Filipa Silva Santos Azevedo Maia
LL.M in International Business Law
Tilburg Law School
Tilburg University
2019-2020

Can ICOs (or any other blockchain related solution) bridge the funding gap for startups?

Erik Vermeulen
Department of Private Business Law
Tilburg Law School

Table of Contents

1. Introduction

Two hundred and fifty-seven million, two hundred and thirty-two million, and one hundred and eighty million dollars. These were the amounts raised by the three biggest Initial Coin Offerings (ICO) [1] – named Filecoin[2], Tezos[3] , and EOC.
There is a reason why there is a really high concentration of startups in the San Francisco area. Raising Venture Capital money is much easier there than anywhere else in the world. However, if we look at the data, there is not a corresponding large concentration of blockchain startups there, these are way more distributed globally. The main reason is that token sales have changed funding for startups.

For a few years now, the world has been focusing more and more on FinTech startups, and technology entrepreneurship became a global phenomenon with startup ecosystems emerging all over the world.The startup boom and FinTech revolution have created a whole new market of tools to introduce to the world faster and on the budget.[4]
Silicon Valley, New York City, London, Singapore, Beijing, Amsterdam, and Paris are among the top 15 of the most active startup ecosystems[5], thanks to the support coming from the governments. Factors such as abundance of capital and investment, tax benefits for the entrepreneurs are seen as magnets for global talent and attract startups to establish their business in those countries.

Countries all over the world compete with each other in order to attract this type of company to choose their territories to settle their businesses. To this end, they implement measures and programs to become more startup-friendly than their competitors. To promote the development of fintech countries have launched initiatives, for example, reducing the regulatory burdens for these startups.
The question is, what is the importance and benefits for them to be home to these risky businesses?

[1] See Coinist, “Coinist 50 Biggest ICOs”, https://www.coinist.io/monthly-ico/. accessed 20 June 2020.
[2] See more information about Filecoin here https://filecoin.io. accessed 20 June 2020
[3] See more information about Tezos here https://tezos.com. accessed 20 June 2020
[4] See ETNA (n.d). 5 Easy Ways To Introduce Startups To The World. https://www.etnasoft.com/5-ways-introduce-startups/. accessed 20 June 2020
[5] See Startup Genome. Rankings 2020: Top 30 + Runners-up: The Top Global Ecosystems of Today and Tomorrow. https://startupgenome.com/article/rankings-top-40. accessed 20 June 2020.

Startups face a plethora of challenges in every corner of their path. Hiring suitable candidates to build a highly successful team and partnership decision making – which sometimes may be challenging to find a trustworthy partner - as well as financial management and deal with cybersecurity. Legal challenges - such as employment contracts, trademark registration, taxation issues[6] - are also a crucial step to startups that raise problems. However, in an early stage, in order to be able to bring the idea to reality, small startups rely heavily on financial backups.

The majority of entrepreneurs do not have enough amount of money to invest and start their own business and, therefore, need others to invest in their idea. It is unlikely that traditional financial institutions will make startup loans using a simple whitepaper as a basis, especially in the crypto space, where lack of regulation causes reluctance on the part of these institutions.

Currently, trends in venture capital fundraising and investments show that even though governments focus on attract new business startups, due to the fact that traditional funding models do not want to take risks on investing in innovative and risky ideas - and on the contrary, invest in companies in advanced stages - governments are not being successful. Why is this happening and what would be an effective solution to fill this gap may be answered using new funding models available in the market. An analysis will take place in forward chapters.

Nevertheless, when it comes to types of funding, there are a lot of options to consider. From venture capitals to angel investors, crowdfunding, and initial public offerings (IPO), companies always choose the one or the ones that fit best in the business. They all bear certain benefits, but also some risks. Notwithstanding, when it comes to blockchain technology, a new option emerges Initial Coin Offering (ICO). Anyone anywhere can now raise insane amounts of capital through an ICO.

This term refers to a way of raising funds from the public using blockchain technology[7]. ICO issuers accept a “coin” (such as Bitcoin or Ether, or even official currencies, USD or Euro) in exchange for a new “token” related to a specific project. In its substance, these

[6] See 305 Startup (September 4, 2017). 10 Legal Challenges That Startups Face. http://www.305startup.net/10-legal-challenges-startups-face/. accessed 20 June 2020.

[7] *See Initial Coin Offering*, INVESTOPEDIA https://www.investopedia.com/terms/i/initial-coin-offering-ico.asp. accessed 22 June 2020.

tokens confer rights or functionalities related to the project that they aim to finance[8], they do not confer ownership to the company that is selling tokens, unless – for instance – they explicitly state it as a right, most of the cases these tokens do not encode voting or other participation rights on these smart contracts, albeit they can do it.[9]

The new era of cryptocurrencies saw a growth in popularity throughout the world: in 2016, a modest $98.7 million was raised by initial coin offerings (ICOs) worldwide[10]. These numbers increased to $6.6 billion in 2017[11]' then $20.3 billion in December 2018[12]. Finally, despite de decline still more than $340 million was raised from 83 crypto funding events.[13]

A key specificity with ICOs is that significant money may be raised at low cost, in a short period of time, and in many cases without the approval of financial regulators, which could be deemed "illegal. This disruptive innovation brought by this technological revolution captivated the world. And like any other innovation which challenges the traditional ways of thinking and causes a significant impact on people, business, society or technology as we know today[14], usually requires an adjustment and adaptability, not only in terms of acceptance by the market in general, but also and particularly in matters of legal and regulatory treatment. Meaning, governments must protect and safeguard new business and service models and its investors by creating, modifying and enforcing regulations.[15]

8 See Maume, Philipp and Fromberger, Mathias (June 15, 2018). Regulation of Initial Coin Offerings: Reconciling US and EU Securities Laws. Available at: https://ssrn.com/abstract=3200037.

9 A notable example is the DAO (Decentralized Autonomous Organization). This ICO has important aspects that will not be discussed here. For discussion, https://www.frontiersin.org/articles/10.3389/fbloc.2020.00025/full.

10 See ICOdata. "Cryptocurrency ICO Stats 2016", https://www.icodata.io/stats/2016. accessed 20 June 2020.

11 See ICOdata. "Cryptocurrency ICO Stats 2017", https://www.icodata.io/stats/2017. accessed 20 June 2020.

12 See ICOdata. "Cryptocurrency ICO Stats 2018", https://www.icodata.io/stats/2018. accessed 20 June 2020.

13 See Avan-Nomayo, Osato (August 7, 2019). Crypto Startups Still Raising Millions in Capital Despite ICO Decline. Cointelegraph. https://cointelegraph.com/news/crypto-startups-still-raising-millions-in-capital-despite-ico-decline. accessed 20 August 2020.

14 See ERICSSON (n.d). "Innovation with Impact". https://www.ericsson.com/en/about-us/company-facts/innovation-history. accessed 20 June 2020.

15 See D. Eggers, William; Turley, Mike; Kishnani, Pankaj. (2018), DELOITE Insights. https://www2.deloitte.com/us/en/insights/industry/public-sector/future-of-regulation/regulating-emerging-

ICOs are not an exception, this new type of financing offers potentially high returns for investors, while avoiding "the technical, excruciating minutiae of traditional venture capital regulations"[16]. ICOs using blockchains are disruptive not only from a technology perspective but also from a financial perspective. Thus, since it may fall outside existing regulations, depending on its nature, or even banned altogether in some jurisdictions, such as China[17] and South Korea.[18]

Clearly, it is undeniable that blockchains have the potential to challenge the traditional financial system monitored by financial regulators, bringing more benefits to entrepreneurs and investors. ICOs may have the power to improve access to financing and consequently, lead these companies to bring their ideas to the world easily, and even fill the market gap on financing. An analysis of three different jurisdictions will be developed and also will be presented the benefits and risks of regulated and unregulated ICOs in the following chapters, answering the question: Are initial coin offerings a risk or an opportunity?

We are living in times of an enormous uncertainty. More than one million people are infected by the new virus and health systems collapse worldwide. Everyone in the world, without exception, join hands in this relentless fight against the SARS-CoV-2 virus. The Covid-19 arrived in an overwhelming way, destroying everything around it. The pandemic generated an unprecedented economic crisis in a short period of time. The long-term impacts will depend on how quickly the new coronavirus is overcome. For now, OECD calculations show that the initial effect of containment is taking 20% to 25% of the production level of many economies, with private consumption sinking by a third.[19]

technology.html?id=us%253A2sm%253A3fb%253A4di4538%253A5%253A6di%253A20180622%253A%253ADeloitte+Public+Sector&linkId=53347700. accessed 30 June 2020.

[16] See Hacker, Philipp and Thomale, Chris, Crypto-Securities Regulation: ICOs, Token Sales and Cryptocurrencies under EU Financial Law (November 22, 2017). Available at: https://ssrn.com/abstract=3075820;

[17] Regarding China's case, this approach was not effective since market participants use other ways, such as loopholes or grey areas in order to gain access to newly issued tokens. "The volume may have been turned down a notch or two, but the activity is still happening". See Gerelyn Terzo, What Ban? Chinese Investors Continue to Participate in ICOs with Workarounds, CCN (Mar. 21, 2018), https://www.ccn.com/what-ban-icos-in-china-are-alive-and-well; accessed 30 June 2020.

[18] See Coindesk (Sep 5, 2017). China's ICO Ban: A Full Translation of Regulator Remarks. https://www.coindesk.com/chinas-ico-ban-a-full-translation-of-regulator-remarks/,(2017), http://www.circ.gov.cn/web/site0/tab6554/info4080736.htm accessed 30 June 2020; And CoinDesk (2017). South Korea, O'Leary, 'South Korean Regulator Issues ICO Ban'. https://www.coindesk.com/south-korean-regulator-issues-ico-ban/; accessed 30 June 2020.

[19] See Prado, Miguel (April 8, 2020). Covid-19. Pandemia tira dois pontos no PIB por cada mês de bloqueio. Portugal está entre os mais afectados pela crise. *Expresso*. https://expresso.pt/coronavirus/2020-

It was declared that changes of the magnitude that we are facing will far outweigh what was experienced in the global financial crisis in 2008-2009.[20]

Multiple possibilities arise after this new corona virus. Regarding the traditional financial system, could we predict changes on it? Should we expect legal and regulatory interventions after the post-financial crisis to finally take a step to fill the financial gap?

According to PWC, startups have a significant impact on a countries' GDP. A research conducted by Pwc Australia, "Australian tech startup sector has the potential to contribute $109 billion or 4% of GDP to the Australian economy and 540,000 jobs by 2033"[21]. Also, in Portugal, Startups already represented 1.1% of Portuguese GDP in 2018[22], with a 2.2 million contribution.[23] With the recession that we are living nowadays, with the impact of this new virus, startups may help to restore economies, even if just with a small contribute: specially creating more jobs.

In addition to the incentives that have already been created by governments (Portugal included) and by others that will undoubtedly emerge, would a new financing model, much more appealing, like ICOs with a significantly lower risk rate for entrepreneurs, facilitate and further attract this type of business to the Portuguese territory as well as other countries that could implement a legal initial coin offerings? In the face of a positive response, could initial coin offerings be the new startup lifeblood, solving the problem of investment gap?

This dissertation will be structured as follows: Chapter 1. Introduction. Chapter 2. will provide a brief overview of the startup and FinTech phenomenon, answering the question why startups are so important to the governments, leading them to implement and adopt

04-08-Covid-19.-Pandemia-tira-dois-pontos-no-PIB-por-cada-mes-de-bloqueio.-Portugal-esta-entre-os-mais-afectados-pela-crise; accessed 25 July 2020.

20 See OECD (June 24, 2020). OECD Policy Responses to Coronavirus (COVID-19): The impact of the coronavirus (COVID-19) crisis on development finance. http://www.oecd.org/coronavirus/policy-responses/the-impact-of-the-coronavirus-covid-19-crisis-on-development-finance-9de00b3b/; accessed 25 July 2020.

21 See PwC: The Startup Economy (April 2013). The startup economy: How to support tech startups and accelerate Australian innovation. PwC Australia. https://www.digitalpulse.pwc.com.au/wp-content/uploads/2013/04/PwC-Google-The-startup-economy-2013.pdf. accessed 25 July 2020.

22 See de Araújo Barbosa, Mariana (July 26, 2019). Startups já representam 1,1% do PIB português. *ECO*. https://eco.sapo.pt/2019/07/26/startups-ja-representam-11-do-pib-portugues/. accessed 2 August 2020.

23 See Pestana Machado, Manuel (July 26, 2019). Contributo das startups para o PIB foi de 2,2 mil milhões de euros em 2018. *Observador*. https://observador.pt/2019/07/26/startup-portugal-contributo-das-startups-para-o-pib-foi-de-22-mil-milhoes-de-euros/. accessed 2 August 2020.

their regulations in order to attract them; and approaching the problem of investment gap in the market. Chapter 3. Presents the comparisons between other funding possibilities, presenting its advantages and disadvantages with legal downsides in each one of them. Chapter 4. Briefly explains the origins of ICOs and its development, introducing the types of tokens we distinguish, and an overview of the current state and three different regulation approaches. Chapter 5. Provides an analysis of the benefits and risks of regulated and unregulated ICOs. Are token sales considered a threat or an opportunity by both issuers and investors? Following Chapter 6. Taking in consideration the deep crisis that we are sinking into thanks to the pandemic that we are going through, what can the policymakers do to fight the effects of this? Can we witness a significant change on the traditional financial system we know? Conclusions and recommendations will be presented in the latest chapters, 7 and 8.

2. Startups and The Funding Gap

The role of startups in economic prosperity is enhancing in today's world. A Startup is a young company with a repeatable and scalable business model, in a scenario of uncertainties and solutions to be developed. Although not limited to digital business, a startup needs innovation in order not to be considered a traditional model company.

One of the main advantages of startups is that it creates new jobs. Due to the fact that they create previously unknown markets, they will increase the opportunities for income and job generation.

Until now, many startups have introduced the latest technologies such as Internet of Things, Artificial Intelligence, and Robotics. Interestingly, large technology companies search for outsourcing to startup companies to carry out some of their tasks.

The startup ecosystem came to stay, bringing startups to a region means fostering its innovation and advancement through new technologies. Moreover, startups generate investment opportunities, more jobs, flow between entrepreneurs and educational institutions, more knowledge, innovation and development of products and services beneficial for everyone.

Another hot topic nowadays is FinTech. The financial press reports on its disruptive potential on a seemingly daily basis, global FinTech funding rose to $111.9 billion in 2018[24] and $135.7 billion in 2019[25].

The term FinTech has been applied in various business contexts. It is difficult to find a uniform and consensual definition. For the purpose of this thesis, I have chosen a definition by FinTech Magazine's[26], "FinTech means financial technology, and refers to the innovation and technology aimed at challenging traditional methods used in the financial services industry."

Another interesting definition is used by the Financial Stability Board, which considers FinTech as a financial innovation technology, that - in a way - can result not only in new business models, but also applications, products or services, with an "associated material effect on financial markets and institutions and the provision of financial services".[27]

It is not new that many technologies support FinTech innovations, the point is that we can only now see many financial institutions and many entrepreneurs applying this concept to their financial products and services. The explanation to this is brought by the analysis of the supply and demand factors that make the market change from the "traditional" financial system to financial innovations.[28]

The truth is that it can bring many advantages not only to them, but also to the market itself.

The global economic panorama for technology firms dedicated to the financial sector has experienced an enormous transformation in the past few years. The reason of this is due

24 Blackman, P. Global fintech investment rockets to a record $111.8B in 2018, driven by mega deals: KPMG Pulse of Fintech (February 13, 2019). KPMG. https://home.kpmg/xx/en/home/media/press-releases/2019/02/global-fintech-investment-hits-record-in-2018.html. accessed 2 August 2020.

25 CISION PrNewswire, 2019 Another Blockbuster Year for Fintech: KPMG Pulse of Fintech, (February 24, 2020). KPMG. https://www.prnewswire.com/news-releases/2019-another-blockbuster-year-for-fintech-kpmg-pulse-of-fintech-301009315.html. accessed 2 August 2020.

26 See Howat, Evelyn. FinTech Magazine's. What is FinTech? (April 29, 2020, https://www.fintechmagazine.com/fintech/what-fintech. accessed 5 August 2020.

27 See Financial Stability Board. Monitoring of FinTech (n.d). https://www.fsb.org/work-of-the-fsb/policy-development/additional-policy-areas/monitoring-of-fintech/. accessed 5 August 2020.

28 See Schindler, John W., Fintech and Financial Innovation: Drivers and Depth (August 10, 2017). FEDS Working Paper No. 2017-081, Available at SSRN: https://ssrn.com/abstract=3029731.

to new successful ventures – also called “Unicorns”, used to indicate a privately held startup companies valued at over $1 billion – that are disrupting current business models. The impact of startups on the market can be seen in almost every city around the world. If we analyze products, services and solutions we know the way some companies worked and how today they are impacted by the action of new startups.[29]
There are several examples of companies that have seen their market transformed by some innovative solution launched by a startup. Most common cases are the
Blockbuster case, one of the largest movie rental networks in the world, rapidly saw the market impacted and transformed by the action of streaming services. Nowadays, *Netflix* can be considered the most popular streaming in the world without any physical store and no film in its physical format (VHS or DVD, for example).[30] Another popular example is the traditional taxi. We can see that the transportation service was one of the most impacted by startups. A few years ago, taxis dominated the cities in a way that users who did not opt for public transportation had few alternatives. Today, with applications like *Uber* and *Grab*, transport with conventional cars has gained the world and, in some cases, transformed the way taxi drivers themselves offered their services.[31]

Besides presenting new concepts and solutions to the public, one of the prominent roles of startups is to challenge existing models and insert technology and innovation into products and services that improve people's lives. Thus, we can say that when we talk about the role of startups, the starting point should be the creation of innovative and technological solutions to problems and demands that do not yet have answers.

The paradigm shift is something that follows this movement and is usually seen as a challenge for managers of large companies and entrepreneurs who already own a large part of the market. Using the example of Blockbuster/Netflix, it is possible to imagine how the paradigm of the need for the physical element had to be broken in order for the video streaming service to become the success it is today.

29 See Liga Insights (n.d). Saiba qual o papel das startups e como impactam diversos âmbitos. https://insights.liga.ventures/inovacao/saiba-qual-o-papel-das-startups-e-como-impactam-diversos-ambitos/. accessed 5 August 2020.
30 More information, see https://www.drift.com/blog/netflix-vs-blockbuster/.
31 See Cramer, Judd, B. Krueger, Alan (March 2016). DISRUPTIVE CHANGE IN THE TAXI BUSINESS: THE CASE OF UBER. National Bureau of Economic Research. Cambridge, MA 02138. https://www.nber.org/papers/w22083.pdf. accessed 7 August 2020.

Analyzing these points makes it easier to understand the role of startups for the market as a whole, especially from the point of view of the user, who finds in these companies the closest and most tangible solutions to their problems.

Looking at the economic impact, the role of startups is remarkable. According to data from the Kauffman Foundation[32], these organizations are responsible for creating more than 50% of jobs worldwide.

In addition, the research also emphasizes the performance of these companies. With the help of technology, the expansion of startups is not restricted only to the area in which it is located. Many solutions are global and serve diverse audiences in various parts of the world.

Thus, the economic movement generated by startups is global, putting these companies on the radar of professionals, investors and users from all areas and locations.

Pedro Siza Vieria, the Deputy Minister of Portugal, said "Impact of startups on the economy outpaces GDP growth"[33], reinforcing the importance of Portuguese entrepreneurs in the national economy and in the image of the country across borders.

Startups are a driving force of economies across the globe, according to Andrus Ansip, former Commission Vice-President for the Digital Single Market, "No one creates more opportunities for employment than startups and other young companies; they provide around 50% of all new jobs". On average, compared to other economic sectors, startups hire three times more employees, even though being small and unstable economic actors.

In fact, a study released by Business Dynamics Statistics (BDS) confirms that without startups, there would be no net job growth in the US.[34] Also, The Minister of Portugal highlighting the importance of business related to startups, underlined the economic impact of this economy which already represents 1.1% of Portuguese GDP.[35]

Additionally, in their paper *How the Startup Economy is Spreading Across the Country — and How It Can Be Accelerated*[36], we can read "Recent research from academic

[32] Kane, Tim (July 2010). The Importance of Startups in Job Creation and Job Destruction. Kauffman Foundation Research Series. https://www.kauffman.org/wp-content/uploads/2019/12/firm_formation_importance_of_startups.pdf; accessed 7 August 2020.

[33] See de Araújo Barbosa, Mariana (July 26, 2019). Pedro Siza Vieira: "Impacto das startups na economia supera crescimento do PIB". *ECO*. https://eco.sapo.pt/2019/07/26/pedro-siza-vieira-impacto-das-startups-na-economia-supera-crescimento-do-pib/. accessed 7 August 2020.

[34] See United States Census Bureau (n.d). Business Dynamics Statistics (BDS). https://www.census.gov/programs-surveys/bds.html. accessed 7 August 2020.

[35] See de Araújo Barbosa, Mariana (July 26, 2019) et al., *supra* note 35. accessed 7 August 2020.

[36] See Mandel, Michael (March 2017). How the Startup Economy is Spreading Across the Country — and How It Can Be Accelerated. *TechNet*. https://www.progressivepolicy.org/wp-

economists suggests that regions that produce more high-quality startups show better economic performance. The report cites that a doubling of entrepreneurial quality in a region predicted an increase of 6.8% in GDP 11 years in the future." These are very significant and optimistic numbers.

The Progressive Policy Institute 2017 report[37] suggests that the more startup activity in an economy or sector, the higher the job growth. The report found that in economic regions where we can find more startup activity, the private sector job growth is significantly higher than in areas with little startup formation activity. These regions register less than half the job growth of the others.[38]

Another interesting fact is that Tech startup communities are well known for promoting gender equality. According to United Nations, "gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world".[39] Being a sector where women are not so much involved, startups help to reduce the gender gap, which consequently will contribute to increase access to education and digital skills among girls and women.[40]

We can see a direct local impact of startups in cities where they are located. As an example, Microsoft has transformed Redmond and Google has changed Mountain View California. They bring in wealth and a massive inflow of graduates and experienced professionals from other locations who are looking for job opportunities.[41]

2.1. Obstacles to Innovation and Economic Growth: The Funding Gap

Competition between countries to attract investments in startups and FinTech, inducing entrepreneurs to establish ventures aiming to reinvent financial technology as well as reinvent new and innovative products and services is effectively increasing. Although,

content/uploads/2017/05/How-the-Startup-Economy-is-Spreading-Across-the-Country-—-and-How-It-Can-Be-Accelerate-final.pdf. accessed 7 August 2020.
37 *Ibid*.
38 *Ibid*.
39 See UNITED NATIONS. Goal 5: Achieve gender equality and empower all women and girls. https://www.un.org/sustainabledevelopment/gender-equality/. accessed 7 August 2020.
40 See Entrepreneurship Campus (June 15, 2020). The Role of Startups in Economic Recovery. Entrepreneurship Campus. https://www.entrepreneurship-campus.org/the-role-of-startups-in-economic-recovery/. accessed 7 August 2020.
41 See Corl, Eric (March 14, 2019). How Startups Drive the Economy. *Medium*. https://medium.com/@ericcorl/how-startups-drive-the-economy-69b73cfbae1. accessed 7 August 2020.

while in certain economies, there has been a large demand for these innovations, in other countries, they choose to take a more benevolent economic and regulatory environment.
Nowadays, FinTechs and startups in general face considerable challenges, such as, the access to financing, unwillingness of some companies to integrate new technologies into their businesses, evolution of the consumer behaviors, as well as, the regulatory framework of the countries, among others.[42]

Regarding the regulatory constraints, it is undeniable that a country's jurisdiction has an enormous weight in the decision making of an entrepreneur, when it comes to establish a startup. For example, developing a startup carries certain financial costs to comply with regulations. The entrepreneur would without questions choose a country where it will be easier and less expensive to do it, such as Switzerland. Well known as Crypto Valley, with a hub for blockchain and cryptocurrency startups.[43]
Although, more than a necessary evil, founders need to understand that government regulations may result in an opportunity for growth, partnerships and influencing future direction of regulation regimes for new products and services.[44] There is always a window of opportunity that can be used in another country where the government regulate differently, therefore founders always try to choose a friendly government regulator in order to pioneer its product or service.

Another main challenge faced by startups relates to financing. Having an innovative product or service and business models are, in fact, the cornerstones of a promising startup. Nevertheless, in order to develop an idea in an early stage it is required a steady flow of funds. Funding is a crucial stage when creating a startup, and being able to source enough money to start can be a challenging task, even more when seeking funds from traditional ways and trying to convince institutions and investors that the startup idea is a trustworthy business to invest in.[45] In this respect, venture capital for new business

[42] See Osetskyi, Victor (June 27, 2017). Top 7 Tech Startup Challenges. *Medium*. https://medium.com/existek/top-7-startup-challenges-688c55306e19. accessed 7 August 2020.
[43] See Silicon Canals. The 10 most startup friendly countries in 2020, (January 29, 2020). https://siliconcanals.com/news/most-startup-friendly-countries-in-2020/. accessed 8 August 2020.
[44] See Hasbani, Katarina, Regulation and startups: An unexpected opportunity (August 2, 2017). Technology and Public Good. https://techandpublicgood.com/2017/08/02/regulation-and-startups-an-unexpected-opportunity-katarina-hasbani/. accessed 8 August 2020.
[45] See Patel, Vivek, 4 Startup Funding Challenges and How to Overcome Them (n.d). Bplans. https://articles.bplans.com/4-startup-funding-challenges-overcome/ accessed 8 August 2020.

creation has become another vital policy focus that has recently gained momentum, precisely because the source of capital has become difficult and less accessible, thus creating a gap in finance and investment in the ecosystem.[46]

At the moment, except in some cases, there are no funding mechanisms to support entities that provide support to business innovation. There is a gap in the system, most commonly in companies related to technology industries, which rely on research and development. For example, when a company has a prototype of a product and wants to produce it, trials and regulatory approvals may represent extra costs that the company does not have the money to immediately pay.[47] When this happens, usually companies look for additional ways of funding, for instance investors, angel investors, venture capitalists, among others, in order to continue moving forward. Companies can compete from the outset, but the entities that could have the power to encourage this do not have a line of funding. Without it, businesses cannot proceed and end up not surviving in the market.

According to Sandler (2012) a startup is a business proposition and risk is the main reason for the difficulty in financing them.

There are different stages of financing that correspond approximately to the development phases of the company. Within the embryonic stage new ideals need approval, often financed by venture capital, family and friends. After a while, once the company is created and grows, additional funds are necessary for the extra expenses. At this early stage, companies are still too small to compete for capital in public markets or secure a bank loan. Due to their growth stage, individual investors are not yet willing to invest in small projects, which makes business angels more attractive to entrepreneurial initiatives with limited but proven track records in the market. The growth stage of a business begins when sales are increasing and the workforce has to be financed.

During this stage, more specialized risk investors emerge to support the business. Once the company reaches the break-even point and increases its market share it becomes more attractive. The new company begins the expansion stage when revenues and profits grow.

[46] See Dittmer, Janke and McCahery, Joseph A. and Vermeulen, Erik P.M., The ‘New’ Venture Capital Cycle and the Role of Governments: The Emergence of Collaborative Funding Models and Platforms (November 20, 2013). Lex Research Topics in Corporate Law & Economics Working Paper No. 2013-7, Tilburg Law School Research Paper No. 021/2013, Available at: https://ssrn.com/abstract=2357771.
[47] Investopedia, ‘Funding gap’. https://www.investopedia.com/terms/f/funding-gap.asp. accessed 26 August 2020.

It gets its final stage when it intends to make an initial public offering (IPO) and it is usually at this point that the venture capitalists make the profit and leave the business.[48]

During this process, startups need to overcome and create a bridge to cross the first significant barrier: the gap between Seed and Series A stages, which is the first big barrier in the journey of startups towards growth. This barrier is also called "valley of death" and it is precisely "the period between the initial capital contribution and the time the company starts generating a steady stream of revenue".[49]

There is an abundance of funds to finance small initiatives of up to EUR 500,000, but capital is limited to make subsequent larger rounds. The reality is that there is a substantial redirection of risk capital to seed funding but on the other hand there are no funds to foster continued growth.[50]

The mentioned funding gap is due to most traditionally structured venture capital firms that have delivered lower returns[51]. Consequently, funds are delivered to less risky financing or to growth stage companies[52], leaving other companies – for example, seed/startups – without support.

Taking Portugal as an example, it has experienced significant changes in its economy, which have structurally influenced the financing conditions of its companies through equity or debt. The economic and financial crisis at European level (that will be reinforced with the current situation after Covid-19) demand for discipline in public finances. As a result, SMEs as well as startups operating in Portugal face a double challenge: recovery of growth and banking deleveraging. The tight availability of credit to the entire financial system has had more intense consequences on early-stage companies than on large companies, which means that the challenges of growth and financing are more remarkable in this type of companies.

48 See Lehner, Othmar Manfred, Crowdfunding Social Ventures: A Model and Research Agenda (July 16, 2012). Lehner, O. M. (2013). Crowdfunding social ventures: a model and research agenda. Venture Capital, 15(4), 289-311. Available at: https://ssrn.com/abstract=2102525.

49 *Ibid*.

50 See Dittmer, Janke and McCahery, Joseph A. and Vermeulen, Erik P.M. et al., *supra* note 48.

51 See Mulcahy, Diane (2013), Myths About Venture Capitalists, Harvard Business Review, May 2013. https://hbr.org/2013/05/six-myths-about-venture-capitalists. accessed 27 August 2020.

52 See Dittmer, Janke and McCahery, Joseph A. and Vermeulen, Erik P.M. et al., *supra* note 48.

In fact, as seen, the main reason of the existing gap is because traditional funding models tend to invest in less risky financing of companies in later and growth stages.[53] However, new forms of investment opportunities are emerging, capable to fill the funding gap. As mentioned previously, there are several options to get funds today: bank lending, venture capital or initial public offerings (IPO), but also angel investors or crowdfunding platforms which are demonstrating to be very effective when it comes to bridging the gaps in the venture capital cycle. In addition, we can also point out another innovative way of funding which is called Initial Coin Offering (ICO).

3. Funding Possibilities

The most common ways to get money for startups will be presented below. This section provides a brief comparison of ICOs to the other conventional financing options such as crowdfunding and equity crowdfunding, angel investors, venture capital, and initial public offerings (IPOs). It is important to note that these should fit into the investment needs. Bootstrapping[54] and the three F's (Friends, Family, and Fools[55]) are excluded from this analysis.

3.1. Crowdfunding

It represents an alternative to the most common methods of obtaining funding. It consists of an online platform for collaborative or collective funding where individuals make anonymous donations for projects that interest them. Thus, the entrepreneur only has to register on one of the various crowdfunding platforms in existence, exposing his project for a predetermined period of time, and anyone who is interested in seeing this idea come true can donate the amount of money they want, usually low amounts.[56]

Derived from the concept of crowdfunding, equity crowdfunding, whereby the financed entity remunerates the amounts obtained through an equity participation dividend

[53] See Dittmer, Janke and McCahery, Joseph A. and Vermeulen, Erik P.M. et al., *supra* note 48.
[54] Term defines the creation of a startup from scratch using only the entrepreneurs' resources.
[55] Term is widely used in the environment of startups and entrepreneurship. It represents the set of individuals to whom the entrepreneur should choose first to obtain financial support for their business. Through this method, the capital needed in the early stages of the business is obtained from people that the entrepreneur trusts, such as family and friends who believe in the potential of the idea.
[56] See Pereira, Sara (n.d). As 9 Principais Formas de Obter Dinheiro Para Startups. The IT Factory. https://www.the-itfactory.com/startup-knowledgebase/article/ways-to-raise-money-for-startups/ accessed 12 August 2020.

distribution or profit sharing. Companies seeking financing through this modality offer shares or stakes in the company, so that the people who participate become part of the company.[57] This option for financing is growing since it is easy and anonymous.
One of the main advantages is that in a short period of time they will be able to raise the funding they need to implement their project (fast and cost-effective financing process). Other advantages are flexibility in access conditions, the different modalities that exist give the possibility to design more attractive, targeted, innovative and effective investment campaigns, anyone can participate, no matter how small the contribution, access to capital for small companies, as well as, it is an online monitoring of the project where everyone has access to the different phases and fulfillment of project goals.

However, if the campaign fails (failure to raise all the requested funds), even if part of the funds has been raised, they are not delivered to the entrepreneur being returned to supporters. Also, it is not so effective for projects seeking large amounts of investment, when the project requires a large financial investment not always are achieved with the support of the crowdfunding community. Plus, the funds raised to start the project do not ensure its continuity to medium and long term.
Comparing to ICOs, as we have seen, it is possible to raise large amounts of money within a short period of time. As an example, *Brendan Eich* who left his appointment as CEO of the *Mozilla Corporation* to found a new browser called *Brave* with ICO proceeds of $35 million, which were raised within only 30 seconds.[58]

In terms of legal problems, in connection with reward crowdfunding (which is the type of crowdfunding people are more familiar with), donners make cash contributions in exchange of a reward. The most famous platforms are Kisckstarter and Indiegogo. The first crowdfunding platforms do not protect the intellectual property, it is up to the entrepreneur to protect himself. When you do a public crowdfunding, normally the company has to public disclose intellectual property, it can have an impact on its legal status. On crowdfunding space, there are several sophisticated predators who go on these

[57] See Condessa, Maria João, Palma, Anabela and Baltazar, Filipa (October, 2018). Guião Sobre Formas de Financiamento a Startup. MJCondessa Consulting. https://www.agriempreende.pt/wp-content/uploads/2019/02/GuiãoIII_.pdf. accessed 12 August 2020.
[58] See Momtaz PP (2020) Initial Coin Offerings. PLoS ONE 15(5): e0233018. https://doi.org/10.1371/journal.pone.0233018.

platforms and look for unprotected ideas to exploit. The risk of lose a business idea increases when the crowdfunding exposes your idea to global audience.

Another problem of these type of platforms is that in traditional funding models, entrepreneurs can use non-disclosure agreements and non-compete clauses to protect their business idea. On the contrary, this is may not be allowed in a crowdfunding platform. Also, another area of concern has to do with using suggestions that has been submitted by other users. Some websites specify that projects sponsor owns rights in all submitted ideas, however there are other which do not define ownership of submitted materials. What can happen is when an entrepreneur uses the ideas from another user, he may face legal obligations to the person who suggested these ideas.

Crowdfunding also poses risk to trademark rights and copyrights.

To conclude, there is a risk of personal liability, since crowdfunding platforms are not liable for legal issues that arise from campaigns. Hence, the entrepreneur will be completely responsible. It is important to consider setting up an actual business entity and running the campaign through that business. As a result, the liability will fall under the business and not under the entrepreneur personally (unless the person commits fraud or any other illegality).[59]

3.2. Angel Investors

The so-called 'Angel Investors' are private and individual investors who specialize in supporting with their own money projects with high growth potential and have underlying innovative concepts that can generate profitability, requiring in return the entry into the capital of companies. This is a time-limited participation, with the objective of medium-term appreciation, with a view to the subsequent sale of the shares to other interested parties.[60]

Business angels act individually or meets in 'angel clubs' (taking the legal form of vehicle entities) in a strong and strategic sharing of resources and advice between the companies in which they invest.

[59] See Perkins, Patrice (n.d). 4 Legal Issues in Your Crowdfunding Campaign. Creative Genius Law. https://creativegeniuslaw.com/legal-issues-crowdfunding/; accessed 27 August 2020.

[60] See UK Business Angels Association (n.d). Introduction to Angel Investment. UKBAA. https://www.ukbaa.org.uk/services-for-entrepreneurs/support-and-advice/angel-investment-right-business/ accessed 12 August 2020.

Entrepreneurs who seek an angel investor to fund their business, usually are not looking only for money, they want mentorship to run their company. Entrepreneurs are not solely concern with profits but also with the success of the company and its owners, which leads to a higher proximity between the entrepreneur and investor, with a more informal relationship and sometimes a greater flexibility in negotiations. Angels bring specific know-how and contacts to the project, they offer experience network, playing an active role in the management of the company.[61]

On the other hand, it is extremely difficult to find an appropriate angel investor for the entrepreneur's need, even more when the startup works in innovative projects. Also, it requires a stake in the company's capital. Having a person always helping n the decision-making of the company is beneficial, although usually limits the freedom of the management team, since this type of investors want to participate in all the project's decisions actively, this is considered a large downside. In addition, the amounts raised by this type of funding are not so high when compared to other options, amounts that sometimes are not in proportion to the loss of confidential information that the entrepreneur has to give in.[62]

Investments made by angel investors in a company are always conducted according to extremely detailed legal documents. These documents have to specify everything about the parties and their relationship, including terms of the value exchange and the various rights and responsibilities of the parties[63], as in fact, the entrepreneur will "be married" to the angel for a period of time.

Due to the complexity and long legal documents, parties normally have to hire lawyers to draft the agreements and, also used, term sheet.[64] This bears high costs and time consuming.

[61] See Ward, Susan (January 04, 2020). The Pros and Cons of Angel Investors. Small Business. https://www.thebalancesmb.com/angel-investor-2947066. accessed 12 August 2020.

[62] See Newlands, Murray (n.d). Pros and Cons of Using Angel Investor to Fund Startup. Startupgrind. https://www.startupgrind.com/blog/pros-and-cons-of-using-an-angel-investor-to-fund-a-startup/ accessed 12 August 2020.

[63] See Rose, David S. (May 15, 2014). How do angel investors typically deal with the legal agreements and similarly how would they help deal with legal issues for a startup they've invested in? Gust Blog. https://blog.gust.com/how-do-angel-investors-typically-deal-with-the-legal-agreements-and-similarly-how-would-they-help-deal-with-legal-issues-for-a-startup-theyve-invested-in/; accessed 27 August 2020.

[64] *Ibid*.

3.3. Venture Capital

Venture capitalists are investors who finance startups and small businesses with long-term growth potential. These investors can be individuals or companies and are usually involved in several projects simultaneously. Consequently, they have less time available to assist startups. However, they keep track of what is done in each of them. For this reason, this is a good option for companies that are ready for the growth phase, where the business concepts are already defined.[65]

VCs are one of the main sources of money for startups. Generally, it is directed to innovative businesses of a technological nature and high profitability or companies that intend to expand into domestic or foreign markets, where there is a rapid growth of this business. They are characterized by being minority, temporary and committed.

This type of investor helps to turn the idea into a strategy and action plan and open doors to startups through their network of contacts, which increases the reputation of the company. Moreover, it is attractive to high-risk investors and they have a strong supervision and regulation of VCs, which is beneficial to the entrepreneur and its project. Different from the other funding models we have seen, and similar to ICOs, VCs give larger funds to startups.

Nevertheless, the drawbacks pose mainly the VCs' concerns only on profits. The return of the investment is very important, it is the main reason for investment, this means that if VCs do not see a profitable future (usually between 5 and 10 years), there is no investment.

Also, for those who are looking for mentorship, VCs have a distant relationship between them and the entrepreneurs, sometimes without offering their experience and contacts.

In terms of legalities, in this industry, the business form that is used to set up a fund is a limited partnership, which is constituted by general partners (managers) and limited partners (investors). The general managers in a limited partnership are personally liable. But, of course, fund managers do not want to be liable, so they set up a corporation

[65] See Pereira, Sara (n.d). As 9 Principais Formas de Obter Dinheiro Para Startups. The IT Factory. https://www.the-itfactory.com/startup-knowledgebase/article/ways-to-raise-money-for-startups/ accessed 12 August 2020.

themselves. What happens is that investors do not always understand the VC industry, hence they are not active, delegating investment decisions to the managers. Basically, the entrepreneur deals with VC company and not with the actual investor.

There are several provisions in this type of agreements who need to be carried very carefully in order to provide protection to the parties. In this case, since the agreement is between VCs and startups.

VCs understand the startup industry, they know the portfolio companies, they know how the startups operate, who may be interested in buying the companies in the future. Therefore, they are ahead when it comes to negotiate the agreements. It is required to both parties have a lawyer present to advisor them in a better way. Once again, it takes additional costs and also the agreements involved are complex which may represent long negotiations and consequently, more time.

3.4. Initial Public Offerings (IPO)

An initial public offering (IPO) refers to when a private corporation sells its shares to the public in a new stock issuance in order to raise capital from these investors who buy their shares. In other words, the company provides the market with the possibility for investors to buy small parts of the company and participate in its profit when it is distributed.

Similarities between ICOs and IPOs are not only reflected in their nomenclature.

Nevertheless, they are fundamentally different. IPOs are usually for well-settled companies, whereas ICOs are more a funding mechanism for startup technology projects.[66] Before a company lists its shares through an IPO, it may have to go through long legal and compliance processes in order to fulfil all a certain number of requirements[67], bureaucracy and the cost it represents in the process is very heavy. This is because, to launch an IPO, the company needs external help to take care of the whole procedure, which is quite complex and this will generate a cost that is not small.

For instance, a formal document called ‘prospectus’ has to be filed, providing details about the investment offering to the public. This document contains key information about the company and the investment to be made, helping investors to make a more

[66] Ofir, Moran and Sadeh, Ido, (August 5, 2019). ICO vs IPO: Empirical Findings, Information Asymmetry and the Appropriate Regulatory Framework. Vanderbilt Journal of Transnational Law, Forthcoming, Available at SSRN: https://ssrn.com/abstract=3338067.

[67] See Cointelegraph, “ICO vs IPO: Key Differencies”, https://cointelegraph.com/ico-101/ico-vs-ipo-key-differences; accessed 18 August 2020.

informed decision, whether to invest or not[68]. Investors are strongly advised to have enough expertise and technological knowledge to evaluate if the project is at least reliable or not in order to allow them to make an informed decision.

Moreover, after the initial public offering, the owners of the company lose some of their freedom over their business, and must answer to the board of directors, as well as to the other groups of shareholders.

In fact, as seen, all these models bring a wide range of advantages, advantages that - in some cases, depending on the business in need of funding - surpass the disadvantages. For instance, angel investors offer mentorship while in ICO, the investors buy the company's tokens in exchange for tokens' incorporated rights. According to the business and the project of the firm, the entrepreneur will choose which model (or models) suit them best.

Even though ICOs are more often used to firms in an early stage, in contrast to the above-mentioned funding models, token sales can be used to raise capital during all funding stages. IPOs, as already explained, are entitled to companies with high-volume growth capital, on the opposite side, crowdfunding is used to fund entrepreneurial businesses. Venture capitals, although can be employed in all stages, it is only allowed until a company goes public.

Also, according to *Momtaz*[69] ICO cover funding amounts can go from $100 000 up to $4 billion (without even a live product, only the idea).[70] Moreover, investors may obtain products or equity-like instruments using crowdfunding and in venture capitalists or IPO investors receive stokes, while with ICO, an investor may use these and even more, depending on the type of token purchased.[71] For instance, equity shares (purchasing security tokens – *DAO* tokens), products or services (purchasing utility tokens – *Munchie* tokens) a crypto coins (purchasing currency tokens – *Ethereum* tokens).[72]

68 See *Prospectus*, INVESTOPEDIA, https://www.investopedia.com/terms/p/prospectus.asp.

69 See Momtaz P. P. (2019b) Token Sales and Initial Coin Offerings: Introduction. *The Journal of Alternative Investments* 21, 7–12. https://doi.org/10.3905/jai.2019.21.4.007.

70 See Rooney, Kate (May 31, 2018). A blockchain start-up just raised $4 billion without a live product. CNBC. https://www.cnbc.com/2018/05/31/a-blockchain-start-up-just-raised-4-billion-without-a-live-product.html. accessed 18 August 2020.

71 See Momtaz PP (2020) et al., *supra* note 58.

72 See Skultetyova, Ivona (2019). Token Offerings; Addressing Fundamental Problems od Token Issuance and Distribution;

Momtaz also points out as the "most striking advantage" the technical flexibility of smart contracts, which allows the company to do exactly the same as with the other financing methods but at close-to-zero transaction costs.[73]

4. A "new alternative": Blockchain and Initial Coin Offerings

When it comes to financing, the common problem is that it is not always possible to get funds by traditional means, such as banks. Investments in startups are considered risky, as we cannot be sure of public acceptance. This is not to mention the inexperience common among entrepreneurs who venture into the environment. We can mention several options available to firms for this purpose. For instance, we have venture capital, angel investors, crowdfunding or initial public offering (IPO). With the advent of blockchain technology, a new option emerges: Initial Coin Offering (ICO).

As mentioned previously, this new funding model has become more and more used throughout the world for companies who try to raise significant amounts of money quickly and with barely no costs.

First and foremost, before we move on to the epicenter of the question we will try to answer, we will develop some critical concepts for a better understanding of what will be analyze in the upcoming chapters.

This is why it did not take long for clever entrepreneurs in the US to create and further develop online platforms to facilitate better pre-IPO trading in the shares of non-listed venture capital-backed firms. They were able to avoid compliance with strict securities rules and regulations by limiting access to trading to accredited investors. Unsurprisingly, these trading platforms fast became a critical component of the venture capital ecosystem, as they helped bridge the liquidity gap in the venture capital model.[31]

[73] See Momtaz PP (2020) et al., *supra* note 58.

4.1.What is blockchain?

The Internet is beginning a new phase of decentralization[74]. A revolutionary new technology - known as “blockchain” - emerged after several years of research in the areas of cryptography and decentralized computer networks[75]. Consequently, this new technology made Initial coin offerings possible and at the same time ICOs ended fueling the blockchain hype.

As implied by the name, a blockchain is a chain of blocks that contains information. This technique was originally described in 1991 by a group of researches and was initially intended to timestamp digital documents so that is not possible to backdate them or manipulate them. However, this technology was nearly unused until it was adapted by Satoshi Nakamoto[76] in 2009 to create a digital cryptocurrency (“Bitcoin”).

Blockchain can be described as a collection of records linked with each other in blocks, containing information about a certain number of transactions, strongly resistant to alteration and protected using cryptography procedure in an ever-expanding chain – hence the name. A copy of the blockchain is stored on all computers in the network and these computers (also known as “nodes”) periodically synchronize to ensure that all of them have access to the same shared database (one type of distributed ledger technology[77] – “DLT”). This means that rather than keeping data centralized as in a traditional ledger, there is no single authority guaranteeing the authenticity of the ledger containing the information, the public distributed ledger ensures that everyone on the blockchain network has a copy of the ledger. Thus, it makes practically impossible to change transaction data in the ledger[78], because everyone else will flag this as invalid. Currently, the most famous blockchains are, without any doubt, Bitcoin and Ethereum. Some of the largest ICOs include Tezos, raising $232 million and messaging app provider Telegram,

[74] See Olaf, Carlson-Wee. The Future is a Decentralized Internet (2017). https://techcrunch.com/2017/01/08/the-future-is-a-decentralized-internet/. accessed 20 June 2020.
[75] Time-stamped series of immutable records of data that is managed by a cluster of computers not owned by any single entity.
[76] See Hacker, Philipp and Thomale, Chris et al., *supra* note 16.
[77] See Wright, Aaron and De Filippi, Primavera. Decentralised blockchain technology and the rise of lex cryptographia, (2015,) 58. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2580664.
[78] *See* Joshua S. Morgan. What I Learned Trading Cryptocurrencies while Studying the Law. (2017). V 25 University of Miami International and Comparative Law Review. https://repository.law.miami.edu/cgi/viewcontent.cgi?article=1306&context=umiclr.

raising $850 million in its first ICO round.[79] As seen in the Gnosis ICO, startup company can raise millions in minutes, confirming that an ICO can be efficient of injecting liquid capital investment much faster compared to other forms of funding.

4.2. Smart Contracts and Cryptocurrencies

Industry leaders have realized the revolutionary potential of technology, recognizing it as a game changer in the way businesses operate.[80] Later in 2013, a developer[81] created a new blockchain called Ethereum to make it easy for anyone to develop blockchain applications on top of it without having to boot scratch a blockchain themselves. Etherium has its own built in programing language which made possible for them to write software that can solve any practical computational problem. With Ethereum's language, anyone can create what is called "smart contracts" and create peer to peer applications on top of it quickly. In fact, "smart contracts" are considered by many one of the most useful tools developed in tandem with blockchain. Defined as software programs integrated in a blockchain that can not only receive but also send assets and information.[82] In most cases, this exchange of information and assets by the smart contract is entirely provided using a code and triggered when certain conditions are met. Basically, opposed to traditional contracts, smart contracts are not limited to define rules and penalties around an agreement, those obligations embedded on it are automatically enforceable[83]. Notwithstanding, this "new" type of contract can be quite innovative and promising in

[79] See Vigna, Paul. Tezos Raised $232 Million in a Hot Coin Offering. Then a Fight Broke Out (October 19, 2017). *The Wall Street Journal*. https://www.wsj.com/articles/tezos-raised-232-million-in-a-hot-coin-offering-then-a-fight-broke-out-1508354704. accessed 20 June 2020.

[80] See Stambolija, Ratko. Five Ways Blockchain Can Transform Traditional Business and Impact the Market in the Future (March 7, 2019). https://medium.com/mvp-workshop/five-ways-blockchain-can-transform-traditional-business-and-impact-the-market-in-the-future-6310a9554214. accessed 20 June 2020.

[81] Four years after Bitcoin, Vitalik Buterin released a white paper describing an alternative platform designed for any type of decentralized application developers would want to build. In 2015, Buterin and its co-founders (Dr Garvin Wood and Joseph Lubin) launched the first live release. See Coindesk. Who created Ethereum? (2017). https://www.coindesk.com/learn/ethereum-101/who-created-ethereum. accessed 20 June 2020.

[82] See Narayanan A et. al., 'Bitcoin and cryptocurrency technologies: a comprehensive introduction.' (Princeton: Princeton University Press 2016).

[83] See Rosic, Ameer. Smart Contracts: The Blockchain Technology That Will Replace Lawyers (2016). Blockgeeks. https://blockgeeks.com/guides/smart-contracts/. accessed 24 June 2020.

different sectors, such as healthcare[84], real estate, or insurance[85], currently they have been mostly used in cryptocurrencies[86], and the most important implementation is the Bitcoin[87]. Using the last example, bitcoin (like other cryptocurrencies) can be transferred between users. In order to do this, users have a program called a "wallet" which consists in two unique and distinct cryptographic keys[88]: a public key (address that everyone in the network knows of, like an email address of a user, and appears on the blockchain ledger as the user's digital signature) and a private key (unique address that only the user has knowledge of, like a password). The sender needs the recipient's public key to send the bitcoins (or other blockchain-based units).

4.3. Tokenization and ICOs

Tokens are a new blockchain-based investment tool, considered by many as a loaded risk as well as considered attractive by others. Primarily, tokens are "contracts" granting certain rights that are bestowed upon a token holder, it corresponds to a unit of value issued by a venture.[89] In comparison with Bitcoin, even though both have a value attached which is accepted by a community and both are blockchain-based, tokens serve a much broader purpose[90], which is determined by its specific features. This impacts the applicability, or non-applicability, of securities regulation, as will be shown further.

4.3.1. Token Categories/Taxonomy

84 See TIBCO Software Inc. Change Healthcare and TIBCO to Bring Blockchain-Powered Smart Contracts to Healthcare (November 5, 2018). https://www.tibco.com/press-releases/2018/change-healthcare-and-tibco-bring-blockchain-powered-smart-contracts-healthcare; accessed 24 June 2020.

85 See Borselli, Angelo, Smart Contracts in Insurance. A Law and Futurology Perspective (January 19, 2019). Available at: https://ssrn.com/abstract=3318883.

86 The European Central Bank explains virtual currency in its published document as *"a digital representation of value that is neither issued by a central bank or a public authority, nor necessarily attached to a fiat money or currency, but is accepted by natural or legal persons as a means of payment and can be transferred, stored or traded electronically"* – See *'Virtual currency schemes: a further analysis', The European Central Bank* (2015). https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemesen.pdf. accessed 24 June 2020.

87 *See* Church, Zach (May 25, 2017). Blockchain explained: An MIT Expert on Why Distributed Ledgers and Cryptocurrencies Have the Potential to Affect Every Industry, MIT SLOAN SCH. OF MGMT. https://mitsloan.mit.edu/ideas-made-to-matter/blockchain-explained. accessed 24 June 2020.

88 *See Cryptocurrency*, INVESTOPEDIA. https://www.investopedia.com/terms/c/cryptocurrency.asp.

89 Fisch, Christian, Initial Coin Offerings (ICOs) to Finance New Ventures (September 29, 2018). Journal of Business Venturing, 34(1), January 2019. Available at https://ssrn.com/abstract=3147521;

90 See BBVA, What is a token and what is it for? (2017). https://www.bbva.com/en/what-is-a-token-and-what-is-it-for/; accessed 25 June 2020.

Nowadays, there are more than five thousand cryptocurrencies[91], and given this considerable number there is no right or wrong answer to establish a token taxonomy. However, besides the plethora of tokens issued, the majority of these tokens fall into one of these three different categories, based on the existence or absence of certain features: currency, utility and investment token[92]. This categorization are not legal categories, it is established based on token functionality. Nevertheless, its potential legal classification, as will be further discussed, is linked to its categorization. Also, tokens are sometimes hybrids of the categories and thus cannot easily categorized legally.

Currency Tokens

Currency tokens are the most conventional type of token, and intended to be used on the many and varied daily transactions of life for anyone who is willing to accept them. Making or receiving payments, or services, they can be used on outside of their own platform, through blockchain. The main reason why the market participant trust on the currency token is not based on the support of a federal reserve bank, but because of the fact that blockchain technology which the crypto token underlies (DLT) is almost impossible to manipulate[93]. A cryptocurrency is a standard currency used for making or receiving payments on the blockchain, with the most popular cryptocurrency being Bitcoin.

Utility Tokens

Utility tokens offer a wide variety of benefits for the owner. These tokens provide the right to use a determined system's functionality, more comprehensive than use it as a coin. This is the key difference between utility tokens and currency tokens, since the later allows token holders to access to a particular function provided directly by the token issuer, such us a service offered by a company. An excellent example of a utility token is

[91] See *Top 100 Cryptocurrencies by Market Capitalization.* CoinMarketCap. https://coinmarketcap.com;
[92] See Barsan, Iris M. (November 2, 2017). Legal Challenges of Initial Coin Offerings (ICO). Revue Trimestrielle de Droit Financier (RTDF), n° 3, 2017, pp. 54-65, Available at SSRN: https://ssrn.com/abstract=3064397.
[93] See Philipp and Mathias et al., *supra* note 8;

the “Filecoin”, it allows token holder the use of storage space[94] or in the case of “OpenMined”, data sets. In addition, this type of tokens can have elements of currency or investment tokens. Taking Uber token as an example, it allows investors to buy these tokens and use them as a means of payment (pay a ride with an Uber car), but nothing else[95]. In contrast, Munchee token permits not only the payment in restaurants, but also incentivized food reviews (utility token) and secondary trading (investment token).

Investment Tokens

The third category is investment tokens (also referred as security tokens or asset tokens[96]), the new star in crypto-town.[97] Tokens can also have an investment component in the sense that the owner has the right to have representation of equity or a participation in the revenue stream of an organization.[98] This could be payments similar to dividends, or fixed payments including a mark-up reflecting the investment risk, which means, if a tokenized version of a stock is bought, the same rights that a sale of a stock via a traditional stockbroker confer will be acquired. Moreover, it may also contain the conveyance of voting or other participation rights.[99] The Decentralized Autonomous Organization (DAO) epitomized this latter type of investment token, the funds raised were intended to be used to finance projects thus generating returns for DAO token holders, also inside the DAO there were voting rights to decide which projects were funded and which did not.[100] It is even possible to find examples of tokens that include a type of voting right on the operation of the company, without this voting right having any sort of economic component. An example of this is the *Bunnycoin*, a token which, for all intents and

[94] Token holders “spend tokens for storing and retrieving data and miners earn tokens by storing and serving data”, See Protocol Labs (2017). Filecoin: A Decentralized Storage Network, Updated White Paper . https://filecoin.io/. accessed 25 June 2020.
[95] See INVAO (n.d). Token Classes Explained: Coin vs. Utility Token vs. Security Token. https://invao.org/token-classes-explained-coin-vs-utility-token-vs-security-token/. accessed 25 June 2020.
[96] See Canellis, David, Three types of cryptocurrency tokens explained as quickly as possible (2018). https://thenextweb.com/hardfork/2018/11/19/cryptocurrency-tokens-explained/. accessed 25 June 2020.
[97] See INVAO et al., *supra* note 95.
[98] See Rivero, Alvaro (2018). Distributed Ledger Technology and Token Offering Regulation. Available at: https://ssrn.com/abstract=3134428;
[99] See Philipp and Mathias et al., *supra* note 8;
[100] See Mitra, Rajarshi (2018). What Are Security Tokens? [The Most Comprehensive Guide]. Available at https://blockgeeks.com/guides/security-tokens/. accessed 25 June 2020.

purposes, acts just like a currency token, with the proviso that 10% of the tokens mined are donated to charity determined by means of a weekly vote by the token holders.[101]

Hybrid Tokens

As mentioned, the different types of tokens not only exhibit the component under consideration, they can share different components to different degrees. Taking *Munchee* ICO case as example, in most of the times, utility tokens do constitute security tokens once they can be traded on a secondary market and be sold for profit, even if they were primarily designed to confer utility.[102] We can find hybrid tokens, which combine properties of the three different types of tokens mentioned above. Back to the example given, *Munchee* tokens gives other functionalities, such as the secondary trading. As a result, we could say that more than a utility token, these tokens permit its usage to make payments in restaurants, these tokens can be qualified as investment tokens.

Currency tokens may also overlap with utility tokens issued by platforms that host or provide support to other platforms (for instance, the Ether of the Ethereum platform is classified as currency token as well as utility token).[103]

An ICO can take many forms. The most common practice, however, is to issue tokens on a smart-contract-capable chain. This is done predominantly on Ethereum.[104] The process of Initial Coin Offerings consists typically in three steps: 1) the publication of a white paper describing the firm's project (e.g., new products, applications, services); 2) promotion of the ICO on the web and media. Some companies do a pre-sale, which incentive to early purchasers, normally offering tokens for a lower price[105]; and 3) the launch of the ICO, the investor purchases tokens, cryptocurrencies are transferred from his wallet to the company's wallet, using an algorithm of a smart contract. On the other

101 See Bunnycoin. Bunnycoin for charities. http://bunnycoin.org/bunnycoin-for-charities/. accessed 25 June 2020.

102 See Nathaniel Popper (June 23, 2017). Easiest Path to Riches on the Web? An Initial Coin Offering. New York Times. https://www.nytimes.com/2017/06/23/business/dealbook/coin-digital-currency.html.

103 See BRENN (2017). ICOs & Token Types for Dummies: An buyers guide to crypto-tokens (2017). HACKERNOON. https://medium.com/hackernoon/icos-token-types-for-dummies-an-buyers-guide-to-crypto-tokens-b6edea16776e. accessed 26 June 2020.

104 "Besides Ethereum, there are other other chains that can be used – Waves, NEO, NEM, or Stellar are some popular examples." See Binance Academy (n.d). What Is an ICO (Initial Coin Offering)? https://www.binance.vision/economics/what-is-an-ico. accessed 26 June 2020.

105 See Fork, Alex (2013). Humaniq Whitepaper. Available at: https://humaniq.com/pdf/humaniq_wp_english.pdf.

hand, the tokens go automatically and directly to the investors' wallet. If the specified funding amount is reached by the closing period, we consider the ICO was successful (in those cases there is soft cap).

After, depending on the token type and the rights contained there, investors can give an use to the acquired tokens.

These three steps can be completed in a short period of time, sometimes within a few months. Also, an ICO is launched even without the approval of a financial regulator, which brings speeds even more the process.

The most important step is the whitepaper, similar to a prospectus, which is a document that contains key information about the company and the investment to be made, helping investors to make a more informed decision, whether to invest or not[106]. Nonetheless, in contrast to IPOs, a whitepaper presented by the company is not even comparable to a prospectus, its format has no standard, presents only the planned project, the team involved, the sought-after investors and the funds needed, the lack of disclosure and also attempts by the team to market their business idea in the most favorable manner may not be so efficient to enable the potential investor to be protected.

4.4. Overview of Initial Coin Offerings Market and Regulation

An ICO is seen as an alternative fundraising model similar to crowdfunding. As mentioned above, the ICO market is decentralized. Therefore, it is difficult to follow the ICO market because there is no central platform where we can make and maintain compulsory registrations about it. Consequently, there is no standardized reporting, and volatility is high.

Although, in fact, there are some websites that track ICO's, for instance, coindesk.com, icodata.io, or icowatchlist.com, which follow ICO's. The problem is that due to the fact that these websites are manually maintained only based on user input, the figures presented may diverge. The following analysis should be considered as indicative of general states and developments. The first part of this chapter analyses the market in the world, followed by the analysis of regulations applicable in two opposing poles of jurisdictions: China and Malta, and a third middle approach: The United States.

[106] *See Prospectus*, INVESTOPEDIA, https://www.investopedia.com/terms/p/prospectus.asp. accessed 24 June 2020.

Based on information from coindesk.com, the total funding amount of ICOs and the numbers of ICOs were analyzed on a yearly basis. From 2015, the funding amount through ICOs increased from $5 million to nearly $5 billion in 2017 ($0.4 billion corresponded to ICO proceeds from companies registered in China that must be refunded to investors due to its banishment). Comparing these numbers with the amounts raised through venture capitals, which correspond to an increase from $341 million in 2015 to $709 million in 2017, we can say that the amounts raised by ICOs are much higher than the later.[107] Plus, it is undeniable that this new funding model is becoming more popular and used by the companies.

In regards to the total funding amount, according to coindesk.com, in 2016 it was registered a total of $0.26 billion, in 2017, these numbers rose to $5.23 billion in 2017. The biggest jump was in 2018, with a total amount of $16.72 billion.[108]

Once again, in two years, companies all over the world raised insane amounts of money with token sales, demonstrating that initial coin offerings as a funding model are a very effective way to raise funds.

It is important to mention that, comparing these figures with an analysis made by Belyava[109], we can conclude that there is symmetry, which means that the presented data is close to reality. In this analysis, based on the website tokendata.com, 900 ICOs were counted and the total volume corresponded to a total of $5,6 billion in 2017.

It is undeniable that the number of token sales has risen sharply. Looking at the numbers presented by coindesk.com, the number of ICOs per year between 2016 and 2018 increased a total of 607 ICOs, from 43 to 650 ICOs.[110]

Considering the data available on the same website, the average size of ICOs was $6.05 million in 2016, and this number has seen a notable increase in 2018 to $25.72 million.[111]

107 GP Bullhound (2018). Comparison of initial coin offering and venture capital funding worldwide from 2015 to 2017 (in million U.S. dollars), Statista.

108 See Coindesk (2018). All-Time Cumulative ICO Funding. Available at https://www.coindesk.com/ICO-tracker. accessed 28 June 2020.

109 See Steverding, Fiona and Zureck, Alexander (February 12, 2020). Initial Coin Offerings in Europe – The Current Legal Framework and its Consequences for Investors and Issuers. Available at: https://ssrn.com/abstract=3536691.

110 See Coindesk (2018) *supra* note 108.

111 *Ibid*.

4.4.1. Regulation Applicable to Initial Coin Offerings

Although there is a growing consensus between national regulators that tokens need to be regulated in principle, there is no consensus between how exactly cryptotokens fit into the current securities law frameworks.

As mentioned, depending on the country, applicable laws differ. We see significantly variations among global actors when it comes to cryptocurrency and initial coin offerings. Some countries have decided to keep silent when the matter is regulation involving ICOs, others – such as Malta – act differently and create regulations in order to foster the usage of blockchain to raise funds. In an opposite side, China, with a completely different and radical action, choosing to banish completely ICOs from their jurisdiction.

The balance between foster innovation and protect the investors at the same time is a priority but also the main problem of the legislators. However, there is unanimity that there is an urgent need to regulate this very under-exploited field. Most of the time, issuers must at least face regulations such as KYC, AML, and CFT measures when evaluating their potential investors and source of income.[112]

The very first step when determining the applicable law generally depends on the type of the token being issued and look for an existing regulatory framework and analyze if the conduct is legally relevant.[113] However, it is particularly difficult to legally frame Hybrid Tokens and Utility Tokens, as they can confer a wide range of rights and obligations on their holders, which can be legally considered as contracts for the sale of goods, contracts for the provision of services or atypical contracts.

In any case, contractual or trust obligations may arise when purchasing tokens on an ICO, since the investors are relying on a promise made to the public by issuers.[114]

Besides this, other concerns may arise from token sales. The major challenge among issuers is to know whether their token is considered (or not) as a security. As we have seen, tokens can have security features, which depending on the country, it may be treated

112 See Zetzsche, D., Buckley, R. P., Arner, D. W., & Föhr, L. (2017). The ICO Gold Rush: It's a Scam, It's a Bubble, It's a Super Challenge for Regulators. The University of Hong Kong. Retrieved from http://hdl.handle.net/10722/249805%0AThis.

113 *Ibid*.

114 See Zetzsche, D., Buckley, R. P., Arner, D. W., & Föhr, L. (2017). et al., *supra* note 112.

as securities and therefore subject to securities regulation. A good example is the United States, with the given example of the DAO case.

In Europe, there have been no firm institutional positions on the subject, knowing only alerts for the risks associated with these figures, namely from the CMVM (Securities Market Commission)[115] and ESMA (European Securities and Markets Authority).[116]

China

China had adopted rather negative stances towards this fundraising method. Due to ICO pyramid schemes and frauds[117] happening in token sales. Certain advantages can be outlined in this radical approach to ICO, for instance, it provides legal certainty. There is no middle term, either the entrepreneurs comply with regulations or they are sanctioned by stepping in illegal fields. Countries who ban token sales do not have concerns about regulating them, which bear costs and time consuming. Also, policymakers do not have to worry about how to protect and shield investors from unregulated ICOs, since they cannot participate on it.

On the other hand, entrepreneurs may still launch an ICO using a false identity or using an IP address from another country. Hence, authorities have to pay extra attention to detect these types of activities in order to apply sanctions, which may reveal to carry even more costs and time consuming than regulate them.

Also, banish completely ICO and technology as a whole, leaves the country with a ban image from the other global actors. China and its history already show that, for instance with the ban of Facebook. Therefore, countries all over the world look at China as a non-progressive state.[118]

115 See Comissão do Mercado de Valores Mobiliários (November 2, 2017). Alerta aos investidores sobre Initial Coin Offerings (ICOs). accessed 31 July 2020. http://www.cmvm.pt/pt/Comunicados/Comunicados/Pages/20171103a.aspx.

116 See European Securities and Markets Authority (November 13, 2017). ESMA HIGHLIGHTS ICO RISKS FOR INVESTORS AND FIRMS. https://www.esma.europa.eu/press-news/esma-news/esma-highlights-ico-risks-investors-and-firms. accessed 31 July 2020.

117 Two examples for one of the worst frauds in ICO history so far are Pincoin and iFan, in April 2018, operated by the same company in Vietnam. It is believed that the company have stolen approximately $660 million from investors. See SUBERG See Fisch, Christian and Momtaz, Paul P., Institutional Investors and Post-ICO Performance: An Empirical Analysis of Investor Returns in Initial Coin Offerings (ICOs) (2020). Available at: https://ssrn.com/abstract=3427025;

118

This radical action may also remove China from competitive markets. Tech evolution is happening and a lot of benefits and opportunities may arise with it, if a country is reluctant to its usage, it may be left behind while the rest of the countries move into a new era that is much more fruitful.

United States

In United States, securities and commodities are regulated on a federal level which requires the intervention of entities such as the Federal Trade Commission (FTC), the Commodities Futures Trading Commission (CFTC) and the Securities and Exchange Commission (SEC). Both FTC[119] and CFTC[120] take a position regarding token offering, but not as much as SEC, which has been very active on the subject, due to 20% of all token sales worldwide have taken place in the United States.[121]

To determine the nature of tokens, The SEC implemented an articulate test for the first time by the Supreme Court of the United States in the case *SEC v. W.J. Howey Co.*[122] According to the definition that prevails in the Howey case, if the token offered is considered as an investment contract, the token offering shall comply with specific requirements related to disclose and registrations[123], pursuant the securities regulations. Any security issuer is additionally expected to register with the SEC, thereby disclosing information about the ICO in total.

119 Among in June, SEC investigated a virtual organization that used the distributed ledger and blockchain technology to facilitate the sale of DAO tokens to raise capital for the organization. others, FTC's purpose was to prevent unfair methods of competition in commerce as part of the battle to "bust the trusts". Therefore, when token sales provide false or misleading information on disclosing material information, FTC may act upon it, according to the Federal Trade Commission Act of 1914.

120 CFTC acts have been cautious, alerting market participants about potential scam schemes that may threaten investors. See CFTC, Customer Advisory: Beware Virtual Currency Pump-and-Dump Schemes, February 15, 2018, https://www.cftc.gov/sites/default/files/2019-12/customeradvisory_pumpdump0218.pdf accessed 18 June 2020; Also, CFTC stated that virtual currencies fall within the definition of commodities and therefore, fall under the Commodity Exchange Act of 1936. See 13 CFTC, Order: Coinflip, Inc., d/b/a Derivabit, et al, September 17, 2015, https://www.cftc.gov/sites/default/files/idc/groups/public/@lrenforcementactions/documents/legalpleading/enfcoinfliprorder09172015.pdf; accessed 18 June 2020.

121

122 SEC v. W.J. Howey Co., 328 U.S. 293 (1946). This test was later refined in SEC v. Edwards, 540 U.S. 389 (2004). For detailed discussion, see JOHN C. COFFEE & HILLARY A. SALE, SECURITIES REGULATION – CASES AND MATERIALS 247-269 (12th ed. 2012); accessed 17 August 2020.

123 Register the offering with the SEC or "(…) qualify for an exemption under the regulations, as well as, the registration before the Financial Industry Regulatory Authority, if a broker-dealer activity exists. Additionally, advisors will also have to register before the SEC under the Investment Advisers Act of 1940." See Rivero, Alvaro et al., *supra* note 98;

The Howey test involves a traditional four-part "investment contract" analysis, the following cumulative factors have to be verified: (1) the investment of money, (2) a common enterprise, (3) a reasonable expectation of profit, and (4) profit derived from the managerial efforts of others. As seen, this test focuses on the outcome of the transaction whilst focusing on its appearance.

The majority of ICOs taking place are qualified as securities. Therefore, comply with regulations is mandatory, otherwise the company may face severe consequences.

Again, the complex and long-lasting regulations end up being a burden to the companies, which may lead companies to take a step behind when choosing blockchain-based fundraising.

Malta

Malta is considered to be one of the countries which already understood the benefits of ICO. Taking the first step of creating a specific regulation on token sales, Malta demonstrated its intentions to incubate blockchain-based fundraising, and until now the numbers presented have shown that their intentions to attract issuers is working.

With the volume of ICOs in the island lead us to assume that the reason why is their legal certainty regarding ICO ecosystem.[124]

Instead of focusing only on the financial implications of token sales, the primarily focus is on the technology behind blockchain projects, thereby carefully evaluating their code and Whitepaper.[125] The whitepaper registration regime in Malta focuses on transparency of the rights and obligations of the ICO actors and the responsibility of the issuer before the law and its investors.[126]

Also, the Maltese regulators focused to protecting the public interest by limiting the number of maximum individual investment.

[124] See Alexandre, Ana (August 17, 2018). 'Ripple Partners With Three Crypto Exchanges as Part of XRapid Solution'. Cointelegraph. https://cointelegraph.com/news/ripple-partners-with-three-crypto-exchanges-as-part-of-xrapid-solution; accessed 17 August 2020.

[125] See Wolfson, Rachel (July 5, 2018). Maltese Parliament Passes Laws That Set Regulatory Framework For Blockchain, Cryptocurrency and DLT. accessed 8 August 2020. https://www.forbes.com/sites/rachelwolfson/2018/07/05/maltese-parliament-passes-laws-that-set-regulatory-framework-for-blockchain-cryptocurrency-and-dlt/#267c49fd49ed; accessed 20 August 2020.

[126] See Burilov, Vladislav. (May 30, 2019). Regulation of Crypto Tokens and Initial Coin Offerings in the EU. European Journal of Comparative Law and Governance 6 (2019) 146-186, Available at SSRN: https://ssrn.com/abstract=3400705;

As seen, and as we will demonstrate in the upcoming chapter, regulating ICOs have several downsides to issuers comparing to unregulated spaces, since initial and ongoing mandatory compliance may lead issuers of tokens to other jurisdictions where only transparency requirements are imposed.[127] However, there are always ways to get around these less positive sides of regulations, as we demonstrate on the same chapter.

Anyway, Malta is giving the example to the world, proving to be an extremely innovative country, exploring this potential new market which in order to do it successfully, it has to be preemptively captured by the crypto-friendly regulation. Embracing new technologies and new approaches in this new era instead of see them as a threat, the country is showing that they are upfront and keeping up with the evolution and innovation.

5. Initial Coin Offerings: The Future of The Future Finance?

In addition to the described funding models above, and in-depth explained in chapter 3, a new model arose: Initial Coin Offerings. An ICO can be a very effective method of raising venture capital and project finance. In the case of startups they allow them to obtain a usable currency based on an idea, which may or may not have been tested in the market.

The question of whether the blockchain will end up as nothing or everything continues to be asked with no definitive answer until today. However, there are obvious assumptions that predict a bright future.

There are practical implications for firms operating in FinTech space, depending on whether an ICO is in a regulated or unregulated context, which may or may not be a very beneficial funding method for startups.

Taking this research to another level, if shown to be highly beneficial for a startup, what would be the chances of using these benefits associated to token sales to attract new startups to the territory of a country? The following chapter analyses the risks and benefits of performing an ICO, both in regulated and unregulated territories.

[127] *Ibid*.

Nowadays, depending on the jurisdiction of where an ICO is launched, it is still possible to do it without the approval of a financial regulator. For instance, in Portugal, it is not required the approval of CMVM ("Comissão de Mercado de Valores Mobiliários").

5.1. Risks and Benefits for Firms when Performing Unregulated ICOs

Performing an ICO in an unregulated space brings a lot of benefits, not only to issuers but also to investors. As we mentioned previously, token sales are much faster than any other funding model, such as an IPO. Also, it bears nearly no costs and hardly any compliance requirements. Reading these key benefits, it appears very appealing for FinTechs and startups in general that do not have means to afford the costs[128] and at the same time do not have the time required by other funding sources[129]. The truth is that startups when bringing a new and innovative idea need to move fast before somebody else takes their idea, so time is a key element to the success.
Besides these, other benefits are brought by ICOS, for instance, efficiency and reliability of transactions in blockchains that can be accessed and managed from all over the world with barely any time of wait to be verified.[130] In terms of cost-effectiveness, token sales exceed the expectations compared to other options.

From the investor's point of view, ICO allows new investment opportunities that they would probably not exist without cryptoassets, it provides anonymity and projections of high returns, with the potential of high tax-free returns.

However, "when you pray for rain, you have to deal with the mud too". Regarding ICOs launched in an unregulated jurisdiction, it also brings certain risks associated. Illegalities always have downsides, in this case, investors are deprived of protection and consequently, they have no means for legal action, in case of crimes related to fraud or money laundering due to high cybersecurity risks and the lack of internal control.

128 Boulianne, Emilio and Fortin, Melissa (May 1, 2020). Risks and Benefits of Initial Coin Offerings: Evidence from Impak Finance, a Regulated ICO. Available at SSRN: https://ssrn.com/abstract=3590629.
129 Deng, H., Robin H. H. and W. Qingran. 2018. The regulation of initial coin offerings in china: Problems, prognoses and prospects. *European Business Organization Law Review* 19: 465–502;
130 See Emilio and Melissa (2020) et al., *supra* note 128.

Also, problems such as bankruptcy or insolvency may happen, and since the information contained in the whitepaper provided by the company launching an ICO is very limited and not reliable, the law does not protect investors leading to the loss of the money invested. A whitepaper presented by the company is not even comparable to a prospectus on an IPO, the lack of disclosure and also attempts by the team to market their business idea in the most favorable manner may not be so efficient to enable the potential investor to be protected. Zetzsche analysed 450 whitepapers of ICO and concluded that, for example, the majority of whitepapers do not inform about the ICO's regulatory status and less than 33% mention the law applicable. In addition, financial information is not provided or if provided, companies do not use external auditors to certify this information.[131]

An ICO is considered to be a funding model which provides financing for an early stage project, and most of startups present a mere business idea or concept. Hence, investors are in fact investing in a promise or expectation and not exactly a tangible product or service.[132] To illustrate, a lawsuit was filed against Tezos, alleging that "contributors to the fundraiser were not told that it could take more than three years for the Swiss foundation, which holds the funds, to purchase Dynamic Ledger Solutions and the project's source code".[133] The fact is that, as said, ICO issuers are not subject to disclosure requirements, although in some jurisdictions it may be if the digital tokens can be characterized as securities.

Even though some whitepapers might be useful and comprehensive for investors, they cannot be compared with a prospectus (IPO) since they do not include all the information that would materially influence investor's decision and may result in information asymmetries. On a global scale, we live in an ecosystem replete with information asymmetry, imperfection and distortion of the communication between participants is opening doors for opportunistic participants[134], such as scammers who have an opportunity to make profits from it unfairly.[135] The moral hazard problems, as well as,

131 See Zetzsche, D., Buckley, R. P., Arner, D. W., & Föhr, L. (2017). et al., *supra* note 112.
132 See Nestarcova, Dominika. (August 9, 2019). A Critical Appraisal of Initial Coin Offerings. Brill.
133 Anna Irrera and Steve Stecklow, (November 16, 2017). 'Tezos organizers hit with second lawsuit over crypto- currency fundraiser'. REUTERS. https://www.reuters.com/news/picture/tezos-organizers-hit-with-second-lawsuit-idUSKBN1DF37L. accessed 8 August 2020.
134 See Nestarcova, Dominika. (August 9, 2019) et al. *supra* note 132.
135 Also known as the "Byzantine General's Problem", where the Byzenine army surrounds an enemy city with other generals. They need to reach a consensus to find the better time attack and enter at the same time in this city, although they can only communicate through messengers, and obviously there is a possibility that cheat generals disturb the attack. Coordinate the decentralized system is one of the most important issues that regulators struggle nowadays. See Leslie Lamport, Robert Shostak and Marshall Pease, 'The

the lack of liquidity and market makers, insider trading and market abuse leads us to a negative result on the market as a whole. [136]

Websites of token exchanges, when not regulated, represent significant risks not only for companies, but also and mainly for investors who have no asset protection in cases like those described above. In fact, no financial regulator has approved any of these platforms to date, there is no central authority to monitorize and approve in order to give stability, which may lead us to the high volatility of ICOs, as an example, Bitcoin, the first and most recognized and established cryptocurrency, ranged from $1,027 to $19,657 USD between 2017 to 2019.[137]

In addition, investors have no preemptive rights or any other anti-dilution protection. If the company decide to issue more tokens, the investors may be diluted. Therefore, the only solution investors see is to sell quickly their tokens after an ICO.[138]

As seen, there is a wide range of legal risks associated to ICOs launched without a financial regulatory approval, which issuers and investors must be aware and try to address. On the other hand, there are also a lot of beneficial opportunities in terms of cost savings. ICO issuers take advantage from the fact that there is no direct regulation of this funding model.[139] The following sections provide the distinction between the risks and benefits in companies launching ICOs in both regulates and unregulated spaces.
Later on this chapter, an overview of the key differences between initial coin offerings and the other funding models is presented, for a better understanding of why ICOs are, in certain circumstances, a good and reliable option to be considered by entrepreneurs seeking to raise funds.

Byzantine Generals Problem' (1982) ACM Transactions on Programming Languages and Systems, Vol. 4, No. 3, 382–401 Available at: https://www.microsoft.com/ en-us/research/wp-content/uploads/2016/12/The-Byzantine-Generals-Problem.pdf. accessed 29 June 2020.

136 So-called 'lemons problem', see George Akerlof, The Market for Lemons: Quality Uncertainty and the Market Mechanism, 84 Quarterly Journal of Economics 488 (1970), Bernard Black, The Legal and Institutional Preconditions for Strong Securities Markets, 48 UCLA L. Rev. 781, 786 (2001) (Unregulated securities markets are good examples for lemons markets); accessed 30 June 2020.

137 The value of a Bitcoin on August 14, 2020, was $11,750 USD, https://pt.investing.com/crypto/bitcoin/btc-usd.

138 Kaal, Wulf A., Initial Coin Offerings: The Top 25 Jurisdictions and Their Comparative Regulatory Responses (February 2, 2018). CodeX Stanford Journal of Blockchain Law & Policy (2018), U of St. Thomas (Minnesota) Legal Studies Research Paper No. 18-07, Available at SSRN: https://ssrn.com/abstract=3117224;

139 See Emilio and Fortin et al., *supra* note 128.

5.2. Risks and Benefits for Firms when Performing Regulated ICOs

Although not a lot, there are a few jurisdictions where financial regulators may grant, under certain conditions, approval to launch an ICO, such us Canada, Switzerland, Malta, Japan among others. In this case, both risks and benefits change either for investors or for issuers. Regulated ICOs means that they are being held under the approval and monitored by the country's financial regulator.

In contrast to the above, in case of regulated sales where there is a control made by an authority - despite the unpredictability of the returns - we can say that there is a greater and incomparable credibility and confidence in the project to be launched. The investors will purchase these tokens relying on its legitimacy and knowing that no matter what, if there are irregularities, they will be protected. Consequently, investors will decide based on the information that they have, whether the company's project is a good investment or not. Any decision they make, it is entirely their responsibility.

On the side of the firms, it is required by the regulations to comply with exigent rules, including Know Your Customer (KYC) and Anti-Money Laundering (AML) regulations.[140] This means, whilst they are working under the law, it is removed all the guilty conscience of being caught or surprised by unexpected circumstances. In addition, it allows the company to perform in a fair, competitive market with certain advantages over companies who launched ICO under unregulated circumstances since investors will invest more rapidly in companies in which they trust than in companies they know that will bear much higher risks.[141]

On the other hand, as it is a common knowledge, there are always two sides of the coin. In order to comply with all the regulations, firms will encounter barriers that would not exist if working on unregulated spaces, such as some restrictions and boundaries or exchange rules imposed by the regulator. Regulatory environments for ICOs differ globally, but generally, requirements such as, amongst others, detailed and solid financial

[140] *Ibid.*
[141] *Ibid.*

reporting, effective internal control, implement compliance mechanisms, good and responsible governance practices.[142]

These practices usually constitute heavy loads for startup companies. In order to reduce these burdens and to support innovative companies and projects to enter in the market, countries started to develop programs as regulatory sandboxes and innovation hubs, which will be developed later on chapter 6.

6. Disrupting Traditional Funding Models with the "New Normal"

We are now experiencing a global crisis associated with the Covid-19 pandemic caused by the new coronavirus. Fears are growing, expectations are lowering, and chaos is set in. Social isolation, the closure of schools, factories and restaurants are a necessity and the economic impact is inevitable in the face of the country's paralysis.
Difficult times await, which will have an impact not only at the moment but also in the long term, and measures must be taken to minimize these constraints.

In his article on the impact of the pandemic, Erik P.M. Vermeulen called into question, "Will the World Ever Be the Same after COVID-19?"[143]. The impact of this new virus is predicted to be huge, on a scale that it may seem that the world will change completely. These changes are and will continue to happen not only in the healthcare system but also in several other areas such as education, environment, workplaces, technology, among others.
Almost the total shutdown of companies and economies worldwide as a result of the COVID-19 pandemic divided the experts. For many, the almost exclusive dependence on human labor and the economic impacts it is now generating is the missing argument for giving the green light to a new wave of automation and to the long-awaited era of robots replacing humans in business. For others, they are proof that this is not the way and that the economy cannot survive without humans. Only one certainty is shared, with more or fewer machines, the work of the future will be very different from what we know today.[144]

142 *Ibid*.
143 Vermeulen, Erik (March 8, 2020). Will the World Ever Be the Same after COVID-19?. Medium. https://medium.com/datadriveninvestor/will-the-world-ever-be-the-same-after-covid-19-5d77673111f0.
144 See Mateus, Cátia (April 12, 2020). Covid-19. Chegou o tempo dos robôs?. ECONOMIA. https://expresso.pt/economia/2020-04-12-Covid-19.-Chegou-o-tempo-dos-robos-.

Besides, the pandemic generated an unprecedented economic crisis in a short period of time. The long-term impacts will depend on how quickly the new coronavirus is overcome. The world's stock markets have plummeted since the beginning of the year in most of the world's richest countries. The number of Americans claiming unemployment benefits for the first time has skyrocketed to a record for two consecutive weeks.[145]
This scenario of uncertainty and economic paralysis with the shutdowns led us to enough factors to talk about a global recession.
According to The World Bank, "The baseline forecast envisions a 5.2 percent contraction in global GDP in 2020, using market exchange rate weights—the deepest global recession in decades, despite the extraordinary efforts of governments to counter the downturn with fiscal and monetary policy support".[146] For instance, the Portuguese Gross Domestic Product (GDP) fell 16.5% in the second quarter of the year compared to the same period of 2019, due to the economic effects of the COVID-19 pandemic. Data released by the National Institute of Statistics (INE) reflect the largest-ever drop in GDP in Portugal.[147]

In view of the insane impact it has caused on employment and business throughout the world, the World Bank declared, "Policymakers must consider innovative measures to deliver income support to these workers and credit support to these businesses."[148]
The priority for policymakers in a short-term period regarding the economic impact contains the economic damage. In a long-term period, authorities will need to implement wide-ranging reform programs to enhance the key drivers of economic growth when the crisis emerges, implementing specific incentives to help reignite growth.

The crisis is reducing the creation of startups, challenging their survival, and limiting their growth. As we have seen above, startups are very important key drivers of economic growth, and job creation, are the most effective element for breakthrough innovations. If companies in advanced stages already felt this impact, companies in an early stage like

145 See Sullivan, Arthur (April 5, 2020). As Consequências da Covid-19 para a Economia Mundial. DW. https://www.dw.com/pt-002/as-consequências-da-covid-19-para-a-economia-mundial/a-53021449.
146 See The World Bank (June 8, 2020). The Global Economic Outlook During the COVID-19 Pandemic: A Changed World. https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-outlook-during-the-covid-19-pandemic-a-changed-world. accessed 20 August 2020.
147 See RTPNotícias (July 31, 2020). Covid-19: PIB português regista maior queda de sempre 16,5%. Antena 1. https://www.rtp.pt/noticias/economia/covid-19-pib-portugues-regista-maior-queda-de-sempre-165_a1248856. accessed 20 August 2020.
148 See The World Bank (2020) et al., *supra* note 145.

startups face even more challenges to combat. They are engaging in high-risk activities, they have to access traditional funding, and most of them have a learning connection, at least with suppliers and customers. Frequently, these companies rely on a small founding team, which means it may make them more vulnerable when it comes to labor supply.

Moreover, it does not need to be a period of crisis in such magnitude to lead to drops in business registrations. Analysis of the most recent data confirms that firm creation dropped significantly across many countries in March and April 2020, with a decline as severe as 70% in April 2020 in Portugal compared to the same month of the prior year, and 46%, 54%, and 58% in Hungary, France, and Turkey, respectively. Milder but still very strong declines are evident in Australia, the US, and Spain.[149]

In order to tackle the long-term effects on employment, innovation, and promote economic growth, the idea would be taking steps now to support existing startups and the creation of new firms. Recessions are usually times of huge restructures that may ultimately lead to a stronger and more resilient economy. We have a very good example with the Great Recession of 2008. The bankruptcy of global financial services firm Lehman Brothers in 2008 brought the most painful global economic collapse since the Wall Street crash of 1929. The severe and continuing recession reduced global growth by 1.8% in 2009, in contrast to the expansion of 4.3% in 2007. Many successful innovative startups or businesses have emerged during or just after this period, for instance, Dropbox, Uber, Airbnb, WhatsApp, and Pinterest.[150] New opportunities for entrepreneurs arise from the need to solve problems brought by the current situation, such as problems related to the virus itself.

Therefore, policymakers on the national, state, and local levels should pay close attention to startups — creating Startup-friendly policies to encourage their formation and removing the obstacles that halt or slow their growth.[151]

149 Klenow, P J and H Li (2020). Innovative Growth Accounting. *NBER Macroeconomics Annual 2020*, Vol. 35, University of Chicago Press. accessed 20 August 2020.
150 See Calvino, Flavio, Criscuolo, Chiara, Verlhac, Rudy (July 6, 2020). Uber, Airbnb, WhatsApp all started during a crisis. Startups must be protected during Covid too. *The Print*. https://theprint.in/features/uber-airbnb-whatsapp-all-started-during-a-crisis-startups-must-be-protected-during-covid-too/454448/. accessed 20 August 2020.
151 See Mandel, Michael (March 29, 2015). et al., *supra* note 36.

Measures to sustain short-term liquidity needs, with loan guarantees, direct lending or subsidies are starting to emerge by the policy in many countries in order to shield and protect specially SMEs. Nevertheless, policy responses should in first place create more specific measures to protect even more startups[152], we can take as an example, France, where was setting up a €4 billion fund to support startup liquidity, including bridging startup funding rounds[153], or Germany, where it was announced the creation a €2 billion startup booster to support startups, new technology companies and small businesses during the coronavirus crisis, expanding and facilitating venture capital financing.[154] UK also has announced a co-financing fund for innovative companies facing financial difficulties.[155]

The abovementioned gap on the corporate financing may now be fought by the governments. Measures as these described before can now be put in place by the governments when deciding on how to stimulate business growth and innovation: stimulating and smooth the process of fundraising and investments to develop a sustainable and robust venture capital industry.[156] In other words, governments are the most important key to manage this funding gap, especially now with the opportunity to reshape the status-quo of the traditional funding models with the corona virus crisis prevailing these days.

Promoting the development of blockchain-based fundraising and initial coin offerings may bring advantages to the economy. The insane amounts of money being raised by companies issuing tokens may seem a good opportunity to attract startups to the market as well as helping them to get through the barriers brought by the crisis. As seen, ICO – like any other new technology - brings certain risks, although it also brings several

152 See OECD (June 2020). OECD 2020b, Economic Outlook June 2020. https://www.oecd.org/economic-outlook/. accessed 25 August 2020.
153 See News Wires (March 25, 2020). France to support start-ups with €4 billion plan amid coronavirus crisis. France24. https://www.france24.com/en/20200325-france-to-support-start-ups-with-€4-billion-plan-amid-coronavirus-crisis. accessed 23 August 2020.
154 See Federal Ministry for Economic Affairs and Energy (April 1, 2020). Customised Support for Businesses Affected by the Corona Virus. Germany. https://www.bmwi.de/Redaktion/EN/Pressemitteilungen/2020/20200401-customised-support-for-new-businesses-affected-by-the-coronavirus-crisis.html. accessed 25 August 2020.
155 See UK Corporate (April 22, 2020). UK Government's Future Fund to Support Innovative Companies Facing Financial Difficulties Due to COVID-19. Cov. https://www.cov.com/-/media/files/corporate/publications/2020/04/covington-alert-uk-governments-future-fund-to-support-innovative-companies-facing-financial-difficulties-due-to-covid19.pdf. accessed 25 August 2020.
156 See Dittmer, Janke and McCahery, Joseph A. and Vermeulen, Erik P.M. et al., *supra* note 48.

advantages which may overlap them. It is then imperative to take advantage of their benefits, establishing a regulation that guarantees the confidence of all market players.
There are a number of issues specific to Initial Coin Offerings that cannot be answered in the current legal system among several countries, as in Portugal. Likewise, the application of the regime in force regarding securities may discourage the use of this new means of financing, therefore, we consider essential the creation of specific legislation for the Initial Coin Offerings, preferably of community scope, creating an exception in the Prospectus Directive (Directive 2003/71/EC[157]), in order to reduce the conflicts of jurisdictions and promote the transnational reach of the Initial Coin Offerings.
It is important to understand how best to combine the flexibility and speed of this new financing model, which is best suited to emerging companies, with the security and stability of the financial system as a whole.[158]

Regulated ICOs, as we saw, can bring extra burdens to issuers. On the other side, it protects investors. To get the best of both worlds, programs such as regulatory sandboxes are demonstrating their efficiency in combating this regulatory burden, which may in some ways discourage the creation of startups.

6.1. Regulatory Framework – Introducing Regulatory Sandboxes Regime for ICOs

Regulatory sandboxes can be described as "regulatory safe space for innovative financial institutions and activities emerged by technology", which in other words mean to provide a space for companies to test their products or services without complying with the wide range of regulations.[159] Plus, the risk of being sanctioned are greatly diminished.[160]

[157] See DIRECTIVE 2003/71/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 November 2003 - Directive 2001/34/EC https://eur-lex.europa.eu/legal-content/PT/TXT/?uri=CELEX%3A32003L0071; accessed 25 August 2020.
[158] See Santos, João Vieira dos (April, 2018). Desafios Jurídicos das Initial Coin Offerings. Intituto de Valores Imobiliários. https://blockchainportugal.pt/destaques/desafios-juridicos-das-initial-coin-offerings/. accessed 25 August 2020.
[159] Kaal, Wulf A. and Vermeulen, Erik P.M. (July 11, 2016). How to Regulate Disruptive Innovation - From Facts to Data. Jurimetrics, Volume 57, Issue No. 2, 2017 Forthcoming, U of St. Thomas (Minnesota) Legal Studies Research Paper No. 16-13, Available at: https://ssrn.com/abstract=2808044.
[160] Zetzsche, Dirk Andreas and Buckley, Ross P. and Arner, Douglas W. and Barberis, Janos Nathan (August 14, 2017). Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation. 23 Fordham Journal of Corporate and Financial Law 31-103 (2017), European Banking Institute Working Paper Series 2017 - No. 11, University of Luxembourg Law Working Paper No. 006/2017, University of Hong Kong Faculty of Law Research Paper No. 2017/019, UNSW Law Research Paper No. 17-71,

Despite this, in order to be subject to regulation sandboxes, startups must comply with several conditions, developed by a legislator, to limit the scope of companies and businesses that do not need to be benefited from these.[161]

Sandboxes can offer fair competition among startups, since every single of them have to comply with the same conditions. These companies have also to disclose its practices, resulting in transparency regarding their work and developments.

Plus, sandboxes enable the legislator to assess the risks the company and the consumers take and try to tackle them, it serves also as a trial to further make changes and improve current legislations.[162]

Having a regulatory sandbox means that the regulator is open to innovation and new opportunities to new companies' entry in the market, fostering competition.

Evidently, regulatory sandboxes present downsides, among others, non-participants still have to comply with the rules and legislations which represent a burden to these companies. It creates doubts about the companies which fall within the conditions and the companies which are not covered by regulatory sandboxes, which the first may be considered to have an advantage over the last.[163]

In addition, the program is costly and time consuming. This may explain why many firms, even with legitimate goals, may end up giving up on its application to the program.[164]

Programs like regulatory sandboxes provide exemptions for firms operating in the FinTech space, as well as in firms aiming to launch ICOs. In Canada, the CSA developed a sandbox[165], the regulator helps firms in the application process, then analyze the

Center for Business and Corporate Law (CBC) Working Paper Series 001/2017, Available at SSRN: https://ssrn.com/abstract=3018534.

161 Buckley, Ross P. and Arner, Douglas W. and Veidt, Robin and Zetzsche, Dirk Andreas, Building FinTech Ecosystems: Regulatory Sandboxes, Innovation Hubs and Beyond (November 1, 2019). University of Luxembourg Law Working Paper No. 2019-010, European Banking Institute Working Paper Series 2019 – no. 53, UNSW Law Research Paper No. 19-72, University of Hong Kong Faculty of Law Research Paper No. 2019/100, Washington University Journal of Law and Policy, Vol. 61, 2020, Available at SSRN: https://ssrn.com/abstract=3455872.

162 See Zetzsche, D., Buckley, R. P., Arner, D. W., & Föhr, L. (2017). et al., *supra* note 112.

163 *Ibid*.

164 See Emilio and Melissa (2020) et al., *supra* note 128.

165 The Canadian the Securities Administrators (CSA) launched in February 2017 the sandbox Program. See Canadian the Securities Administrators (February 23, 2017). The Canadian Securities Administrators Launches a Regulatory Sandbox Initiative. Ontario Securities Commission. https://www.osc.gov.on.ca/en/NewsEvents_nr_20170223_regulatory-sandbox.htm. accessed 27 August 2020.

business model and using specific criteria, the regulator determines if the firm is eligible, or not, to the sandbox. Eligibility is examined on a case-by-case basis.

The Canadian Securities Administrators (CSA) published identifies a number of situations that may indicate that the token offering is an "investment contract" subject to securities laws, and hence subject to comply with the "Canadian securities laws and that regulators will continue to take enforcement action against projects and businesses that engage in token offerings without complying with applicable securities laws".[166] With this regulatory sandbox, exemptive relief from certain securities law requirements to firms in the context of token sales that involve the distribution of securities, subject to conditions to ensure adequate investor protection.[167]

This way, regulatory sandboxes removes this downside of regulated ICOs to firms, reducing the negative impact of these extra burdens on companies.

In Portugal, the lack of funding and the "still shy mentality" are often pointed out as the main obstacles to the creation of national startups. However, we could say that incentives that have already been created by the. government and by others that will certainly emerge[168] (including a regulatory sandbox[169]). Embracing this idea of a new financing model could help the Portuguese economy in unexpected ways. Since one of the primary objectives is to attract new business to the country, a new well-structured and regulated financing model, with the protection and benefits of a regulatory sandbox, could be highly beneficial. As mentioned, since a regulatory sandbox is already being tailored, the ideal would be to cover firms wanting to launch ICOs.

Entrepreneurship is the key to economic growth, and in order to build a startup ecosystem, governments should focus on facilitating innovation and startup creation, by "removing barriers to entry, facilitating connections, empowering and highlighting the enablers and

[166] See Thomas, Evan and Wiley, Blair (June 13, 2018). Canadian securities regulators publish further guidance on token offerings. Osler. https://www.osler.com/en/resources/regulations/2018/canadian-securities-regulators-publish-further-guidance-on-token-offerings; accessed 27 August 2020.
[167] See Canadian the Securities Administrators (CSA) (June 11, 2018). Canadian securities regulators provide additional guidance on securities law implications for offerings of tokens. OSC. https://www.osc.gov.on.ca/en/NewsEvents_nr_20180611_securities-law-implications-for-offerings-of-tokens.htm. accessed 27 August 2020.
[168] See Smith, Tim (April 21, 2020). Portugal announces €25m plan to support startups. *Sifted*. https://sifted.eu/articles/portugal-support-startups/. accessed 25 August 2020.
[169] See Hinchiffe, Ruby (April 24, 2020). Portuguese government gets one step closer to approving fintech sandbox. Fintech Futures. https://www.fintechfutures.com/2020/04/portuguese-government-gets-one-step-closer-to-approving-fintech-sandbox/.

the startups in the community".[170] It would be a way to lead people to start taking smart business risks, the so-called "intelligent investing".[171]

It is also essential to briefly mention other methods used to combat the heavy regulation that impacts new business, for example, the licensing approach and the DAICOs. The first consists in submitting the tokens offered to a governmental audit before its issuance to the public. And the DAICOs consists in correct information asymmetries between issuers and investors. It was created by the Ethereum founder, Vitalik Buterin and aims to enable investors to remove the money invested if the project is not meeting what previously committed to.

7. Recommendations

With results of this paper, it is suggested that governments should take action regarding venture capital sector. There is one problem that needs to be addressed primarily: the funding gap. It was clarified the importance in fomenting the growth of startups, demonstrated with the great positive impact that these have on the economic growth of a country.

For this same reason, it is suggested that governments start to implement measures and take action to facilitate the entry of these new business into the market. For this to happen, barriers such as financing gaps need to be broken down. The funding gaps, as highlighted, could be addressed with a new approach to the venture capital cycle. Governments should be aware of this when deciding on how to stimulate and attract new business and innovation. The suggestion here is that by cultivating and supporting new funding models, governments can partially address this problem.

When mention "new funding models", it is recommended to use blockchain-based fundraising. A way to create new investors and new opportunities for entrepreneurs, exploring the potential of the new technologies.

170 See Ecosystem Building (April 7, 2018). Entrepreneurship is Key to Economic Growth for Cities. *Digital Splash Media*. https://digitalsplashmedia.com/2018/04/entrepreneurship-is-key-to-economic-growth-for-cities/.

171 See Fenwick, Mark and Vermeulen, Erik P.M., New Models of 'Intelligent Investing' for the Post-Crisis Economy (July 24, 2020). European Corporate Governance Institute - Law Working Paper No. 534/2020, Available at SSRN: https://ssrn.com/abstract=3660080;

As demonstrated in this paper, initial coin offerings can bring numerous benefits to a company looking to seek funds. Despite the risks presented, we can also see that these can be minimized with friendly-regulations. Undoubtedly, regulating a financing model, trying not to harm it and at the same time protecting the investors involved can be a very difficult - or even almost impossible - task, since, to protect investors, regulation has to be minimally demanding when it comes to, for example, disclosure or compliance requirements. On the contrary, banish completely ICOs from jurisdiction it means denying the future and innovation and hide behind the regulations, even though its protectionism theory.

The example of Malta was given, a country where they embrace evolution and innovation, taking advantage and exploring their potential. The volume of ICOs in the country demonstrates the positive impact that regulation has had. Other countries such as Switzerland are also taking action to reap the benefits of the blockchain technology. The excess of protectionism, in my opinion only hinders the develop of a country, hampering its growth. It is advised governments to primarily take care the liability for untrue statements in the Whitepaper since as seen it can damage investors and lead to fraud cases.

We saw the downsides brought by the regulation and to avoid these burdens brought, the paper suggest that governments have a number of options at hand to help companies in early stages while not failing to protect investors. An example of this are the regulatory sandboxes, emphasized above, which brought numerous benefits to Canada, for instance. The country welcomed token sales to this program, providing the firms which want to launch an ICO in a legal and transparent way. Hence, all the actors involved benefit, it is indeed a win-win situation. Canada was the first and - as far as my research has indicated - the only country to embrace token sales in the countries' regulatory sandbox.

It is also urgent that governments not only step forward on regulation, but also do not forget other small measures such as creating a task force to understand the specific needs of the market regarding blockchain technologies. This way, their associated risks will be easily identified and understood, and the integration process will run faster and more naturally. Presenting guidelines for actors in blockchain spaces, and in particular to ICO space, will also help to improve awareness and understanding of this new era, avoiding misconducts and actions that could have serious consequences both for investors and issuers.

It is obvious that, as stated, with these actions additional costs can arise as well as time off to deal with these types of issues. Governments are not prepared to deal with this space since they lack experience and knowledge in these fields, thus leading to the search for new resources to help them. However, the interesting part is that it has been proven that all this expenditure of resources can be recovered in the future. We can even make a comparison to when solar panels are installed in a house. It is necessary to make a great initial investment, however, the return and the benefits brought will fully cover all the expenses associated, bringing a lot more benefits for the families who have invested.

To sum up, this paper recommends that governments take action and move towards innovation and new technologies. Funding gaps are a problem that needs to be addressed to facilitate the emergence of new market opportunities. Exploring a new financing model using blockchain-based fundraising can bring numerous advantages to a country.

It is advisable to explore the world of ICOs, for the number of benefits they bring, compared to other traditional funding models. Although funding models using online platforms, such as crowdfunding, can also help. Options have been given on how to combat their risks, such as using friendly regulation that not only offers protection to investors seeking to invest in these markets, but at the same time take advantage of innovation without creating barriers and hinder new businesses. An ICO can be used by companies in all stages of their growth, which will undoubtedly help when the entrepreneur needs a new injection of funds to continue his business. The need to regulate the specificities of an ICO has been highlighted so that it can create opportunities for an investment - which, although risky - can be safe and smart.

For this, it is necessary to create spaces where companies can act in a sheltered way and the option of area box regulations seems to be the best way to do it, due to the benefits they bring. Both the company and the government will be able to exploit the sandbox regulations to create new opportunities and improve its performance in the future. As well as the investor, who acts in full awareness and with the relief of power, acts protected and in safety.

8. Conclusion

This dissertation clearly demonstrated the importance brought by startups to the world. It has shown that they not only benefit consumers, but also a country's economy - helping to solve problems such as unemployment, as well as helping a great part of the global economy, contributing to economic growth by helping GDP. Hence, as seen, most governments around the world try to implement measures to attract innovative businesses to the market, in order to exploit the incorporated advantages.

This dissertation aims to focus on blockchain-based fundraising and demonstrate the need for some improvements in the venture capital cycle to fill the existing gap in traditional funding models. It was argued that these gaps can be filled with alternative funding options and new types of investors, such as ICO or any other blockchain-based fundraising. The financing gap needs to be restructured in the countries' financing system, helping startups to grow, especially when it comes to their growth in mid-term stages. Reinvesting in a startup is as important as the initial investment, to ensure their survival in the market and consequently providing their continued contribution to the market and the economy. Many authors argue that this need has emerged because of the financing gaps in the market, which are even more accentuated by the crisis that has spread throughout the world due to COVID-19, and governments have a crucial role in funding and facilitating innovation through its actions.

As a new funding model, this paper shown that ICOs bears several advantages for both investors and issuers, especially considering the amounts token sales can reach and the high number of potential investors from all over the world who can participate in it.
One of the main goals of this research was to show the disruptive impact of initial coin offerings and besides the regulations throughout the world are under development, investors as well as issuers have to take a careful analysis and study the matter when participating on fundraisings using blockchain technologies, as this one. Risks and benefits have to be assessed by the participants, issuers have to dive into existing regulations and comply with them all. On the other side, investors have to be well-informed and invest only in tokens they conclude that do not have an extremely high risk. Undoubtedly, innovative startups bear risks, but the goal is – besides the normal risks of

new technologies and products offered in the market – to end up choosing wisely which projects may be trustworthy to be apart: “intelligent investing”.
High numbers of issuers choose to abandon their projects, and as a result have left investors without returns on their investment. Plus, there is a need to be aware of Ponzi and pyramid schemes, where unscrupulous investors take advantage of unsuspecting individuals by promising them extraordinary returns in exchange for their money.

ICOs have led to tensions between the security regulators and ICO advocates, namely entrepreneurs and investors. The Massive capital raised with ICOs is calling into question the relevance of the current stringent financial regulations system. On the contrary, the uncertainty due to the lack of regulations translates concerns among investors to put their money into a mere idea without protection.
The primarily challenge of regulators is to find a solution to balance investors’ protection and investment while supporting innovative projects beneficial to the economy since unregulated ICOs, as demonstrated, may represent major risks for investors. And on the other hand, regulated ICO, besides giving more protection to investors, end up being a burden to businesses in early stages, with innumerous regulations to comply with. In response to this, chapter 6 provides an idea of how to solve this using a regulatory sandbox. Regulators have been approving ICOs through sandboxes, such as the Canadian regulators. Regulatory sandboxes may serve as the balance needed to regulate and start to explore the blockchain-based funding models, and fill the so-mentioned gap. As well as through the usage of other methods, for instance, the licensing approach or the DAICOs solution provided by Vitalik Buterin.

With this new way for firms to rapidly raise significant funding, startups may solve one of their biggest challenges, the financing part. In particular, Portugal is used as an example, since the country do not provide a specific regulation regarding initial coin offerings or any other blockchain related regulation.
Regulating this type of financing and at the same time safeguarding early stage business will facilitate the recovery of the countries from the devastating economic situation we find ourselves during the pandemic. Encouraging people to invest in risky but smart projects is

However, Malta was mentioned in order to provide a good example of what would be an ICO-friendly jurisdiction, taking token sales as an alternative method of finance. Governments can take Malta as an example to improve their regulations regarding ICO regulation. In addition, work with regulatory sandboxes will provide legislators to learn with experts a business to come up with a reliable regulatory framework that will be able to meet all the stakeholders needs (Issuers and also Investors), and thus benefit from it.
Taking a wait-and-see approach is not advised, negative consequences. It is crucial to move forward and start solving problems which will be highly advantageous to all the actors, including the government itself.

Governments ensuring that funding remains available for innovative startups at all stages and specially in early stages of their development with measures, such as reduction of administrative burdens, implementation of simplified procedures and minimizing regulatory uncertainty will certainly foster the creation and developments of startups, and hence, reach halfway to economic growth.

This crisis due to corona virus is changing the world, opportunities will emerge and startups may finally arise to support the economy. The number of entrepreneurs seeking to raise funds through an ICO is increasing, with the aim to raise high amounts of funds and improve their projects' traction. Investors also feel attracted by this new era of token sales, but a trend demonstrates that these investors look to a less risky investments with regulated ICOs.
There are a lot to be done, yet. Regulators should look to ICO as an opportunity and not as a threat. The priority highlighted by this dissertation is the legislation of ICOs, with the primarily goal to face and question the current status-quo of the economy and move forward to a more digital economy. And consequently, through the usage of digital economy solve financial problems such as the so-mentioned: funding gap.

Bibliography

Books

Klenow, P J and H Li (2020). Innovative Growth Accounting. *NBER Macroeconomics Annual 2020*, Vol. 35, University of Chicago Press.

Narayanan A et al., 'Bitcoin and cryptocurrency technologies: a comprehensive introduction.' (Princeton: Princeton University Press 2016);

Nestarcova, Dominika. (August 9, 2019). A Critical Appraisal of Initial Coin Offerings. Brill.

Articles

Barsan, Iris M. (November 2, 2017). Legal Challenges of Initial Coin Offerings (ICO). Revue Trimestrielle de Droit Financier (RTDF), n° 3, 2017, pp. 54-65;

Borselli, Angelo, Smart Contracts in Insurance. A Law and Futurology Perspective (January 19, 2019);

Boulianne, Emilio and Fortin, Melissa (May 1, 2020). Risks and Benefits of Initial Coin Offerings: Evidence from Impak Finance, a Regulated ICO;

Buckley, Ross P., and Arner, Douglas W. and Veidt, Robin and Zetzsche, Dirk Andreas, Building FinTech Ecosystems: Regulatory Sandboxes, Innovation Hubs, and Beyond (November 1, 2019). University of Luxembourg Law Working Paper No. 2019-010, European Banking Institute Working Paper Series 2019 – no. 53, UNSW Law Research Paper No. 19-72, University of Hong Kong Faculty of Law Research Paper No. 2019/100, Washington University Journal of Law and Policy, Vol. 61, 2020;

Burilov, Vladislav (May 30, 2019). Regulation of Crypto Tokens and Initial Coin Offerings in the EU. European Journal of Comparative Law and Governance 6 (2019) 146-186;

Cramer, Judd, B. Krueger, Alan (March 2016). DISRUPTIVE CHANGE IN THE TAXI BUSINESS: THE CASE OF UBER. National Bureau of Economic Research. Cambridge, MA 02138;

Dittmer, Janke and McCahery, Joseph A. and Vermeulen, Erik P.M., The 'New' Venture Capital Cycle and the Role of Governments: The Emergence of Collaborative Funding Models and Platforms (November 20, 2013). Lex Research Topics in Corporate Law & Economics Working Paper No. 2013-7, Tilburg Law School Research Paper No. 021/2013;

Fenwick, Mark and Vermeulen, Erik P.M., New Models of 'Intelligent Investing' for the Post-Crisis Economy (July 24, 2020). European Corporate Governance Institute - Law Working Paper No. 534/2020;

Fisch, Christian and Momtaz, Paul P. (2020). Institutional Investors and Post-ICO Performance: An Empirical Analysis of Investor Returns in Initial Coin Offerings (ICOs);

Fisch, Christian (September 29, 2018). Initial Coin Offerings (ICOs) to Finance New Ventures. Journal of Business Venturing, 34(1), January 2019;

Fork, Alex (2013). Humaniq Whitepaper;

GP Bullhound (2018). Comparison of initial coin offering and venture capital funding worldwide from 2015 to 2017 (in million U.S. dollars), Statista.

Hacker, Philipp and Thomale, Chris, Crypto-Securities Regulation: ICOs, Token Sales and Cryptocurrencies under EU Financial Law (November 22, 2017);

Kaal, Wulf A., and Vermeulen, Erik P.M., How to Regulate Disruptive Innovation - From Facts to Data (July 11, 2016). Jurimetrics, Volume 57, Issue No. 2, 2017 Forthcoming, U of St. Thomas (Minnesota) Legal Studies Research Paper No. 16-13.
Vermeulen, Erik P.M., and Pereira Dias Nunes, Diogo, The Evolution and Regulation of Venture Capital Funds (October 17, 2012). Lex Research Topics in Corporate Law & Economics No. 2012-1;

Kaal, Wulf A., Initial Coin Offerings: The Top 25 Jurisdictions and Their Comparative Regulatory Responses (February 2, 2018). CodeX Stanford Journal of Blockchain Law & Policy (2018), U of St. Thomas (Minnesota) Legal Studies Research Paper No. 18-07;

Lehner, Othmar Manfred, Crowdfunding Social Ventures: A Model and Research Agenda (July 16, 2012). Lehner, O. M. (2013). Crowdfunding social ventures: a model and research agenda. Venture Capital, 15(4), 289-311;

Mandel, Michael (March 2017). How the Startup Economy is Spreading Across the Country — and How It Can Be Accelerated. *TechNet*;

Maume, Philipp and Fromberger, Mathias, Regulation of Initial Coin Offerings: Reconciling US and EU Securities Laws (June 15, 2018). Chicago Journal of International Law, Vol. 19.2, pp. 548-585 (2019);

Momtaz PP (2020) Initial Coin Offerings. PLoS ONE 15(5): e0233018;

Momtaz P. P. (2019b) Token Sales and Initial Coin Offerings: Introduction. *The Journal of Alternative Investments* 21, 7–12;

Morgan, Joshua S (2017). What I Learned Trading Cryptocurrencies while Studying the La*w*. V 25 University of Miami International and Comparative Law Review;

Ofir, Moran and Sadeh, Ido, (August 5, 2019). ICO vs IPO: Empirical Findings, Information Asymmetry and the Appropriate Regulatory Framework. Vanderbilt Journal of Transnational Law, Forthcoming;

Rivero, Alvaro (2018). Distributed Ledger Technology and Token Offering Regulation.

Schindler, John W., Fintech and Financial Innovation: Drivers and Depth (August 10, 2017). FEDS Working Paper No. 2017-081;

Skultetyova, Ivona (2019). Token Offerings; Addressing Fundamental Problems od Token Issuance and Distribution;

Steverding, Fiona and Zureck, Alexander (February 12, 2020). Initial Coin Offerings in Europe – The Current Legal Framework and its Consequences for Investors and Issuers;

Wright, Aaron and De Filippi, Primavera. Decentralised blockchain technology and the rise of lex cryptographia, (2015,) 58;

Zetzsche, Dirk Andreas and Buckley, Ross P. and Arner, Douglas W., The Distributed Liability of Distributed Ledgers: Legal Risks of Blockchain (August 13, 2017). University of Illinois Law Review, 2017-2018, Forthcoming, University of Luxembourg Law Working Paper No. 007/2017, Center for Business & Corporate Law (CBC) Working Paper 002/2017, University of Hong Kong Faculty of Law Research Paper No. 2017/020, UNSW Law Research Paper No. 17-52, European Banking Institute Working Paper Series 14;

Zetzsche, Dirk Andreas and Buckley, Ross P. and Arner, Douglas W. and Barberis, Janos Nathan, Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation (August 14, 2017). 23 Fordham Journal of Corporate and Financial Law 31-103 (2017), European Banking Institute Working Paper Series 2017 - No. 11, University of Luxembourg Law Working Paper No. 006/2017, University of Hong Kong Faculty of Law Research Paper No. 2017/019, UNSW Law Research Paper No. 17-71, Center for Business and Corporate Law (CBC) Working Paper Series 001/2017.

Websites

305 Startup (September 4, 2017). 10 Legal Challenges That Startups Face;

Agência para o Desenvolvimento e Coesão, IP. (April 2015). Avaliação *Ex Ante* dos Instrumentos Financeiros de Programas do Portugal 2020;

Akerlof, George The Market for Lemons: Quality Uncertainty and the Market Mechanism, 84 Quarterly Journal of Economics 488 (1970), Bernard Black, The Legal and Institutional Preconditions for Strong Securities Markets, 48 UCLA L. Rev. 781, 786 (2001);

Alexandre, Ana (August 17, 2018). Ripple Partners With Three Crypto Exchanges as Part of XRapid Solution. Cointelegraph;

Araújo Barbosa, Mariana (July 26, 2019). Startups já representam 1,1% do PIB português. *ECO*;

Araújo Barbosa, Mariana (July 26, 2019). Pedro Siza Vieira: "Impacto das startups na economia supera crescimento do PIB". *ECO*;

Avan-Nomayo, Osato (August 7, 2019). Crypto Startups Still Raising Millions in Capital Despite ICO Decline. Cointelegraph;

BBVA (2017), What is a token and what is it for? (2017);

Binance Academy (n.d). What Is an ICO (Initial Coin Offering)?;

Blackman, P. Global fintech investment rockets to a record $111.8B in 2018, driven by mega deals: KPMG Pulse of Fintech (February 13, 2019). KPMG;

BRENN (2017). ICOs & Token Types for Dummies: An buyers guide to crypto-tokens (2017). HACKERNOON;

Bunnycoin. Bunnycoin for charities;

Calvino, Flavio, Criscuolo, Chiara, Verlhac, Rudy (July 6, 2020). Uber, Airbnb, WhatsApp all started during a crisis. Startups must be protected during Covid too. *The Print*;

Canadian Securities Administrators (CSA) (February 23, 2017). The Canadian Securities Administrators Launches a Regulatory Sandbox Initiative. Ontario Securities Commission (OSC);

Canadian Securities Administrators (CSA) (June 11, 2018). Canadian securities regulators provide additional guidance on securities law implications for offerings of tokens. OSC;

Canellis, David, (2018). Three types of cryptocurrency tokens explained as quickly as possible. TNW;

CFTC, Customer Advisory: Beware Virtual Currency Pump-and-Dump Schemes, February 15, 2018;

Church, Zach (May 25, 2017). Blockchain, explained: An MIT Expert on Why Distributed Ledgers and Cryptocurrencies Have the Potential to Affect Every Industry, MIT SLOAN SCH. OF MGMT;

CISION PrNewswire, 2019 Another Blockbuster Year for Fintech: KPMG Pulse of Fintech, (February 24, 2020). KPMG;

CoinMarketCap. ‘Top 100 Cryptocurrencies by Market Capitalization’;

Coindesk (2018). All-Time Cumulative ICO Funding;

Coindesk (Sep 5, 2017). China’s ICO Ban: A Full Translation of Regulator Remarks;

Coindesk (2017). South Korea, O’Leary, ‘South Korean Regulator Issues ICO Ban’;

Coindesk (2017). Who created Ethereum?;

Coinist, “Coinist 50 Biggest ICOs”;

Cointelegraph. “ICO vs IPO: Key Differencies”.

Comissão do Mercado de Valores Mobiliários (November 2, 2017). Alerta aos investidores sobre Initial Coin Offerings (ICOs);

Condessa, Maria João, Palma, Anabela and Baltazar, Filipa (October, 2018). Guião Sobre Formas de Financiamento a Startup. MJCondessa Consulting;

Corl, Eric (March 14, 2019). How Startups Drive the Economy. *Medium*.

D. Eggers, William; Turley, Mike; Kishnani, Pankaj. (2018), DELOITE Insights;

Deng, H., Robin H. H. and W. Qingran. 2018. The regulation of initial coin offerings in china: Problems, prognoses and prospects. *European Business Organization Law Review* 19: 465–502.

Desprez, Tiffany (July 31, 2018). Regulatory Barriers to Innovation for Startups. MasterControl;

Ecosystem Building (April 7, 2018). Entrepreneurship is Key to Economic Growth for Cities. *Digital Splash Media;*

Entrepreneurship Campus (June 15, 2020). The Role of Startups in Economic Recovery. Entrepreneurship Campus;

ERICSSON (n.d). Innovation with Impact. Ericsson;

European Securities and Markets Authority (ovember 13, 2017). ESMA HIGHLIGHTS ICO RISKS FOR INVESTORS AND FIRMS.

ETNA (n.d). 5 Easy Ways To Introduce Startups To The World;

Federal Ministry for Economic Affairs and Energy (April 1, 2020). Customised Support for Businesses Affected by the Corona Virus. Germany;

Financial Stability Board. Monitoring of FinTech (n.d);

ICOdata, ‘Cryptocurrency ICO Stats 2016’;

ICOdata, ‘Cryptocurrency ICO Stats 2017’;

ICOdata, ‘Cryptocurrency ICO Stats 2018’;

INVAO (n.d). Token Classes Explained: Coin vs. Utility Token vs. Security Token;

Investopedia, ‘Initial Coin Offerings’;

Investopedia, ‘Cryptocurrency;

Investopedia, ‘Funding gap’;

Investopedia, ‘Prospectus’;

Irrera, Anna and Stecklow, Steve (November 16, 2017). ‘Tezos organizers hit with second lawsuit over crypto- currency fundraiser’. REUTERS;

Hasbani, Katarina, Regulation and startups: An unexpected opportunity (August 2, 2017). Technology and Public Good;

Hinchiffe, Ruby (April 24, 2020). Portuguese government gets one step closer to approving fintech sandbox. Fintech Futures;

Howat, Evelyn (April 29, 2020). FinTech Magazine’s. What is FinTech?;

Kane, Tim (July 2010). The Importance of Startups in Job Creation and Job Destruction. Kauffman Foundation Research Series.

Liga Insights (n.d). Saiba qual o papel das startups e como impactam diversos âmbitos.

Mateus, Cátia (April 12, 2020). Covid-19. Chegou o tempo dos robôs?. ECONOMIA;

Mitra, Rajarshi (2018). What Are Security Tokens? [The Most Comprehensive Guide]. BlockGeeks;

Nathaniel Popper (June 23, 2017). Easiest Path to Riches on the Web? An Initial Coin Offering. New York Times;

Newlands, Murray (n.d). Pros and Cons of Using Angel Investor to Fund Startup. Startupgrind;

News Wires (March 25, 2020). France to support start-ups with €4 billion plan amid coronavirus crisis. France24;

OECD (June 2020). OECD 2020b, Economic Outlook June 2020;

OECD (June 24, 2020). OECD Policy Responses to Coronavirus (COVID-19): The impact of the coronavirus (COVID-19) crisis on development finance;

Olaf, Carlson-Wee. The Future is a Decentralized Internet (2017);

Osetskyi, Victor (June 27, 2017). Top 7 Tech Startup Challenges. *Medium*;

Patel, Vivek, 4 Startup Funding Challenges and How to Overcome Them (n.d). Bplans;

Pereira, Sara (n.d). As 9 Principais Formas de Obter Dinheiro Para Startups. The IT Factory;

Perkins, Patrice (n.d). 4 Legal Issues in Your Crowdfunding Campaign. Creative Genius Law;

Pestana Machado, Manuel (July 26, 2019). Contributo das startups para o PIB foi de 2,2 mil milhões de euros em 2018. *Observador*;

Prado, Miguel (April 8, 2020). Covid-19. Pandemia tira dois pontos no PIB por cada mês de bloqueio. Portugal está entre os mais afectados pela crise. *Expresso;*

Protocol Labs (2017). Filecoin: A Decentralized Storage Network, Updated White Paper;

PwC: The Startup Economy (April 2013). The startup economy: How to support tech startups and accelerate Australian innovation. PwC Australia;

Rooney, Kate (May 31, 2018). A blockchain start-up just raised $4 billion without a live product. CNBC;

Rose, David S. (May 15, 2014). How do angel investors typically deal with the legal agreements and similarly how would they help deal with legal issues for a startup they've invested in? Gust Blog;

Rosic, Ameer. Smart Contracts: The Blockchain Technology That Will Replace Lawyers (2016). Blockgeeks;

RTPNotícias (July 31, 2020). Covid-19: PIB português regista maior queda de sempre 16,5%. Antena 1;

Santos, João Vieira dos (April, 2018). Desafios Jurídicos das Initial Coin Offerings. Intituto de Valores Imobiliários;

Silicon Canals. The 10 most startup friendly countries in 2020, (January 29, 2020);

Smith, Tim (April 21, 2020). Portugal announces €25m plan to support startups. *Sifted*;

Stambolija, Ratko (March 7, 2019). Five Ways Blockchain Can Transform Traditional Business and Impact the Market in the Future;

Startup Genome. Rankings 2020: Top 30 + Runners-up: The Top Global Ecosystems of Today and Tomorrow;

Sullivan, Arthur (April 5, 2020). As Consequências da Covid-19 para a Economia Mundial. DW;

The European Central Bank (2015). Virtual currency schemes – a further analysis**;**

The World Bank (June 8, 2020). The Global Economic Outlook During the COVID-19 Pandemic: A Changed World;

Thomas, Evan and Wiley, Blair (June 13, 2018). Canadian securities regulators publish further guidance on token offerings. Osler;

TIBCO Software Inc. (November 5, 2018). Change Healthcare and TIBCO to Bring Blockchain-Powered Smart Contracts to Healthcare;

UK Business Angels Association (n.d). Introduction to Angel Investment. UKBAA;

UK Corporate (April 22, 2020). UK Government's Future Fund to Support Innovative Companies Facing Financial Difficulties Due to COVID-19. Cov;

UNITED NATIONS. Goal 5: Achieve gender equality and empower all women and girls;

United States Census Bureau (n.d). Business Dynamics Statistics (BDS);

Vermeulen, Erik (March 8, 2020). Will the World Ever Be the Same after COVID-19?. Medium;

Vigna, Paul. Tezos Raised $232 Million in a Hot Coin Offering. Then a Fight Broke Out (October 19, 2017). *The Wall Street Journal*;

Ward, Susan (January 04, 2020). The Pros and Cons of Angel Investors. Small Business;

Wolfson, Rachel (July 5, 2018). Maltese Parliament Passes Laws That Set Regulatory Framework For Blockchain, Cryptocurrency and DLT.

Legislations

DIRECTIVE 2003/71/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 November 2003 - Directive 2001/34/EC;

Federal Trade Commission Act of 1914.

Case Law

SEC v. W.J. Howey Co., 328 U.S. 293 (1946). This test was later refined in SEC v. Edwards, 540 U.S. 389 (2004).