangers" constitute *"service providers related to the use of virtual currency, limited to the performance of the activity of converting virtual currencies from or into currencies having a forced course"*.

Lastly, AML and KYC practices, in accordance to AML V and to all the privacy and data management rules, have to be fully satisfied. This should be complied in order to avoid that ICOs would be used as vehicles to commits crime or other illicit conducts, aiming at altering not only the financial system, but also EU society, as would happen if ICOs were used to finance terrorism or other organized crime groups.

Additionally, following the French proposal as enshrines in paragraph 3.2.1.4, companies, seeking to launch an ICO, can apply for a "European ICO visa", valid throughout EU. So, these companies would be required to send their whitepaper to the competent authorities in order to be authorized to exercise this kind of activity. Hence, the last part of this potential regulation should deal with the designation of the national supervisory authorities for the regulation enforcement, defining their powers and the redress procedures. Indeed, each Member State shall designate such competent authorities, entitled to carry out the duties provided by such regulation and all the applicable provisions of other laws. These authorities shall be communicated to the Commission and ESMA, since they respectively represent the main competent EU institution and the summit authority for market and securities.

As regards measures different from the hard law ones, as just explained, their promotion would be necessary to realize the multi-sided approach required to supervise, while promoting, this fast-developing phenomenon. For instance, the Observatory and the European Forum on Blockchain, explained in the first chapter, might be enhanced with a specific section, aimed at mapping and monitoring ICOs current and future development within EU.

Furthermore, the establishment of sandboxes at EU level might constitute an alternative measure. Sandboxes represent a mechanism focused on developing regulation and other practices, enabling to keep up with the fast evolution of innovative tools, such ICOs. This mechanism has been employed by the Canadian Authority to provide for an alternative way to test ICOs, since it would better address ICOs issues, thus developing a more effective regulation.

Also much more interaction between the main EU banks, under the supervision of the European Central Bank, might be enhanced through testing new regulatory platforms. In fact, recalling the Russian approach, as explained in paragraph 3.2.6, two Russian financial institutions - the National Settlement Depositary (NSD) and the Sberbank CIB - are preparing to test a new regulatory platform in order to make ICOs safer and more transparent. Test feedback would be essential since it would allow the

improvement of the platform before it is released to the public. Moreover, the power to supervise the activities of the investment platform operators is conferred to the Russian Central Bank. As consequence, if this type of initiative was embraced by EU, European Central Bank would be empowered to supervise.

In addition, the lack of technical and legal competences in ICOs matters pass through the lack of an effective "financial education" for investors. Furthermore, also the inadequacy of skills training opportunities to supply a specific preparation, for working within an ICO procedure, represents a problem. In fact, in order to develop ICOs and promote their deployment, experts in the concerned legal compliance, informatics and economics behind the procedures, are required. For instance, the promotion of focused university courses or professional seminars would be useful to increase ICOs employment, while creating new categories of jobs. As growth and social change are usually rooted in education, starting from schools and universities might be an effective way to deal with an innovative tool, such as ICOs, but also Blockchain in general.

3.3.4 ICO suggested best practices

After having described the potential International and the European legislative approach, a set of best practices can be outlined with the aim to assess which of them might lead to ICO success. They establish the most appropriate conducts to be carried out in relation to the fundraising process, the investor relations, the legal setup and business matters.

Considering fundraising process, Pricewaterhouse and Cooper specialists (2018) underline how structured fundraising rounds with caps of funding increase transparency and need-based funding of projects. Moreover, combining ICO with venture capital (VC) funding might vary funding sources and corroborate projects with professional investors, for instance through offering pre-sales to VCs. Another peculiar character concerns the limitation of aggressive promotion, according to the assumption *"Less promotion is better promotion"*. In fact, this technique might avoid to negatively afflict the credibility of project. [412]

With reference to investor relations, interactive protocols are suggested to improve those aspects related to the certainty of participation and valuation problem.

[412] PwC, 2018.

These protocols would operate by specifically pointing out the desired purchase quantity at each valuation through apposite smart contracts. Also establishing lock-up periods might protects investors, implying they have to weight benefits and risks of investment in a much more carefully manner. The last point of best practices with investor relations deals with the role played by information. As told before, in this kind of procedure, information asymmetry is a lively problem so that guaranteeing a transparent communication while and after ICO would limit the problems, for example by explaining what might happen with tokens and the potential legal issues. [413]

Referring to legal setup, careful evaluation and selection of jurisdiction, where the firm should be set up, might be one of the recommend practices, as well as focusing on governance and legal entity set-up. Moreover, another innovative practice, aimed at improving investors security and distribution problem, would be a kind of pre-registering requirement for investors combined with KYC/ AML investor identification to limit the maximum purchase by investor without need for uncapped ICO. [414]

Lastly, business best practices are recommended. Among these ones, we can distinct the staggered release of funds to development team, comprising voting mechanisms aimed at ensuring an appropriate use of funds and at increasing accountability for efficient allocation of resources. Other aspects concern the attention which should be paid to Cybersecurity pre- and post-ICO and to build thriving communities of interest, also caring about respecting ecosystems, trying to combine this last need with pure tech development.

Unfortunately, ICO became a synonym for rash evaluations and excessive risk, although, as underlined over the course of these chapters, Blockchain technology can improve project transparency, decreasing investor risk and developing an effective financing tool for quality Blockchain projects. However, as to pursue this target and to increase the probability to carry out a successful ICO, not only founders and investors, but also regulators should be required to fulfill some responsibilities arising from their role in the procedure. [415]

Hence, an important complementary role shall be also played by regulators. Indeed, above all, regulators and market authorities are assigned to comply with more duties, in force of their public role so that they have to guarantee the safety not only of

[413] PwC, 2018.
[414] PwC, 2018.
[415] EY, 2017, p. 40.

the involved individuals, but also of the market. Their tasks mainly consist in linking "crypto" terminology to existing definitions and in introducing new ones when occurs; ICO is just a new tool, so should not be above the "legacy" law. Moreover, they should standardize minimum requirements for reporting and protecting tokens holder rights. Another important duty relates to the cooperation with regulators from other jurisdictions, at least with jurisdictions with the largest number of ICOs and where most investors and crypto exchanges are placed. This last aspect concerns a kind of juridical dynamism which might help to develop the internal legislation and so to increase not only the number of launched ICOs, but also their quality. [416]

3.4 Conclusive observations on the expected consequences and development of ICO discipline and the creation of CMU

This thesis aims at supporting the regulation of a Blockchain-based tool, that is ICO, as a further and innovative way to promote and improve Capital Markets Union.

As enshrined in the first chapter, FinTech sector provides for new tools that might contribute not only to the reduction of burdens, but also to the establishment of a more efficient cross-border communication. [417] Hence, these benefits would provide for a powerful engine for capital markets integration. Otherwise, these tools constitute fast-developing technologies and the relative European and national laws are not following their rapid evolution. This implies a lack of coordination between the concerned phenomena and the applicable law. As consequence, this lacking coordination entails many "legal loop-holes", that could result in fraud risk or money laundering. These extreme consequences are totally against the aim of EU legislation and, above all, the scope and the structure itself of Blockchain tools. As explained in the first chapter, Blockchain technology allows disintermediation and greater transparency, since no entity can manage the system and so corrupt it. It is also based on an algorithmic code, reinforcing the immutability and the immediate verifiability of the transactions. Hence, this technology offers a much more resilient Cybersecurity system, because it ensures a more effective protection against the different types of cyberattacks. [418] However, this technology is not perfect. In fact, beyond the technical-structural critics, the main problem

[416] EY, 2017, p. 40.
[417] European Commission, 2015 (4), p. 26.
[418] World Bank Group, 2017, pp. 15-16.

concerns the absence of a specific and exhaustive regulation of the individual phenomena related to Blockchain application. Among these, this thesis focuses on Initial Coin Offering.

In particular, the second chapter deals with ICOs discipline, explaining not only the structure and functioning, but also, and above all, their potentiality and risks. ICOs is presented as an innovative phenomenon which is significantly shaping the entrepreneurial finance. It is Blockchain-based instrument which allows to raise capital through the selling of cryptocurrency tokens, used to finance specific projects. [419] Among the advantages provided by ICOs for capital raising, HOWELL, NIESSER AND YERMACK (2018) outline the decentralization. In fact, it entails saving on intermediary costs and increasing the remuneration for the creators of open source applications and, in general, for the involved subjects. As consequence, decentralization incentives network development and enhances cooperation, as they constitute relevant premises to build a Union, in this case, it will be read in Capital Markets Union perspective. ICOs also deal with the immutability and non-negotiability of governance conditions and transparency. These are strongly useful in relation to potential frauds derived from the corruption of the system. The last advantage concerns liquidity, since this system might reduce costs and times, usually required for the execution and settlement of ordinary security trades. In fact, these last ones rely on intermediation, so the presence of many middlemen increases costs and timing. In addition, ICOs can be regarded as an innovative tool not only for capital raising, but also for corporate governance. In fact, all the benefits, brought by Blockchain, might result in greater transparency of ownership, thus deterring insider trading crimes; in the voting system and, lastly, in real-time accounting. Therefore, all these advantages incentivize firms to embrace this innovation. In particular, SMEs and startups would highly benefit from them, as they are they mainly operate in FinTech sector and share the difficulty to access to finance. [420]

Moreover, this conclusive chapter also provided for a comparative perspective dealing with ICOs legal status in EU and beyond the EU boundaries. The concerned paragraph examined the strategy adopted by many Countries, highlighting a common action plan, based on the evaluation of specific situations through a case-by-case approach. In particular, all the analyzed Countries evaluate whether domestic law can be directly applied to the concerned case. The main criterion consists in assessing whether a

[419] Howell, Niesser and Yermack, 2018, p. 2.
[420] Yermack, 2017, pp. 20-26.

token can be considered as an existing financial unit and thus applying the relative legislation. For instance, UK tries to associate tokens to collective investment schemes, alternative investment funds and electronic money. Switzerland considered similarities with derivatives and securities and USA applies the so-called *Howey test,* in order to verify whether a token can be assumed as an "investment contract", falling within the application of the Securities Act. In addition, also the promotion of regulatory sandboxes, as Canadian Authority did, could be an alternative way to test ICOs, allowing to better address their problems and to develop a more effective regulation.

Within EU system, a common regulation on ICOs still lacks and many Countries simply decided to adopt the aforementioned case-by-case approach or, as Italy, to sidely incorporate ICOs issues in an existing law, such as the Italian AML legislation, that recalls the EU law one. In this context, the most progressive EU Member State proved to be the French one. In fact, until now, only France introduced to the Parliament a regulatory draft, already approved by PACTE committee, a specific proposal on ICOs regulation that proposes a voluntary "ICO visa", with the scope not only to protect investors, but also to maintain French Blockchain projects in France.

Moreover, all the supervisory authorities complain the lack of a specific regulation on ICOs at EU level. Indeed, on the 9th January 2019, ESMA published a press release consisting in an advice to the EU Institutions, meaning the Commission, Council and Parliament, on ICOs and crypto-assets. This advice is the result of a joint work with National Competent Authorities aimed at analyzing the different business models of crypto-assets, their potential risks and benefits and their compliance with the existing regulatory framework. Hence, during 2018, ESMA identified some issues concerning the current financial regulatory framework on crypto-assets. These concerns are outlined into two main categories. The first one relates to crypto-assets qualified as financial instruments under MiFID. In fact, according to the press release, for this kind of crypto-assets, *"[...] there are areas that require potential interpretation or re-consideration of specific requirements to allow for an effective application of existing regulations [...]"*. The second concern deals with those assets do not qualify as financial instruments, thus the absence of applicable financial rules implies that investors are exposed to substantial risks. [421]

[421] ESMA, 2019.

Therefore, this advice remarks the need of common EU-wide approach on crypto-assets in order to ensure investor protection. In fact, providing greater clarity and certainty about ICO regulations would allow to build a safer and more efficient system, speeding up the economy and making it more innovative and sustainable.

Also recalling the objectives enshrined in the CMU, a harmonized legislation would limit the risks related to the procedure and would enhance and broaden the access to finance for companies. Designing a system on which companies might rely to raise capitals and, in general, to be financed, is an effective way to realize CMU, also thanks to the fact that ICOs overcome geographic and structural boundaries.

In order to realize this project, many regulatory challenges must be addressed. In particular, the first issue concerns whether existing EU law can be applied or recalled with reference to specific ICOs aspects. Then, looking at the different solutions provided by other Countries, the EU legislator should outline a legislative approach to ICOs planning, deciding the form of the legal act to be adopted, in compliance with one of those defined in article 288 TFEU. [422]

The solution should also be suitable to address all the potential controversies that might arise from the use of ICOs. In fact, these may arise not only among all the involved subjects, such as founders or investors, but also among Member States. In fact, this kind of tool might potentially cause differences among Member States, often derived from the way through which EU legal acts are implemented in domestic law. In order to avoid these contrasts, EU legislator should design a system capable of avoiding competition among legal systems. So, an appropriate supervisory authority could also be established to prevent these controversies.

Hence, designing this system, within CMU perspective, presumes to address how CMU can be built and why Blockchain tools, hence ICOs, could promote this project. In the ongoing process of European economic integration, CMU likely represents next milestone. Anyway, CMU is still a work in progress but various details emerged, allowing to identify its strengths and weaknesses and thus outlining the key challenges for its development. [423]

This project would bring large benefits to European firms, households, and the society as whole. Considering the firms level, they would be supplied with an alternative source of financing suitable to reduce their reliance on banks. Moreover, ALLEN AND

[422] TFEU, 2007, art. 288.
[423] Allen and Pastor, 2018, p. 1.

PASTOR (2018) outline that capital markets would allow to finance innovation and new technologies better than banks, since they better deal with diversity of opinion. Hence, proving and improving a financing tool for innovation would entail a growth in the number of innovative firms operating within EU, avoiding their "escape" to better developed Countries, such as USA, where financing themselves is easier. [424]

Dealing with Households benefits, they would obtain opportunities with an attractive risk-return tradeoff from new investment, diversifying their set of investment opportunities. [425]

Lastly, also the society, as whole, would take advantages from a financial system based more on capital markets finance tools. In fact, this system is more resilient and more conducive to innovation, in comparison to the banking-based one. By reducing reliance on banks, more developed capital markets would realize an economy more resilient to banking crises. Furthermore, it would result in more financial stability, because the EU financial system would rely on two different systems, instead of one, meaning both the banking and capital markets engines. In addition, more developed and less fragmented capital markets could improve the shock absorption capacity in Europe. Indeed, capital markets constitute excellent shock absorbers since they incentive broad ownership of securities, with the consequence to efficiently manage risk sharing in the economy. The efficiency of a EU single capital markets might also result in the greater allocation of capital within the Union. In fact, removing constraints in the market might imply that price signals would guide the movement of capital in real time. As consequence, capital would migrate from less efficient to more efficient users, causing a faster economic growth in real time. [426]

However, for the purpose of this thesis, the main potentiality would deal with the encouragement of innovation within EU. Innovation is often carried out by startup companies that cannot easily borrow from a bank, because of their significant risk and the lack of tangible collateral. Although a more natural financing vehicle for them is represented by venture capital fund, the European venture capital industry is quite underdeveloped. Therefore, CMU provide for the most effective *"financial backers of innovation"*. [427]

[424] Allen and Pastor, 2018, p. 5.
[425] Allen and Pastor, 2018, p. 6.
[426] Allen and Pastor, 2018, pp. 8-9.
[427] Allen and Pastor, 2018, pp. 8-9.

In order to build CMU, ALLEN AND PASTOR (2018) underline that the plan designed by the Commission aims at eliminating the fragmentation of European capital markets through the harmonization of rules and standards across EU Member States. In fact, national insolvency, accounting, and taxes rules significantly differ from a country to another. This diversity hinders cross-border investment making hard a full risks assessment for investors. [428]

Differently, DEMARY (2017) argues that further standardization and harmonization alone, to promote financial integration, is not sufficient since it would not ensure financial stability. In fact, the aim to achieve both goals of financial integration and financial stability, might be reached if CMU was based on the following principles. First, the strengthening of financial integration should be achieved through equity and foreign direct investments and less through debt investments. Indeed, it should be reached also through an equal tax treatment. In fact, this incentive it is indirectly related to the preferential tax treatment of debt over equity which leads companies to rely excessively on debt financing. Secondly, the EU should be required to establish a single capital markets supervisor at the EU-level. This is due to financial stability risks emerging from a larger role of capital markets and non-bank investors, which are not subject to the existing supervisory model designed for banks. Lastly, CMU action plan has not addressed the problem of the crisis in sovereign debt markets as systemically relevant for the stability of capital markets. Hence measures ensuring sustainable government finances needed to be included. [429]

Otherwise, the different obstacles faced by CMU have been addressed in the first chapter. Among these, the legal barriers against cross-border capital flows and relevant variation in the development of internal capital markets among the various Member States might be recalled.

In addition, also the current political and economic situation within EU, either as whole, either considering individual Member States, is weakening the possibility to carry out this ambitious project. In fact, Europe, and so its Member States at different level, has still been fighting against the economic and financial crisis since 2008. This long-lasting period provoked a strong distrust among investors and, unfortunately, many political and social diseases. This distressed the EU legislator from carrying out and better focusing on

[428] Allen and Pastor, 2018, p. 17.
[429] Demary, 2017, p.

CMU, since there have been more urgent questions to cope with. However, trying to keep on realizing this project, would have help to provide for solutions.

Moreover, another event need to be considered in relation to the current EU political situation that might impact on CMU: the Brexit. Indeed, XAFA (2017) discusses about CMU after Brexit, underlining that, after United Kingdom decided to leave, the capital markets financing represents a lower proportion of total financing, in the remaining twenty-seven Member States, than in the United Kingdom. As consequence, the need to develop capital markets became correspondingly greater. In particular, the author agrees that Brexit entails a more urgent EU capital markets supervision, due to the fact that fragmented supervision might imply regulatory arbitrage. Anyway, Brexit seems to have slowed the implementation of the CMU Action Plan, since the attention of European institutions focused on managing the future relationship with the United Kingdom. Moreover, France and Germany were unwilling to set a precedent on financial market access before Brexit negotiations had even started. As consequence, this reluctance further slowed the process. [430]

Supporting what is illustrated in this thesis, the resolution of the European Parliament, dated 3th October 2018, entitled *"DLT and Blockchain: building trust with disintermediation",* should be invoked. [431]

Indeed, assuming the continuous evolution requires a legal framework favorable to innovation, the European Parliament confirmed the need to encourage legal certainty and respect the principle of technological neutrality. [432] In fact, this would also promote the protection of consumers, investors and the environment, increasing the social value of technology, reducing the digital divide and improving citizens' digital skills. It should also be considered that the application of these technologies can quickly make them systemic, as happened in the past with the first digital innovations, now rooted in all sectors. [433]

In this resolution, the EU Parliament calls on the Commission and the financial authorities to monitor evolving trends and use cases, in the financial sector, with particular reference to ICOs. Then, underlining that the lack of a clear applicable legal framework might adversely affect the potential of ICOs, the Parliament emphasizes that

[430] Xafa, 2017, pp. 15-16.
[431] European Parliament, 2018 (2).
[432] The principle of technological neutrality allows the same use of the same frequency with different technologies.
[433] European Parliament, 2018 (2).

legal certainty can be instrumental in increasing investor and consumer protection and reducing risks. Among these risks, they should be mentioned those ones derived from information asymmetry, fraudulent behavior and illegal activities such as money laundering and tax evasion. In 2017, as already discussed in the previous chapters, ESMA has already invited the Commission to formulate guidelines, standards and reporting obligations, especially in the case of "utility tokens", since they can be considered more like a separate category of assets than as securities. In addition, the Parliament also suggests setting up an observatory for monitoring ICOs and creating a database of their characteristics and taxonomy, distinguishing between "security token" and "utility token". In fact, a model of normative experimentation could turn out to be even more functional if adopted in conjunction with a code of conduct. Therefore, this code, linked to rules on the subject, could constitute the positive result of this observatory, aiming at helping Member States in the evaluation of ICOs use. [434]

In conclusion, the Parliament confirms how ICOs, constitutes an essential component for the creation of the Capital Markets Union. Therefore, its actual realization, through the interaction between the Capital Markets and the Blockchain technologies, is subject to a careful assessment of the arising legal obligations that has to be led by the Commission. The definition of a clear legal framework and the aforementioned obligations will allow ICOs to be effectively combined with other financial vehicles and will stimulate business innovation funding and projects within the EU. As a consequence, the position of the Union will emerge stronger not only from an economic and financial point of view, but also on an innovative and competitive level. [435]

[434] European Parliament, 2018 (2).
[435] European Parliament, 2018 (2).

REFERENCES

- ALLEN F. and PASTOR L. (2018) *The Capital Markets Union: Key Challenges* [online] Available from: https://econpapers.repec.org/paper/cprceprdp/12761.htm [Accessed: 11th November 2018].
- ARMOUR J. and ENRIQUES L. (2017) *The Promise and Perils of Crowdfunding: Between Corporate Finance and Consumer Contracts. Law Working Paper N° 366/2017.* European Corporate Governance Institute.
- ASSOCIATION FOR FINANCIAL MARKETS IN EUROPE - AFME (2014) *An agenda for capital markets union* [Online] Available from: https://www.afme.eu/globalassets/downloads/publications/an-agenda-for-capital-markets-union.pdf [Accessed: 6h August 2018].
- ASSODIGITALE.IT (2018) *La Francia approva le nuove regole ICO per diventare l'hub leader in Europa* [online] Available from: https://assodigitale.it/criptovalute/ico/la-francia-approva-le-nuove-regole-ico-per-diventare-lhub-leader-in-europa/ [Accessed: 10th October 2018].
- AUSTRALIAN COMPETITION AND CONSUMER COMMISSION (ACCC) (2018) *Australian Competition & Consumer Commission, about us.* [online] Available from: https://www.accc.gov.au/about-us/australian-competition-consumer-commission [Accessed: 23th October 2018].
- AUSTRALIAN SECURITIES AND INVESTMENT COMMISSION (ASIC) (2012) *Regulatory Guide n. 234 Advertising financial products and services (including credit): Good practice guidance* [online] Available from: https://download.asic.gov.au/media/1246974/rg234.pdf [Accessed: 7th October 2018].
- AUSTRALIAN SECURITIES AND INVESTMENT COMMISSION (ASIC) (2018) (1) *About ASIC, what we do, our role.* [online] Available from: https://asic.gov.au/about-asic/what-we-do/our-role/ [Accessed: 23th October 2018].
- AUSTRALIAN SECURITIES AND INVESTMENT COMMISSION (ASIC) (2018) (2) *Information Sheet n. 225* [online] Available from: https://asic.gov.au/regulatory-

resources/digital-transformation/initial-coin-offerings-and-crypto-currency/ [Accessed: 7th October 2018].

- BARNARD C., PEERS S. (2014) *European Union Law.* Oxford University Press.
- BAUWENS M., et al. (2012) *A Synthetic Overview of the Collaborative Economy.* Orange Labs and P2P Foundation.
- BELLINI, M. (2018) *Blockchain & Bitcoin: come è nata, come funziona e come cambierà la vita e gli affari la tecnologia che è diventata il simbolo della rivoluzione digitale e valutaria.* Class Editori.
- BORSA ITALIANA (2001) *Quotarsi in Borsa - La nuova segmentazione dei Mercati di Borsa Italiana.* [Online] Available from: https://www.borsaitaliana.it/derivati/archiviopdf/ammissioni/guidaallaquot2277.pdf [Accessed 1st October 2018].
- CANADIAN SECURITIES ADMINISTRATORS (2017) *Cryptocurrency Offerings.* CSA Staff Notice 46-307 [online] Available from: http://www.osc.gov.on.ca/en/SecuritiesLaw_csa_20170824_cryptocurrency-offerings.htm [Accessed: 8th October 2018].
- CANADIAN SECURITIES ADMINISTRATORS (2018) *Securities Law Implications for Offerings of Tokens.* CSA Staff Notice 46-308 [online] Available from: https://www.osc.gov.on.ca/documents/en/Securities-Category4/csa_20180611_46-308_implications-for-offerings-of-tokens.pdf [Accessed: 8th October 2018].
- CLIFFORD CHANCE (2017) *Prospectus Regulation (EU) 2017/1129 - Summary chart of key features* [Online] Available from: https://www.cliffordchance.com/briefings/2017/07/pd3_prospectus_regulationeu201771129.html [Accessed: 7th August 2018].
- COINTELEGRAPH (2018) *Nuovo regolamento ICO francese in corso.* [online] Available from: https://it.coinnewstelegraph.com/new-french-ico-regulation-on-its-way/ [Accessed: 1st January 2019].
- COMMITTEE ON ECONOMIC AND MONETARY AFFAIRS (2018) *Draft Report on the proposal for a regulation of the European Parliament and of the Council on European Crowdfunding Service Providers (ECSP) for Business.* COM(2018)0113 – C8-0103/2018 – 2018/004 [online] Available from: http://www.europarl.europa.eu/sides/getDoc.do?type=COMPARL&reference=PE-

626.662&format=PDF&language=EN&secondRef=02 [Accessed: 9th October 2018].

- COMMONWEALTH OF AUSTRALIA (2001) *Corporations Act* [online] Available from: https://www.legislation.gov.au/Details/C2018C0003 [Accessed: 7th October 2018].
- COMMONWEALTH OF AUSTRALIA (2010) *Australia Consumer Law (ACL)* [online] Available from: http://consumerlaw.gov.au/the-australian-consumer-law/ [Accessed: 7th October 2018].
- CONLEY J. P. (2017) *The Economics of Crypto-tokens and Initial Coin Offerings.* Vanderbilt University.
- CONSOLIDATED VERSION OF THE TREATY ON THE FUNCTIONING OF THE EUROPEAN UNION (2007) Official Journal of European Union 2012/C 326/01 [Online] Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A12012E%2FTXT [Accessed: 4th August 2018].
- CONSOLIDATED VERSION OF TREATY ON EUROPEAN UNION – TEU (2009) Official Journal of European Union 2012/C 326/01 [Online] Available from: https://eur-lex.europa.eu/resource.html?uri=cellar:2bf140bf-a3f8-4ab2-b506-fd71826e6da6.0023.02/DOC_1&format=PDF [Accessed: 4th August 2018].
- COURT OF JUSTICE OF EUROPEAN UNION (CJEU) (22 October 2015) *Skatteverket vs. David Hedqvist.* Case C-264/14. [Online] Available from: http://curia.europa.eu/juris/liste.jsf?pro=&lgrec=it&nat=or&oqp=&dates=&lg=&language=en&jur=C%2CT%2CF&cit=none%252CC%252CCJ%252CR%252C2008E%252C%252C%252C%252C%252C%252C%252C%252C%252C%252Ctrue%252Cfalse%252Cfalse&num=C-264%252F14&td=%3BALL&pcs=Oor&avg=&page=1&mat=or&jge=&for=&cid=433436 [Accessed: 24th September 2018].
- CRYPTOMONETAE (2018) *Il governo russo promuove il supporto per la fattura ICO in attesa di modifiche minori* [online] Available from: http://www.cryptomonetae.com/il-governo-russo-promuove-il-supporto-per-la-fattura-ico-in-attesa-di-modifiche-minori/ [Accessed: 7th October 2018].
- DE LUCA N. (2017) *European Company Law. Text, Cases & Materials*, Cambridge University Press.

- DE LUCA N., FURNARI S.L. and GENTILE A. (2017) *Equity Crowdfunding* DIGESTO delle Discipline Privatistiche. Sezione Commerciale pp. 159-169.
- DEMARY M. (2017) *Challenges for the European Capital Markets Union: reviving financial integration and safeguarding financial stability.* Vierteljahrshefte zur Wirtschaftsforschung, DIW Berlin, volume 86 [online] Available from: https://elibrary.duncker-humblot.com/journals/id/25/vol/86/iss/1751/art/7881/ [Accessed: 11th November 2018].
- DLA PIPER (2017) *SEC eats away at Munchee "utility tokens": guidance for ICOs* [Online] Available from: https://www.dlapiper.com/en/us/insights/publications/2017/12/sec-eats-away-at-munchee-utility-tokens-guidance-for-icos/ [Accessed: 24th September 2018].
- ERNST & YOUNG (EY) (2015) *IPO: il percorso verso la quotazione in Borsa* [Online] Available from: https://www.ey.com/Publication/vwLUAssets/EY-ipo-il-percorso-verso-la-quotazione-in-borsa/$FILE/EY-ipo-il-percorso-verso-la-quotazione-in-borsa.pdf [Accessed 27th December 2018].
- ERNST & YOUNG (EY) (2017) *EY research: initial coin offerings (ICOs)* [Online] Available from: https://www.ey.com/Publication/vwLUAssets/ey-research-initial-coin-offerings-icos/$File/ey-research-initial-coin-offerings-icos.pdf [Accessed: 24th September 2018].
- ERNST & YOUNG (EY) (2018) *IPO and ICO markets at a glance: a current snapshot 2018* [Online] Available from: https://www.ey.com/Publication/vwLUAssets/ey-ipo-and-ico-markets-at-a-glance/$FILE/ey-ipo-and-ico-markets-at-a-glance.pdf [Accessed 3rd October 2018].
- EUROPEAN BANKING AUTHORITY (EBA) (2013) *Warning to consumers on virtual currencies* [online] Available from: https://www.eba.europa.eu/documents/10180/598344/EBA+Warning+on+Virtual+Currencies.pdf [Accessed: 9th October 2018].
- EUROPEAN BANKING AUTHORITY (EBA) (2018) *ESAs warn consumers of risks in buying virtual currencies* [online] Available from: https://www.eba.europa.eu/-/esas-warn-consumers-of-risks-in-buying-virtual-currencies [Accessed: 9th October 2018].
- EUROPEAN COMMISSION – DESI (DIGITAL ECONOMY AND SOCIETY) (2018) *DESI - Compare countries progress* [Online] Available from: https://digital-

agenda-data.eu/charts/desi-see-the-evolution-of-two-indicators-and-compare-countries#chart={"indicator":"DESI_4A_BD","breakdown":"DESI_4A1_EIS","unit-measure":"pc_DESI_4A_BD","ref-area":["EU28"]} [Accessed: 3rd August 2018].

- EUROPEAN COMMISSION (2014) (1) *Horizon 2020. HORIZON 2020. EU framework program for research and innovation.* [Online] Available from: http://ec.europa.eu/programmes/horizon2020/ [Accessed: 2nd August 2018].
- EUROPEAN COMMISSION (2014) (2) *What is the Investment Plan for Europe?* [Online] Available from: https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/investment-plan-europe-juncker-plan/what-investment-plan-europe_en [Accessed: 8th August 2018].
- EUROPEAN COMMISSION (2015) (1) *A deeper and fairer Single Market: Commission boosts opportunities for citizens and business* [Online] Available from: http://europa.eu/rapid/press-release_IP-15-5909_en.htm?locale=en [Accessed: 3rd August 2018].
- EUROPEAN COMMISSION (2015) (2) *Digital Single market: Bringing down barriers to unlock online opportunities* [Online] Available from: https://ec.europa.eu/commission/priorities/digital-single-market_en [Accessed: 3rd August 2018].
- EUROPEAN COMMISSION (2015) (3) *Q & A on the Green Paper on building a Capital Markets Union* [Online] Available from: http://webcache.googleusercontent.com/search?q=cache:Id-tbWraw1AJ:europa.eu/rapid/press-release_MEMO-15-4434_en.pdf+&cd=1&hl=it&ct=clnk&gl=it&client=safari [Accessed: 6th August 2018].
- EUROPEAN COMMISSION (2015) (4) *Green paper: Building a Capital Markets Union* [Online] Available from: http://ec.europa.eu/finance/consultations/2015/capital-markets-union/docs/green-paper_en.pdf [Accessed: 6th August 2018].
- EUROPEAN COMMISSION (2015) (5) *Capital Markets Union: an Action Plan to boost business funding and investment financing* [Online] Available from: http://europa.eu/rapid/press-release_IP-15-5731_en.htm [Accessed: 7th August 2018].

- EUROPEAN COMMISSION (2015) (6) *Il crowdfunding. Cosa è. Una guida per le piccole e medie imprese.* [Online] Available from: https://ec.europa.eu/docsroom/documents/10229/attachments/1/translations/.../native [Accessed: 6th October 2018].
- EUROPEAN COMMISSION (2017) (1) *Digital Single Market. How can Europe benefit from Blockchain technologies?* [Online] Available from: https://ec.europa.eu/digital-single-market/blockchain-technologies [Accessed: 2nd August 2018].
- EUROPEAN COMMISSION (2017) (2) *Communication on the Mid-Term Review on the implementation of the Digital Single Market Strategy: A Connected Digital Single Market for All* [Online] Available from: https://eur-lex.europa.eu/content/news/digital_market.html [Accessed: 3rd August 2018].
- EUROPEAN COMMISSION (2017) (3) *Working document accompanying the communication on the Mid-Term Review on the implementation of the Digital Single Market Strategy. A Connected Digital Single Market for All*. SWD (2017) 155 final.
- EUROPEAN COMMISSION (2018) (1) *European Commission launches the EU Blockchain Observatory and Forum.* Press release IP/18/521.
- EUROPEAN COMMISSION (2018) (2) *Remarks by Vice-President Dombrovskis at the Roundtable on Cryptocurrencies.* Speech/18/1242.
- EUROPEAN COMMISSION (2018) (3) *FinTech: Commission takes action for a more competitive and innovative financial market.* Press release IP/18/1403.
- EUROPEAN COMMISSION (2018) (4) *FinTech Action plan: For a more competitive and innovative European financial sector* [Online] Available from: https://ec.europa.eu/info/sites/info/files/180308-action-plan-fintech_en.pdf [Accessed: 8th August 2018].
- EUROPEAN COMMISSION (2018) (5) *Venture capital* [Online] Available from: https://ec.europa.eu/growth/access-to-finance/funding-policies/venture-capital_en [Accessed: 2nd October 2018].
- EUROPEAN COMMISSION (2018) (6) *Proposal for a regulation of the European Parliament and of the Council on European Crowdfunding Service Providers (ECSP) for Business* [online] Available from: https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-5288649_en [Accessed: 9th October 2018].

- EUROPEAN COMMISSION (2018) (7) *Commission Staff Working Document Executive summary of the impact assessment* [online] Available from: https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-5288649_en [Accessed: 9th October 2018].
- EUROPEAN CROWDFUNDING NETWORK (ECN) (2018) *Obstacles to cross-border investing: Capital Market Union mid-term review promises rules and support for Crowdfunding and FinTech* [online] Available from: https://eurocrowd.org/2017/06/28/obstacles-cross-border-investing-capital-market-union-mid-term-review-promises-rules-support-crowdfunding-fintech/ [Accessed: 11th November 2018].
- EUROPEAN ECONOMIC AND SOCIAL COMMITTEE. (2016) *Opinion of the European Economic and Social Committee on 'Industry 4.0 and digital transformation: where to go.* Official Journal of the European Union (COM (2016) 180 final).
- EUROPEAN INVESTMENT BANK (2015) *Investment Plan for Europe: The Investment Plan for Europe aims to drive investment in strategic projects across the EU. The Plan will unlock investment of at least EUR 315bn up to 2018* [Online] Available from: http://www.eif.org/news_centre/publications/investment_plan_for_europe_en.pdf [Accessed: 8th August 2018].
- EUROPEAN INVESTMENT BANK (2018) *The EU bank* [Online] Available from: http://www.eib.org/en/about/index.htm [Accessed: 12th September 2018].
- EUROPEAN PARLIAMENT (2018) (1) *Anti-money laundering: MEPs vote to shed light on the true owners of companies.* Press release Ref.: 20180411IPR01527.
- EUROPEAN PARLIAMENT (2018) (2) *Tecnologie di registro distribuito e Blockchain: creare fiducia attraverso la disintermediazione.* Risoluzione del Parlamento europeo del 3 ottobre 2018 sulle tecnologie di registro distribuito e Blockchain: creare fiducia attraverso la disintermediazione (2017/2772(RSP)).
- EUROPEAN PARLIAMENT and COUNCIL (2000) *E-Commerce Directive 2000/31/EC* [online] Available from: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32000L0031 [Accessed: 6th October 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2002) *Distance Marketing of Consumer Financial Services Directive 2002/65/EC* [online] Available from:

https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32002L0065 [Accessed: 6th October 2018].

- EUROPEAN PARLIAMENT and COUNCIL (2003) *Prospectus directive 2003/71/CE.* [Online] Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32003L0071&from=EN [Accessed: 7th August 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2004) *Directive (EU) 2004/39. Market in Financial Services Directive (MiFID)* [online] Available from: https://eur-lex.europa.eu/legal-content/IT/TXT/?uri=celex%3A32004L0039 [Accessed: 23th September 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2004) *Transparency Directive (TD)* Directive 2009/109/EC [online] Available from: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:390:0038:0057:EN:PDF [Accessed: 29th December 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2009) *Undertakings for collective investment in transferable securities Directive (UCITS)* Directive 2009/65/EC [online] Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0065 [Accessed: 1st November 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2011) *Alternative Investment Fund Managers Directive (AIFM)* Directive 2011/61/EU [online] Available from: https://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32011L0061 [Accessed: 1st November 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2011) *Consumer Rights Directive 2011/83/EU* [online] Available from: https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32011L0083 [Accessed: 6th October 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2011) *Directive (EU) 2011/61/EU on Alternative Investment Fund Managers (AIFM)* [online] Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011L0061&from=IT [Accessed: 2nd October 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2012) *European market Infrastructure Regulation (EMIR)* Regulation (EU) No 648/2012 [online] Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32012R0648 [Accessed: 1st November 2018].

- EUROPEAN PARLIAMENT and COUNCIL (2013) *Regulation (EU) No 345/2013 on European venture capital funds* [online] Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R0345&from=EN [Accessed: 2nd October 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2014) *Market Abuse Regulation (MAR) (EU) No 596/2014* [Online] Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014R0596 [Accessed: 24th September 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2014) *Markets in financial instruments (MiFIR) Regulation 600/2014* [online] Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0600&from=IT [Accessed: 6th October 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2015) *Summary of Alternative Investment Fund Managers Directive (AIFM): Hedge funds and private equity funds — rules for managers* [online] Available from: https://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32011L0061 [Accessed: 1st November 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2016) *Summary of Undertakings for collective investment in transferable securities Directive (UCITS): Strengthening global competitiveness of EU investment funds* [online] Available from: https://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32009L0065 [Accessed: 1st November 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2017) *Prospectus Regulation (EU) 2017/1129* [Online] Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R1129&from=EN [Accessed: 7th August 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2017) *Shareholders' Rights Directive (SRD) (EU) 2017/828* [Online] Available from: https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32017L0828 [Accessed: 24th September 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2017) Summary of *European market Infrastructure Regulation (EMIR) EU rules on derivatives contracts* [online] Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=LEGISSUM:mi0093&from=IT [Accessed: 1st November 2018].

- EUROPEAN PARLIAMENT and COUNCIL (2018) *Directive (EU) 2018/843. Anti-Money Laundering Directive (AMLD5)* [Online] Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L0843&from=EN [Accessed: 11th September 2018].
- EUROPEAN PARLIAMENT and COUNCIL (2018) *Markets in financial instruments and amending (MiFID II) Directive* [online] Available from: https://eur-lex.europa.eu/legal-content/IT/TXT/?uri=uriserv:OJ.L_.2014.173.01.0349.01.ITA [Accessed: 6th October 2018].
- EUROPEAN PARLIAMENT, DIRECTORATE GENERAL FOR INTERNAL POLICIES, POLICY DEPARTMENT C: CITIZENS' RIGHTS AND CONSTITUTIONAL AFFAIRS (2016) *Potential and challenges of E-Voting in the European Union.* [Online] Available from: http://www.europarl.europa.eu/supporting-analyses [Accessed: 2nd August 2018].
- EUROPEAN SECURITIES AND MARKETS AUTHORITY *(2013) Guidelines on Key Concepts of the AIFMD*. ESMA 2013/600.
- EUROPEAN SECURITIES AND MARKETS AUTHORITY (2017) (1) *The Distributed Ledger Technology Applied to Securities Markets*. Report ESMA50-1121423017-285.
- EUROPEAN SECURITIES AND MARKETS AUTHORITY (ESMA) (2018) *(1) ESMA alerts investors to the high risks of Initial Coin Offerings (ICOs).* ESMA50-157-829 [online] Available from: https://www.esma.europa.eu/sites/default/files/library/esma50-157-829_ico_statement_investors.pdf [Accessed: 9th October 2018].
- EUROPEAN SECURITIES AND MARKETS AUTHORITY (ESMA) (2018) (2) *Policy activities: MIFID II* [online] Available from: https://www.esma.europa.eu/policy-rules/mifid-ii-and-mifir [Accessed: 3rd November 2018].
- EUROPEAN SECURITUES AND MARKETS AUTHORITY (ESMA) (2019) *Crypto-assets need common EU-wide approach to ensure investor protection.* ESMA71-99-1084 [online] Available from: https://www.esma.europa.eu/press-news/esma-news/crypto-assets-need-common-eu-wide-approach-ensure-investor-protection?fbclid=IwAR0WovJd07OrMgTRrZSMINDlBpkOKT026F4tU5yvY5A369QOIfKm5AkN06U [Accessed: 28th January 2019].

- EUROPEAN UNION (2018) *One market without borders* [Online] Available from: https://europa.eu/european-union/topics/single-market_en [Accessed: 3rd August 2018].
- EUROPEAN UNION BLOCKCHAIN OBSERVATORY AND FORUM (2018) Available from: https://www.eublockchainforum.eu/about [Accessed: 3rd August 2018].
- FEDERAL ASSEMBLY OF THE SWISS CONFEDERATION (1911) *Federal Act on the Amendment of the Swiss Civil Code (Part Five: The Code of Obligations - CO)* [Online] Available from: https://www.admin.ch/opc/en/classified-compilation/19110009/201704010000/220.pdf [Accessed 6th October 2018].
- FEDERAL ASSEMBLY OF THE SWISS CONFEDERATION (2015) *Federal Act on Financial Market Infrastructures and Market Conduct in Securities and Derivatives Trading (Financial Market Infrastructure Act, FMIA)* [Online] Available from: https://www.admin.ch/opc/en/classified-compilation/20141779/201708010000/958.1.pdf [Accessed 6th October 2018].
- FEDERAL ASSEMBLY OF THE SWISS CONFEDERATION (2018) *Federal Financial Services Act (FinSA draft)* [online] Available from: https://www.newsd.admin.ch/newsd/message/attachments/36522.pdf [Accessed: 6th October 2018].
- FEDERAL FINANCIAL SUPERVISORY AUTHORITY (BAFIN) (1998) *German Securities Trading Act (Wertpapierhandelsgesetz – WpHG9)* [online] Available from: https://www.bafin.de/SharedDocs/Veroeffentlichungen/EN/Aufsichtsrecht/Gesetz/WpHG_en.html [Accessed: 9th October 2018].
- FEDERAL FINANCIAL SUPERVISORY AUTHORITY (BAFIN) (2012) *German Securities Prospectus Act (Wertpapierprospektgesetz – WpPG)* [online] Available from: https://www.bafin.de/SharedDocs/Downloads/EN/Aufsichtsrecht/dl_wppg_en.html [Accessed: 9th October 2018].
- FEDERAL FINANCIAL SUPERVISORY AUTHORITY (BAFIN) (2013) *German Capital Investment Act (Vermögensanlagengesetz – VermAnlG)* [online] Available from: https://www.bafin.de/SharedDocs/Downloads/EN/Aufsichtsrecht/dl_wppg_en.html [Accessed: 9th October 2018].

- FEDERAL FINANCIAL SUPERVISORY AUTHORITY (BAFIN) (2018) *Initial Coin Offerings: Advisory letter on the classification of tokens as financial instruments* [online] Available from: https://www.bafin.de/SharedDocs/Downloads/EN/Merkblatt/WA/dl_hinweisschreiben_einordnung_ICOs_en.html;jsessionid=575A95D802592E357802B6563886E938.2_cid372?nn=11089708 [Accessed: 9th October 2018].
- FINANCIAL CONDUCT AUTHORITY (2018) *Consumer warning about the risks of Initial Coin Offerings* [online] Available from: https://www.fca.org.uk/news/statements/initial-coin-offerings [Accessed: 9th October 2018].
- FIORI G. and TISCINI R. (2017) *Economia Aziendali.* Egea, Seconda Edizione.
  for enquiries regarding the regulatory framework for initial coin offerings (ICOs) [online] Available from: https://www.finma.ch/en/news/2018/02/20180216-mm-ico-wegleitung/ [Accessed: 6th October 2018].
- FURNARI S. L., (2018) *ICO in Italia: applicabilità della disciplina sull'equity crowdfunding e suoi potenziali benefici.* In R: LENER (2018) Fintech: Diritto, Tecnologia e Finanza. I Quaderni di Minerva Bancaria.
- GIBRALTAR FINANCIAL SERVICES COMMISSION (GFSC) (2018) *Distributed Ledger Technology Regulatory Framework (DLT framework)* [online] Available from: http://www.gfsc.gi/uploads/DLT%20regulations%20121017%20(2).pdf [Accessed: 9th October 2018].
- GORINI R. (2018) *Crypto Economy, Bitcoin, Blockchain, Ico: cosa sono e come funzionano le nuove valute digitali.* Roi Edizioni.
- GUTFLEISCH G. (2018) *Crowdfunding and Initial Coin Offerings Under the EU Legal Framework* European Company Law Journal Volume 15, Issue 3, pp. 73-82.
- HACKER P. and THOMALE C. (2017) *Crypto-Securities Regulation: ICOs, Token Sales and Cryptocurrencies under EU Financial Law.* Oxford Business Law Blog.
- HOUSE OF COMMONS TREASURY COMMITTEE (2018) *Crypto-assets.* Twenty-Second Report of Session 2017-2019 [online] Available from: https://publications.parliament.uk/pa/cm201719/cmselect/cmtreasy/910/910.pdf [Accessed: 9th October 2018].

- HOWELL S. T., NIESSER M. and YERMACK D. (2018) *Initial Coin Offerings: Financing Growth with Cryptocurrency Token Sales.* Finance Working Paper N° 564/2018, European Corporate Governance Institute (ECGI).
- ICONOMI (2018) *ICONOMI is a cryptocurrency platform for beginners. About Us* [Online] Available from: https://www.iconomi.net [Accessed: 26th December 2018].
- INNOVATION POST (2018) *Verso il valore legale della Blockchain: nel "decreto semplificazione" la definizione delle tecnologie DLT e misure per start-up e PMI innovative* [online] Available from: https://www.innovationpost.it/2018/12/05/verso-il-valore-legale-della-blockchain-nel-decreto-semplificazioni-la-definizione-dei-registri-distribuiti-dlt-e-misure-per-start-up-e-pmi-innovative/ [Accessed: 7th January 2019].
- INTERNATIONAL MONETARY FUND (2017) *Fintech and Financial Services: Initial Considerations*. [Online] Available from: http://webcache.googleusercontent.com/search?q=cache:kg-VgPqTccUJ:www.imf.org/~/media/Files/Publications/SDN/2017/sdn1705.ashx+&cd=8&hl=it&ct=clnk&gl=it&client=safari [Accessed: 3rd August 2018].
- ITALIAN MINISTRY OF ECONOMY AND FINANCE (MEF) (2018) *Valute virtuali: in consultazione pubblica lo schema di decreto per censire il fenomeno.* Communication no. 22 [online] Available from: http://www.mef.gov.it/ufficio-stampa/comunicati/2018/documenti/comunicato_0022.pdf [Accessed: 10th October 2018].
- ITALIAN REPUBLIC (2017) *Decreto Legislativo 25 maggio 2017, n. 90* [online] Available from: http://www.gazzettaufficiale.it/eli/id/2017/06/19/17G00104/sg [Accessed: 10th October 2018].
- ITALIAN REPUBLIC (2018) *Decreto Legislativo 14 dicembre 2018, n. 135* [online] Available from: http://www.gazzettaufficiale.it/eli/id/2018/12/14/18G00163/sg [Accessed: 7th January 2019].
- JIAFU A., WENXUAN H. and XIANDA L. (2017) *Initial Coin Offerings: Investor Protection and Disclosure.* University of Edinburgh Business School. [Online] Available from: https://www.esmt.org/sites/default/files/jiafu_an.pdf [Accessed: 24th September 2018].

- JUURIKAS K. (2015) *Usage of Estonian public e-Services amongst young people*. Haaga-Helia ammattikorkeakoulu. [Online] Available from: http://www.theseus.fi/handle/10024/98236 [Accessed: 2nd August 2018].
- LAMPORT L., PEASE M. and SHOSTAK, R. (1982) *The Byzantine Generals Problem*. ACM Transactions on Programming Languages and Systems, Vol. 4, No. 3, July 1982 (pp. 382-401).
- LINKLATERS (2018) *ESMA publishes technical advice under the Prospectus Regulation* [Online] Available from: https://www.linklaters.com/en/insights/publications/uk-corporate-update/uk-corporate-update---may-2018/esma-publishes-technical-advice-under-the-prospectus-regulation [Accessed: 7th August 2018].
- LOCI (2018) *Platform for Intellectual Property Discovery & Mining.* Whitepaper, Version 7. [Online] Available from: https://loci.io/wp-content/uploads/2018/02/loci-full-whitepaper.pdf [Accessed 1st October 2018].
- MAZZUCATO M. (2014) *The Innovative State*. Laterza, Bari.
- MIAMI CRYPTO EXCHANGE (2018) *Secure Token Offering. Making Cryptocurrency Compliant* [online] Available from: https://miami.exchange/documents/MCEX_WhitePaper_v3_2.pdf [Accessed: 12th December 2018].
- MOBU (2018) *The Whitepaper. The Security Token Issuance Protocol and Licensed Digital Securities Exchange.* [online] Available from: https://mobu.io/assets/mobu_whitepaper.pdf [Accessed: 12th December 2018].
- MONETARY AUTHORITY OF SINGAPORE (MAS) (2002) *Financial Advisers Act (FAA)* [online] Available from: http://www.mas.gov.sg/~/media/resource/legislation_guidelines/fin_advisers/fin_advisers_act/guidelines/FAA_G04.pdf [Accessed: 7th October 2018].
- MONETARY AUTHORITY OF SINGAPORE (MAS) (2005) *Securities and Futures Act (SFA)* [online] Available from: https://www.cftc.gov/sites/default/files/groups/public/@otherif/documents/ifdocs/orgfbotapdxddsfamr160615.pdf [Accessed: 7th October 2018].
- MONETARY AUTHORITY OF SINGAPORE (MAS) (2017) *A guide to digital token offerings* [online] Available from: http://www.mas.gov.sg/~/media/MAS/Regulations%20and%20Financial%20Stabilit

y/Regulations%20Guidance%20and%20Licensing/Securities%20Futures%20and%20Fund%20Management/Regulations%20Guidance%20and%20Licensing/Guidelines/A%20Guide%20to%20Digital%20Token%20Offerings%20%2014%20Nov%202017.pdf [Accessed: 7th October 2018].

- MONETARY AUTHORITY OF SINGAPORE (MAS) (2018) *Monetary Authority of Singapore, about MAS.* [online] Available from: http://www.mas.gov.sg/About-MAS.aspx [Accessed: 23th October 2018].
- NEUFUND (2018) *Mission Statement* [Online] Available from: https://neufund.org/about-us [Accessed: 26th December 2018].
- NEXT GENERATION CURRENCY (2017) *ICO vs Venture Capital: le differenze principali* [Online] Available from: https://nextgenerationcurrency.com/ico-vs-venture-capital-le-differenze-principali/ [Accessed 1st October 2018].
- North American Securities Administrators Association (NASAA) (2018) (1) *NASAA Updates Coordinated Crypto Crackdown* [online] Available from: http://www.nasaa.org/45901/nasaa-updates-coordinated-crypto-crackdown/ [Accessed: 8th October 2018].
- North American Securities Administrators Association (NASAA) (2018) (2) *Operation Cryptosweep* [online] Available from: http://www.nasaa.org/regulatory-activity/enforcement-legal-activity/operation-cryptosweep/ [Accessed: 8th October 2018].
- ONTARIO SECURITIES COMMISSION (2009) *National Instrument 45-106 Prospectus and Registration Exemptions And National Instrument 45-102 Resale Of Securities* [online] Available from: http://www.osc.gov.on.ca/documents/en/Securities-Category4/rule_20090918_45-106_3238-supplement.pdf [Accessed: 8th October 2018].
- PARLIAMENT OF THE UNITED KINGDOM (2000) *Financial Services and Markets Act 2000* (FSMA) [online] Available from: http://www.legislation.gov.uk/ukpga/2000/8/pdfs/ukpga_20000008_en.pdf [Accessed: 9th October 2018].
- PARLIAMENT OF THE UNITED KINGDOM (2001) *Financial Services and Markets Act 2000 (Regulated Activities) Order (RAO)*. SI 2001/544 [online] Available from:

http://www.legislation.gov.uk/uksi/2001/544/pdfs/uksi_20010544_en.pdf [Accessed: 9th October 2018].

- PISELLI R. and SEGNALINI S. (2018) *Blockchain E Arte: Il Mercato È Maturo Per L'artech?* Fintech: Diritto, Tecnologia e Finanza. I Quaderni di Minerva Bancaria.
- PRICEWATERHOUSE AND COOPER SWITZERLAND (PwC) (2018) [Online] Available from: https://www.pwc.ch/en/industry-sectors/financial-services/fs-regulations/ico.html [Accessed: 24th September 2018].
- REED E. (2018) *Equity Tokens vs. Security Tokens: What's the Difference?* Bitcoin Market Journal [Online] Available from: https://www.bitcoinmarketjournal.com/equity-token/ [Accessed: 26th December 2018].
- REESE A., (2018) *Russian Finance Ministry Publishes Cryptocurrency Draft Law, Ires Central Bank.* Law and Legislation. ETH News. [online] Available from: https://www.ethnews.com/russian-finance-ministry-publishes-cryptocurrency-draft-law-ires-central-bank [Accessed: 7th October 2018].
- RUSSIAN FEDERATION (1996) *Federal Law on the Securities Market no. 39-FZ.*
- RUSSIAN FEDERATION (2011) *Federal Law on Organized Trade, n. 325-FZ.*
- SAFT PROJECT (2018) *Simple Agreement for Future Tokens (SAFT)* [online] Available from: https://saftproject.com [Accessed: 8th October 2018].
- SCIALO', L. (2018) *Migliori ICO 2018: le Top 15 su cui puntare.* Webeconomia [Online] Available from: https://www.webeconomia.it/migliori-ico-2018-le-top-15-cui-puntare/16280/#Loci [Accessed 1st October 2018].
- SECURITIES AND EXCHANGE COMMISSION (2017) *Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO.* Release No. 81207 / July 25, 2017. [online] Available from: https://www.sec.gov/litigation/investreport/34-81207.pdf [Accessed: 8th October 2018].
- SECURITIES AND FUTURE COMMISSION OF HONK KONG (SFC) (2002) *Securities and Futures Ordinance (SFO) n. 5* [online] Available from: https://www.legco.gov.hk/yr01-02/english/ord/ord005-02-e.pdf [Accessed: 7th October 2018].
- SECURITIES AND FUTURE COMMISSION OF HONK KONG (SFC) (2017) *Statement on initial coin offerings* [online] Available from:

https://www.sfc.hk/web/EN/news-and-announcements/policy-statements-and-announcements/statement-on-initial-coin offerings.html [Accessed: 7th October 2018].

- SECURITIES AND FUTURES COMMISSION (SFC) (2018) *Securities and Futures Commission. Our role.* [online] Available from: https://www.sfc.hk/web/EN/about-the-sfc/our-role/ [Accessed: 23th October 2018].
- SEHRA A., SMITH P. AND GOMES P. (2017) *Economics of Initial Coin Offerings.* Allen Overy. [Online] Available from: http://www.allenovery.com/SiteCollectionDocuments/ICO-Article-Nivaura-20170822-0951%20%20-%20Final%20Draft.pdf [Accessed 24th September 2018]
- STARTUP BUSINESS (2018) *Cos'è il venture capital e come funziona* [Online] Available from: https://www.startupbusiness.it/cose-il-venture-capital/88667/ [Accessed 2nd October 2018].
- STERLING LAW (2018) *Is initial coin offering (ICO) regulated in the UK?* [online] Available from: https://sterling-law.co.uk/en/initial-coin-offering-ico-regulated-uk/ [Accessed: 9th October 2018].
- SUROWIECKI, J. (2005) *The wisdom of crowds*. New York: Anchor Books. [Online] Available from: http://www.asecib.ase.ro/mps/TheWisdomOfCrowds-JamesSurowiecki.pdf [Accessed: 28th December 2018].
- SWISS FEDERAL ASSEMBLY OF THE SWISS CONFEDERATION (1934) *Swiss Federal Act on Banks and Savings Banks (Banking Act)* [online] Available from: https://assets.kpmg.com/content/dam/kpmg/ch/pdf/ch-banking-act-en.pdf [Accessed: 6th October 2018].
- SWISS FEDERAL ASSEMBLY OF THE SWISS CONFEDERATION (1997) *Federal Act on Combating Money Laundering and Terrorist Financing (AMLA)* [online] Available from: https://www.admin.ch/opc/en/classified-compilation/19970427/index.html [Accessed: 6th October 2018].
- SWISS FEDERAL ASSEMBLY OF THE SWISS CONFEDERATION (2006) *Federal Act on Collective Investment Schemes (Collective Investment Schemes Act)* [online] Available from: https://www.admin.ch/opc/en/classified-compilation/20052154/201607010000/951.31.pdf [Accessed: 6th October 2018].
- SWISS FEDERAL COUNCIL STOCK (1996) *Exchange Ordinance on Stock Exchanges and Securities Trading (SESTO)* [online] Available from:

https://assets.kpmg.com/content/dam/kpmg/ch/pdf/kpmg-sesto-2018.pdf [Accessed: 6th October 2018].

- SWISS FINANCIAL MARKET SUPERVISORY AUTHORITY (FINMA) (2017) *FINMA Guidance 04/2017. Regulatory treatment of Initial Coin Offerings.* [online] Available from: [Accessed: 6th October 2018].
- SWISS FINANCIAL MARKET SUPERVISORY AUTHORITY (FINMA) (2018) (1) *Press release FINMA publishes ICO guidelines* [online] Available from: https://www.finma.ch/en/news/2018/02/20180216-mm-ico-wegleitung/ [Accessed: 6th October 2018].
- SWISS FINANCIAL MARKET SUPERVISORY AUTHORITY (FINMA) (2018) (2) *Guidelines*
- TRESCA S. L., (2018) *Blockchain e ICO, 4 startup italiane raccolgono 70 milioni ma fuori dall'Italia*. EconomyUp [Online] Available from: https://www.economyup.it/innovazione/blockchain-e-ico-4-startup-italiane-raccolgono-70-milioni-ma-fuori-dallitalia/ [Accessed 1st October 2018].
- UNITED STATES CONGRESS (1933) *Securities Act of 1933* [online] Available from: https://venturebeat.com/wp-content/uploads/2010/05/sa33.pdf [Accessed: 8th October 2018].
- UNITED STATES CONGRESS (1934) *Securities Exchange Act of 1934* [online] Available from: https://www.nyse.com/publicdocs/nyse/regulation/nyse/sea34.pdf [Accessed: 8th October 2018].
- US SUPREME COURT (1946) *SEC v. Howey Co.* 328 U.S. 293 [online] Available from: https://supreme.justia.com/cases/federal/us/328/293/ [Accessed: 8th October 2018].
- WILLFORT R. and WEBER C. (2016) *The Crowdpower 2.0 Concept: An Integrated Approach to Innovation That Goes Beyond Crowdfunding* BRÜNTJE D. & GADJA O. (eds). Crowdfunding in Europe - State of the Art in Theory and Practice. FGF Studies in Small Business and Entrepreneurship. Brussels: Springer International Publishing. [Online] Available from: https://www.researchgate.net/profile/Sebastiaan_Hooghiemstra2/publication/300558496_The_Perfect_Regulation_of_Crowdfunding_What_Should_the_European_Regulator_Do/links/577f7fc808ae9485a43988f0.pdf [Accessed: 28th December 2018].

- WORLD BANK GROUP (2017) *Distributed Ledger Technology (DLT) and Blockchain.* FinTech Note, No. 1.
- WRIGHT A. and DE FILIPPI P. (2015) *Decentralized Blockchain technology and the rise of lex cryptographia.* Social Science Research.
- XAFA M. (2017) *European Capital Markets Union Post-Brexit.* Centre for International Governance Innovation (CIGI) Papers n. 140.
- YERMACK D. (2017) *Corporate Governance and Blockchains.* Review of Finance, Oxford University Press.
- ZMUDZINSKI A. (2018) *In Russia avviene il test della piattaforma per ICO regolamentate.* CoinList [online] Available from: https://coinlist.me/it/notizie/in-russia-avviene-il-test-della-piattaforma-ico-regolamentata/ [Accessed: 7th October 2018].