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Initial Coin Offering (ICOs)

Determinants of successful Initial Coin Offering (ICOs)

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Resumo

O objetivo desta dissertação é identificar as determinantes que influenciam o sucesso de uma Initial Coin Offering (ICO). Especificamente, este trabalho investiga diferentes abordagens usadas para lançar com sucesso uma Initial Coin Offering (ICO) e identifica os seus determinantes.

Uma amostra de 206 white papers de Initial Coin Offering foi examinada para detetar se as divulgações de algumas características específicas aumentam a probabilidade das ICOs serem bem-sucedidas.

O conteúdo do white paper, a classificação do site icobench e a plataforma Ethereum aumentaram a qualidade da informação e a probabilidade de sucesso das ICOs. Resultados semelhantes foram encontrados quando os ICOs são Smart contracts. Além disso, descobriu-se que o local onde as ICOs são lançadas determina o montante de dinheiro arrecadado, bem como o lançamento de um projeto ICOs em um país paraíso fiscal afeta positivamente o sucesso da ICO.

Keywords: Initial Coin Offering, Cryptocurrencies, Blockchain, Fintech, Crowdfunding, Token sale, Distributed Ledger Technology (DLT)

Abstract

The aim of this dissertation is to identify the determinants that lead Initial Coin Offering (ICO) to success. Specifically, this work investigates different approaches used to launch successful Initial Coin Offering (ICO) and identify its determinants.

A sample of 206 Initial Coin Offerings white papers has been examined to detect if the disclosure of some specific characteristics increases the probability of successful ICOs.

Both length of the white papers, rating of Icobench website and Ethereum platform have been found to increase the quality of information and probability of successful ICOs. Similar results have been found when ICOs are smart contracts. Moreover, the location where ICOs are launched has been found to determine the amount of money raised, and the launch of ICOs project in a tax haven country positively affects ICO success.

Keywords: Initial Coin Offering, Cryptocurrencies, Blockchain, Fintech, Crowdfunding, Token sale.

Index

Index of Charts, Figures and Tables

1. Introduction

ICOs through the combination of crowdfunding and blockchain use cryptocurrencies to allow peer-to-peer investments, enabling new business to sidestep traditional early seed investments. Though the ICO fundraising model, new companies can raise capital by issuing crypto tokens on a blockchain, mostly on Ethereum. The first ICO was developed on 2013 and, until now, more than 28 billion USD have been invested via ICO and despite its novelty, scientific research lacks knowledge on which characteristics can influence a successful ICO. Blockchain is the new technology that emerged in the recent years and have captured the interest of tech experts and businessman. Blockchain is responsible for the creation of cryptocurrencies and development of a new method of capital formation denominated Initial Coin Offering. This technology has been leading the innovation in different sectors specially on Finance. The aim of this research is to identify the determinants that lead Initial Coin Offering (ICO) to success. We investigated how ICOs are launched and isolate the factors that result in their successful affirmation in the market. Therefore, it is crucial to understand the difference between some recent innovations such as cryptocurrency, blockchain, white papers, smart contracts, tokens, crowdfunding. The present work will explore the characteristics of both ICOs and their white papers. Specifically, it will be described how the market of crypto-coins increases with increasing interest in ICOs as well as the differences between ICO and other methods of capital formation. Additionally, our research will provide a comparation of ICOs and other methods of capital formation. Our aim is to contribute to the extension of the knowledge on this field of ICOs by enriching a descriptive analysis of the process, structure and characteristics. The interest of the ICO is much greater than just getting investment in startups or organizations. As the ICO market grows, more representative examples of schemes emerge given the lack of regulation. This increase in volume and amount funded in ICOs market has captured the interest of researchers, investors and market authorities, so we hope that this work can contribute to develop more content analysis for financial disclosures and improve some studies that have been done about these issues. All the quoted studies focused on cryptocurrencies, blockchain technology, alerts about regulation and the design of an ICO to attract more investors, therefore there is a lack of knowledge about the determinants that lead to a success of an ICO. So, we will address this lack of research and propose to answer this research question: What are the determinants that lead a successful ICO?

We follow the well establish taxonomy proposed by Gilbert Fridgen *et al*., 2018 to create the basis of our dataset and guide our analysis and further we add some more variables in order to improve the robustness of the dataset and the results. Additionally, we utilize both literature and empirically verified knowledge mostly from Adhami *et al.,* 2018; Amsden and Schweizer, 2018; Fisch, 2018; Tapscott and Tapscott, 2016; Zetzche *et al*., 2018 and Rosati *et al*., 2018.

This work will consist of three main chapters, the first one will be an introductory theme about some recent innovations that had emerged during the financial crisis of 2008, that is Blockchain and Cryptocurrencies. The main topics that will be addressed in this chapter are about the importance of Blockchain, some uses cases and a classification of different crypto assets. The second chapter is about Initial Coin Offering and how it will reshape fundraising and investing; we will describe some differences in jurisdictions, how develop an ICO, main feature of an ICO, advantages, challenges, risks and how mitigate them and factors that can lead to a successful ICO referred by some authors. In the last chapter we will provide an analysis of our dataset and provide some results. The sample comprises ICOs developed between 2017 and 2018 recorded by coindesk. A sample of white papers was collected to perform a content analysis, to allow to build a series of proxies on the sets of factors that influence an ICOs and to draw some conclusions about its features and their relationships that are determinant to reach success of an ICO investment. Other sources like websites of the companies, Coinmarketcap.com and Icobench.com were used to extract some types of information such as: amount funded, dates of sales, origin of countries, ratings and information about token listing on exchanges. A logit model allowed to test the probability of the influence of various characteristics on the successful/not successful ICOs (dummy=1 for successful ICOs, dummy=0 for unsuccessful ICOs) and an OLS regression was used to test the variables that influence the amount funded. All analyses will be run using SPSS (Statistical Package for the Social Sciences), other tools will used for the content analysis.

2. Literary Review

2.1 Blockchain and cryptocurrency leading the digital revolution

With the advent of digital era, nowadays the decentralized networks and cloud computing are the innovative ways for companies to secure their data and automate complex processes. During this period a new innovative technology, destined to make online transactions more reliable, has emerged: it is the advent of blockchain. Similarly to what occurred for Internet that was developed to facilitate the dissemination of information, the blockchain was designed to facilitate the exchange of value (Morgan Mckenney, 2016). Blockchain, defined as the "Beating Heart" of the Global Financial System (WEF, 2018), is currently considered one of the most relevant tech innovations that will affect the future of business (Deloitte, 2019). As reported by some prior studies, Blockchain solutions will have an annual global spending of US$9.7 billion by 2021 (IDC, 2018). Therefore, blockchain has been considered to have the capacity to be a disruptive technology and to transform the way to exchange, as well as to do business. Together with blockchain technology, cryptocurrency provides new opportunities for entrepreneurs that started reshaping innovation and entrepreneurship (Chen, 2018).

A blockchain is a distributed ledger that is usually managed by a peer-to-peer network, where transactions are validated and recorded by distributed consensus in the peer-to-peer network, eliminating the need for a trusted central entity. In distributed ledger, transactions are organized into blocks that are linked together into a chain (Tapscott and Tapscott, 2016). Once transactions are validated, they become verifiable, permanent, irreversible, and secure on blockchain (Nakamoto, 2008; Buterin, 2014; Tapscott and Tapscott, 2016). Blockchain is the core technology at the base of cryptocurrencies. It is a decentralized, transactional database that enables validated transactions. As Adhami *et al*., (2018) pointed out it is "a file recording transaction in which all network participants (i.e. nodes) have a copy of the ledger and no one has the sole authority to update it […] Blockchain relies on hashing, a cryptographic system to transform any text of any arbitrary length into a theoretically irreversible fixed-length string of letters and numbers (the "hash") to provide security, accuracy and immutability of the registrations".

Due to the complexity behind this new technology, blockchain can be defined in three different perspectives: i) technical – a back-end database that maintains a distributed ledger that can be inspected openly; ii) business – an exchange network for moving

transactions, value, assets between peers, without the assistance of intermediaries; and iii) legal – a technology to validate transactions, replacing previously trusted entities (Mougayar, 2016; Rosati *et al*., 2016).

Trust and decentralization are the two central characteristics of blockchain and what lays the foundation for a consensus mechanism to arise. Despite the different types of blockchains, the consensus mechanism inherent to a blockchain has a wide range of types, from decentralized (e.g., bitcoin) to hierarchical (EOS), or centralized (ripple) and validation of the ledger is realized through proof of work, proof of stake, proof of authority, proof of capacity, or a hybrid thereof (Tasca *et al*., 2018; Amsden and Schweizer 2018; Tapscott & Tapscott, 2016). Therefore, the users can have different interaction with a blockchain depending on the type of blockchain. According to Rosati and Tilen (2018), blockchain can be designed in three different forms: public blockchain (permission less), where all nodes can read, submit and validate transactions (i.e. Bitcoin); public blockchain (permissioned), where all nodes can read and submit a transaction but only authorized nodes have permission to validate a transaction (i.e. Ripple); and private blockchain (permissioned), where only authorized nodes can read, submit and validate transactions (i.e. R3 Corda). Moreover, private blockchain can be considered an attractive option for companies, even if they may be more vulnerable to attacks (Tapscott and Tapscott, 2016; Rosati and Tilen, 2018). There are different kind of blockchains, the main characteristics are the following:

i) cryptography mechanisms to execute transactions. Each participant of blockchain has two keys, one public other private. In order to complete a transaction, a sender needs to know the public key of the receiver who can decrypt the message by using its own private key. All these transactions are stored in a block, which has a unique hash that ensures the authentication of the transaction address;
ii) distributed network, that allows to eliminate all centralized entities and distributes the access to all participants in the network;
iii) Timestamp. Every transaction that occurred on the network have a time stamp and is immutable in the ledger (Rosati and Tilen, 2018; Tapscott and Tapscott, 2016).

Despite the wide range of blockchains, an Initial Coin Offering (ICO) has an openly available and immutable ledger of the entire history of timestamped transactions recorded in sequential blocks (Amsden and Schweizer, 2018).

2.1.1 Advantages and Disadvantages of the Blockchain technology

The use of blockchain (mainly known as the technology underpinning bitcoin) goes way beyond that of merely payment currency without a third parties operating. After the advent of the second generation of blockchains (with smart contracts) a higher spectrum of cases uses began to be developed and empathized the benefits that can be leveraged by this technology. There are several benefits that could be achieved:

- disintermediation and trustless exchange, blockchain can reduce or eliminate reliance on third-party intermediaries that provide "trust";
- high quality data, once a record is stored in the blockchain it can't be changed;
- transparency and immutability, distributed ledgers are available for every node, so every participant can see all transaction that occurred on the network and no one can change a transaction;
- ecosystem simplification, network operate more easily than a centralized system that have more intermediaries during the process, making the process less prone to manual errors and reduce the risk of manipulation;
- process integrity, it can trace any asset form the first transaction to the last one and do the same work on the opposite direction, making possible to see all history of specific asset;
- speed and real-time updates, with smart contracts it is possible to automate tasks that are typically accomplished through manual means, so can increase the speed of a wide range of business processes;
- lower transactions costs, it is not needed to pay a trust third party to execute any transaction and require fewer intermediaries so will therefore reduce the costs.

Other advantages leveraged by blockchain are more related with cyber-risks given its characteristics to be more fault tolerant, attack resistant and collusion resistant (Rosati *et al*., 2016; Ream *et al*., 2016; Adhami *et al*., 2018).

Despite all the benefits that blockchain technology brings, some challenges appear to be due to the fact that it is an emergent technology which is in its early stages of development and standards of how design an optimal model are not available yet.
However, blockchain presents some weaknesses in term of:
- scalability (only a limited number of transactions can be managed every second);

- latency (blockchain suffers from high latency given that time passes for each verifies block of transactions to be added to the ledger. In case of Bitcoin this occurs approximately every 10 minutes comparing to 6 minutes in Ethereum)
- efficiency, throughput, security and system integration (integrating existing legacy systems with blockchain is still a very difficult task for companies).

On other hand there are non-technical limits, such as the need to:

- develop innovation legitimacy;
- understand the determinants of user's adaptation;
- measure the value generated by blockchain investments;
- evaluate potential impacts on society;
- regulation. Due to distributed nature of blockchain applications that can spread across multiple jurisdictions, regulators are struggling to understand who is behind the system and how it works and at the same time do not want to regulate too much because high regulation can prevent innovation;
- energy costs reduction. The cost on average to mine a Bitcoin in South Korea is something near $26,000 USD contrasting to $530 USD to mine one in Venezuela (Browne, 2018);
- reduce security expenses. Despite being very secure systems, if someone breaks in, they will be able to see everything;
- culture. Comparing the use of a cloud where the user's know who is responsible from their data, in blockchain's world nobody own the blockchain so if something goes wrong no one can blame anybody (Cotton, 2018);
- initial investment. Blockchain is a distributed technology so it needs a lot of nodes to operate securely causing high initial investment and particularly considering that it is a very new technology some large corporations tend to join Blockchain Consortium as a way to test in the market (Rosati and Čuk, 2016; Ream *et al*., 2016; Risius and Sphohrer, 2017).

2.1.2 Implementation of Blockchain in Business

Blockchain enables a spectrum of use cases for tokens associated with it, ranging from distributed virtual currencies, called cryptocurrencies, to digital rights management, to asset representation on the blockchain but also enable new forms of distributed software architectures (Conley, 2017; Fridgen *et al*., 2018). However, the first successful application of blockchain was Bitcoin, the first global decentralized digital currency

(Chen, 2018). According to World Economic Forum report, blockchain will have impact in six different uses cases on financial services such as: insurance, market provisions, payments, investment management, capital raising, depositing and lending (WEF, 2018). Five global banks are building a proof-of-concept systems with a supply chain and trade finance platform that use smart contacts. The Australian Securities Exchange (ASX) is developing a blockchain infrastructure for post-trade solutions to replace its current system (Ream *et al*., 2016). Post-trade settlement continues to be a time-consuming and redundant process that can take more than two days to proceed, in this context blockchain can contribute to improving these activities. According to Benos *et al*. (2017) and Rosati and Tilen (2018), blockchain can impact the post-trade by: i) reducing reconciliation and data management costs (creation of a distributed database of security ownership that somehow can simplify and automate post-trade process); ii) providing flexible settlement times (can be implemented through smart contract and will benefit all participants in the market); iii) providing automated clearing (with blockchain and smart contract this procedure could be automated and disintermediate the clearing agent); iv) providing direct ownership (blockchain could enable a peer-to-peer trading with a distributed ledger that increase transparency in the market and anyone know who own what); v) improving traceability and transparency (blockchain is an open and immutable distributed ledger so anyone can see all transaction that happened); vi) improving security and resilience (is more resilient to cyber-attacks because of distributed nature of blockchain).

Although the importance of blockchain within the financial system, it has other use cases that can have a huge impact when applied to business problems involving a shared repository of information, the presence of intermediaries, minimal trust, multiple writers and interdependence between transactions. Applications of blockchain is now widespread and have evolved to record ownership of items like properties deeds, intellectual properties, products within supply chains and smart contracts (Amsden and Schweizer, 2018). Other types of blockchain applications such electronic medical records that can provide access to medical health records (e.g. Supa) upon multi-signature approvals between patients and providers can be created or organizations that treat donations worldwide into a blockchain system, so that the person who gives the money will know who, where and when that money was spent, making all the donation process more transparent (e.g eSolidar). Blockchain also has the power to leverage the collaborative consumption proposed by sharing economy, recreating existing business as

Airbnb, Uber, Lyft or Taskrabbit making them decentralized business without no need for an entity to control the platform (e.g. Arcade city). Like Vitalik Buterlin said "Instead of putting the taxi driver out of a job, blockchain puts Uber out of a job and lets the taxi driver work with the customer directly." (Buterlin, 2014; Tapscott and Tapscott, 2016; Ream *et al.,* 2016; Rosati *et al*., 2016).

2.2 Cryptocurrencies: the digital asset

The idea of creating a new coin that can be used on the internet is not new. Among others, attempts like Hashcash, Bit gold and E-money had already been introduced in the past. Bitcoin leveraged the recent developments of the internet capacity transmission, computing processing, P2P networks, storage and cryptography security, and improved the previous standards (Tasca, 2018). The European Central Bank (ECB) underlined that E-money (given that is issued by a centralized unit) is different in nature from the other cryptocurrencies which use blockchain technology to decentralize the way this virtual currency operates (ECB, 2015).

Cryptocurrencies is the name given to any virtual currency that works based on innovative technology Blockchain, a complex encryption system. Normally, these currencies do not exist physically so are only kept and transacted on the Internet. They allow to make payments in some online stores or transmit money without intermediaries. The main characteristics are the following (Rosati *et al*., 2016; Tapscott & Tapscott, 2016):

- decentralization given that they are independent from banks, governments or other companies;
- anonymity in transactions because the entity of the parties is encoded;
- security, in the register of transactions, because the blockchain is inviolable.

The decentralized control is one of the main characteristics of cryptocurrencies given that it implies that any organization can control the system. However, the digital money is not new in the market, even if it is substantially different from "the concept of cryptocurrency" given that nobody can really control cryptocurrencies but is possible to control the digital money. Compared with other payment services, such as Visa and western union, that have 25,000 and 750 respectively and can settle transactions near of two days, Bitcoin blockchain has a peak of 7 transactions per second, each transaction

has to be validated by the network (approximately 10 minutes are needed to validate and settle the transaction).

2.2.1 Classification of crypto assets: Native Coins and Crypto tokens

Cryptocurrencies can have two different classifications: a) Coins or b) Tokens. The majority of coins (knowns as "altcoins" o protocol tokens) are a variant of Bitcoin, this means that these coins are inherent to a blockchain. There are other altcoins that aren't derived from Bitcoin's open-source protocol, in this situation they have created their own Blockchain and protocol that supports their native currency. Examples of these coins include Ethereum, Ripple, Omni, Bitshares, NEO and Waves. Token can be described as a unit of account that can be used for the facilitation of transactions or verification procedures (Tapscott & Tapscott, 2016).

Both coins and tokens are created through different implementation levels on blockchains, they can be implemented on: i) Native platforms, ii) On-chain platform and iii) Sidechain.

Native platform are blockchain's that were developed for exclusive use of a specific coin (Tapscott & Tapscott, 2016). On the other hand, On-chain platforms are responsible for the creation of tokens that are issued on top of a blockchain using smart contracts (Buterin, 2014; Johnston, 2017; Chuen, 2017; Rauchs and Hileman, 2017). The sidechain, instead, can be interpreted as a solution in between a blockchain and a smart contract, specifically a sidechain is a blockchain that validates data from other blockchains[1].

The existence of several isolated blockchains has led to a fragmentation of markets and development. Before the development of the On-chain token systems, the use of tokens was basically limited to the role of coins-cryptocurrencies (Buterin, 2014). According to CoinMarketCap[2] more than 90% of capitalization market cap of cryptocurrencies are embedded "on coins".

Another important classification to consider is between: i) Utility token and ii) Security token (Fisch, 2018), where:

[1] This technology was developed as an alternative to promote integration between blockchains and add features, without the need to modify blockchains scripts.
[2] https://coinmarketcap.com/

i) Utility tokens represent a unit of account for the network. The bigger the network grows, the more the utilities in the token, because the number of tokens is fixed. It is important to note that "utility token" is an organizational distinction–not a legal one. Utility tokens have a use case and are not designed as investments, but that does not mean that they do not bring any profit. They have a certain use case inside the project and do not represent company's share[3].

ii) Security tokens gives their holders the ownership rights of a company. Security tokens can be utilized to change conventional IPOs (initial public offerings) and issue company shares, profits, and voting rights over the blockchain framework[4]s.

2.2.2 Bitcoin and Ethereum

Bitcoin was developed by a group or a person under a pseudonym of Satoshi Nakamoto and it is a novelty in terms of computing and finance because it was the first use case of blockchain as well the first digital currency that solve the double spending problem, eliminating the risk of a digital currency being spent twice (Tapscott & Tapscott, 2016). Additionally, every participant (i.e. node) of the network can see all the transactions that occur and with the provision of a cryptographic system as PKI can securely transact this cryptocurrency in a decentralized P2P network (Tapscott & Tapscott, 2016). Bitcoin was developed during the crisis of 2008 after a lot of conversations and work on forums by a cypherpunks group that had the idea to create a new digital coin that could be used everywhere without any control of a third party, particularly governments and banks. According to Tapscott & Tapscott, 2016 Bitcoin has

[3] On June of 2018 Matt Levine had made a comparison of Utility tokens with Starbucks card "A Starbucks gift card is probably not a security, even though you pay money to a corporation for the card and expect to get back something in the future, because you are not investing the money in the expectation of profit: You're investing it in the expectation of coffee.". Filecoin, Golem and BAT are good examples of ICOs that have a utility token inherent on their project. In case of Golem allowed users to lend their own PC's power to the network which collectively employs it to run a remote supercomputer. Users earn GNT for connecting to the network, but they can also buy them via an exchange. Filecoin is similar, it plans to provide a decentralized cloud storage service that will take advantage of unused computer hard drive space. ICO contributors received tokens that they will be able to use to purchase storage space from Filecoin once the service has launched. Basic Attention Token reward users in BAT for using the BRAVE browser and viewing ads.

[4]An Example of security token is Polymat, whose ST20 security token protocol embeds regulatory requirements into the tradable tokens themselves, which are only available to verified and authorized participants. Other example is tZERO the first STO to be fund with aim of develop a licensed security token trading platform. The tZERO tokens that are issued from this ICO will be in accordance with SEC regulations. tZERO token holders will be entitled to quarterly dividends from the profits generated by the tZERO platform.

some similarities with Gold because it must be mined and has a limited and finite supply of 21 million bitcoins that expected to be mined until 2150. Every node of the network can generate a bitcoin through this "mining process" when solving a computational puzzle: the first miner that solve the puzzle earns the right to add his block to the blockchain (Nakamoto, 2008; Tapscott and Tapscott, 2016; Rosati *et al*., 2016; Amsden and Schweizer, 2018; Adhami *et al*. 2017. New Liberty Standard was the first bitcoin trading platform. In 2010, for the first time, bitcoin was used by a developer who spent 10,000 bitcoins to buy two pizzas, today the same number of bitcoins is worth $34,577.9 USD (Price, 2017; CoinMarketCap, 2018; Adhami *et al*. 2018). However, the uses cases of bitcoin, the bad reputation over the last years is due to its illegal use in the Dark web and to the failures of some bitcoin exchanges (Rosati *et al*. 2016). Nowadays, according to CoinMarketCap site, Bitcoin has a dominance in terms of market capitalization in crypto world of 54.6%. Bitcoin and others cryptocurrencies have a particularly specificity to attract investor with overconfidence because they think the price will go up and they can earn quick money, given that everyone have fear to miss an opportunity to invest. Social media is the main responsible for these biases though the huge variety of content that generate information overload. Around the world the question if cryptocurrencies are real money is typical discussed, from different perspectives, some countries consider a cryptocurrency as a "digital asset", others as a "financial instrument" such as commodities or securities. However, a currency has three economic characteristics: medium of exchange, store of value and unit of account. According to Corbet. (2018), bitcoin is "not a currency" given that it performs poorly as a unit of account and as a store of value. In relation of unit of account, it is mainly due to the high volatility of bitcoin price and the range prices quoted in different exchange.

In 2015, Vitalik Buterin created the Ethereum blockchain that expanded the capabilities of the blockchain technology making possible that everyone could develop decentralized applications and digital tokens (Chen, 2018). Blockchains like Ethereum and waves facilitate the issuance of tokens in an Initial Coin Offering (ICO) through the mechanism of smart contracts. In the beginning, companies required important technical knowledge to create an ICO, however during the last years ICOs based on Ethereum blockchain are widely adopted given that it is easy to create a token in a few hours.

Being the most prominent enabler of on-chain tokens through ERC20 standard (Adhami *et al*., 2017; Ryan Amsden and Denis Schweizer, 2018). More tham 70% of the 110 ICOs surveyed are on Ethereum (EY, 2018). The participants on Ethereum blockchain use ether to pay (21,000 Gas for transaction) for the computer power when they use the platform because the mechanism to validate is proof of stake instead of proof of work algorithm like in Bitcoin (Yan Chen, 2018). On Etherscan website everyone can see who owns the tokens deployed from Ethereum blockchain as well as see the transfers from different wallets, see and write contracts. This transparency might reduce the information asymmetry presented by ICO that were developed from Ethereum platform.

2.3 Initial Coin Offering: Tokenization as new Business model

Having a business idea is useless without capital to transform that idea into reality. So capital raising is a vital process for entrepreneurs that want to develop their business. One of the methods commonly used for funding a new project or venture is through crowdfunding. However, recently there has been an exponential growth of other alternative ways to collect funds necessary for the companies' star-up, one of the most innovative approach is based on the Token funding model. Empowered by blockchain technology, cryptocurrencies have tokenized and decentralized money, leading to potential disruption in financial industries and creation of new business models. As blockchain technology advances, it becomes capable of "tokenizing" and "disrupt" not only money but also other scarce assets (Tapscott and Tapscott, 2016; Chen, 2018). Typically, with the launch of an Initial Coin Offering (ICO), the investors transfer funds to the project in the form of cryptocurrencies. In return they receive blockchain-based coins or tokens which are created and stored in a decentralized/distributed form either on a blockchain specifically created for the ICO or through a smart contract on pre-existing blockchain (FINMA, 2018; Tasca, 2018).

2.3.1 ICOs definition, features and contents of white papers

The Initial Coin Offering (also known as Token Sales and Token Generation Event) is a new method of fundraising for start-ups, mostly blockchain start-ups. This innovative and controversial method of capital formation is attracting entrepreneurs worldwide (Chen,

2018). More than $6 billion USD have been invested via Initial Coin Offerings since the beginning of 2016 and triggers 1,500% in 2018 (Ferreira, 2018), this quickly demonstrates the existence of a "new era of crowdfunding" that uses blockchain tokens as an innovative way to raise early-financing. ICOs is a combination of crowdfunding and blockchain, therefore with the issuing of a crypto asset (that could be both a coin or a token) through a blockchain, this new token can represent a wide range of scarce assets, such as currencies, securities, properties, loyalty points, and gift certificates, among others (Buterin, 2014b; Yan Chen, 2018; Tapscott and Tapscott, 2016). The first ICO emerged in 2013 when Mastercoin, now known as Omni, was created by J.K. Willet, who described his idea in "The Second Bitcoin white paper" (Ravikant, 2014). As reported by Adhami and Giudici (2017), ICO is "an open call, through the internet, for the provision of cryptocurrencies in exchange for tokens generated through smart contracts and relying on the blockchain and technology, allowing the pledger to enjoy an exclusive right or reward or financial claim". ICOs attract a wide range of intentions of investors. Some participants in ICOs invest in these early projects with the aim to receive a discount and use the token lately. Others type of long-term investors buy the tokens given that they believe in the project. Some participants may be speculators, they buy token with the intention to sell the token at a higher price in the future (Chen, 2018). ICO is seen as a new form of capital financing based on cryptocurrencies and is developed after a process where the white papers describing the program or protocol, the characteristics and the reason of its origin/implementation are disclosed. In the background of this process a pre-sale could be held and in the most of cases is mostly limited to a group of investors. (Johnston *et al*., 2017; Chuen *et al*., 2017).

However, the "white papers" which contains all of the technical and financial information about the project, do not follow any type of standard and can have different structures. Typically, the purpose of a white paper is to provide a description of the project, define the goal, to identify the team, to explain how the token will be established, and to highlight the benefits and risks of the business plan. Basically, the white paper provides a roadmap of the ICOs development as well as the financial information about the funds required. Sometimes some white papers are more technical than others. The presence of asymmetry information is common during the launch of an ICO given that the contents of white papers can be difficult to understand and given eh risk embedded in the project (Zetzche *et al*., 2018; Chen, 2018). A recent study released by University of Luxemburg (2018), examining more than 400 ICOs, concluded that 17,96% of the sample the white

papers have a technical description about the product or process to be developed. The 68% of the white papers have information about the initiators or backers, in the 76% of the cases the white papers provide a description of the project´s financial circumstances but 86% of the white papers do not explain whether the funding provided by participants will be pooled or segregate (Zetzche *et al*., 2018; Silverberrg *et al*., 2018). Additionally, the Federal Supervisory Authority (BaFin) released a warning for investors informing that white papers provided by issuer can be incomplete, misleading and unaudited (BaFin, 2017).

2.3.2 The Mechanism at the base of ICOs

ICO can follow a wide range of different structures and features as we have already seen above, but the "token" that is sold is the basis of any ICOs. This token could have different technical, monetary, and legal aspects that differentiate the token and thus influence the structure and characteristics of an ICO. Without the existence of regulatory borders, there are no rules on how to structure and develop an ICO. Nevertheless, in the sample used in this work, the majority of ICOs are structured. (Fridgen *et al.,* 2018; Siegel *et al.,* 2018; Diemers *et al*., 2018; Ivashchenlo *et al.*, 2018).

It is fundamental to recognize which mechanism have been used to deploy the token in a blockchain system. Three are the main approaches for the token implementation level: a token can be i) Native, ii) on-chain or iii) sidechain. An example of Native Token is the Bitcoin[5] (i.a. Fridgen *et al.,* 2018) that is when a token is inherent to a blockchain and only has utility in this blockchain. On the other side, an on-chain token is deployed in an existent blockchain using a smart contract like Ethereum (Buterin, 2014). A Sidechain token is the case of tokens that are implemented with the intention to run in more than one blockchain (Fridgen *et al.,* 2018; Fisch, 2018). In most of the cases, ICOs are executed thought a smart contract in Ethereum blockchain, as it provides an easy and quick way to create a new token. After taking into consideration these different approaches, ICOs usually follow these four stages of the process: 1) Pre-announcement, 2) Offering, 3) Marketing Campaign and 4) Token sale (Deloitte, 2018). In the Pre-announcement, the team/start-up responsible for the project makes an announcement of the project with an executive summary describing the aim of the project. Usually these

[5] For Bitcoin definition refer to the specific paragraph included in this work.

announcements are made in cryptocurrencies forums (Github, Bitcointalk, Reddit, etc.) with the aim of receiving some feedback from potential investors and be analyzed for further rectification of the business model. The first stage ends with a detailed business model and the offer of an ICO.

1) In the Offering, the team gives further information covering all aspects of the ICO written in a "white paper", describing: a) the terms and conditions, specifies the investment amount to be target as well as b) deadline for the sale of the tokens, c) the Token purpose, d) the currency accepted for funding and a benchmarking of the benefits and e) risks of the project.
2) In the Marketing Campaign, that has the main goal to attract investors (mainly institutional and small investors), the team releases some announcements in online forums and/or crypto-communities and sometimes organize conferences and conducts roadshows to present the project.
3) The last step is the Token sale, depending on the start-up strategy the emission of the token on blockchain can have different approaches like, after reaching the soft cap the team proportional split the token among investor or tokens are distributed immediately and free for trading or tokens are released after the final product/service is conclude (Siegel D. *et al.,* 2018; Ivashchenlo *et al*., 2018).

Generally, authors refer to another type of fundraising known as Hybrid funding which is a combination of ICOs and Venture Capitals (i.a. Zetzche *et al*., 2018). Due to the potential of ICO to disrupt some of the activities performed by Venture Capitals, VC start to interact in this novel fundraising model. Comparing to pure ICOs, the start-up will receive an initial funding after structuring the business plan, prototype and team validation, and further they will receive an ICO funding when they have a proof of concept and potential idea concluded. The great advantages is the diversification of funding sources and validation of the project with professional investors. As a consequence, the team may lose a big share of the company (Diemers *et al*., 2018; Ivashchenlo *et al.,* 2018).

2.3.3 Similarities and differences between ICOs, IPOs, Venture Capitals and crowdfunding

ICOs have the potential to replicate all the components and attributes of other methods of fundraising like: a) crowdfunding (including equity, reward, donation, and leading), b) venture capitals (VC) and c) Initial Public Offering (Cerchiello and Anca Toma, 2018).

a) ICO vs Crowdfunding

Crowdfunding can be described as "a collective effort by people who network and pool their money together, usually via the internet, in order to invest in and support efforts initiated by other people or organizations" (Ordanini *et al*., 2011, p. 1). The combination of the sales of tokens and blockchain gave rise to the ICO (Initial Coin Offering). ICO is an open investment platform that encompasses a global investor network. In the recent years, ICOs have replicated all the crowdfunding techniques, from donation, rewards to equity and debt. With the integration of blockchain and tokens in the process, ICOs can get all the benefits that came from this technology like the presence of a decentralized/distributed system, of a Peer-to-peer mechanism, the elimination of intermediaries such as crowdfunding platforms and others financial institutions like banks and credit cards (Adhami *et al*., 2018; Zetzche *et al*., 2018). Moreover, the ICO can be easily transferred from a secondary market to other investors, while instead the crowdfunding has a low transferability due to rewards and/or access (Chen, 2018; Siegel *et. al* 2018). Moreover, the ICOs also have capacity to overcome some difficulties that are related to the crowdfunding such as the cross-border activities due to the use of cryptocurrencies (Fridgen *et al*., 2018).

b) ICO vs IPO

ICOs that usually is typified by business experts similar to IPO but they both differ in their nature and process as well as for the distribution, underwriting and regulation (Ellis *et al*., 1999; Chen, 2017). Some of these differences are due to the fact that cryptocurrencies market and the ICOs are not regulated, implying the presence of a speculative bubble in the ICOs. Given the lack of regulation it is very risky to invest or receive investment in cryptocurrencies because the price is very volatile, being a financial instrument with a high risk of speculation. ICOs projects ae usually in early stages of development being the majority a business idea only reported in a white paper while, instead, an IPO already has established a business with "real assets". Moreover, the less

and poor structured white paper is unaudited and not comparable with prospectus of an IPO.

c) ICO vs VC

In relation of Venture Capitals, ICO can be completely disrupting in some functions like the fundraising. Traditionally, venture capitals offer investors access to shares in beginning of new business which are not yet being publicly traded. However, ICOs have the potential to be more open, to be accessible to the public, to democratize access to investment opportunities and democratize access to financial capital (Zetzche *et al*., 2018; Chen, 2018; Tapscott and Tapscott, 2016). Due to potential benefits of ICOs, venture capitals start to be active in the pre-ICO stage (Hybrid funding's). Investors in this stage can buy rights to acquire tokens through a new developed contract agreement (like Simple Agreements for Future Tokens, SAFT) or by making equity deals, instead of purchasing a stake in a startup and wait few years for a return (Zetzche *et al.,* 2018; Santori *et al*., 2017). Even if ICO cannot replace all services provided by venture capital like advising and other assistance services, at least it has the potential to replace the fundraising in early stages for startups (Arnold, 2017; Zetzche *et al*., 2018). ICOs are increasingly becoming an **alternative** to the classic debt/capital- funding as currently performed by Venture Capital, Private Equity firms or banks. (Diemers, 2019)

2.3.4 Risks associated with ICOs: Information asymmetry and legal protection

As the market of ICO develops an increasing range of issues arise. On 13 November of 2017, ESMA advised investors that ICOs are highly speculative and extremely risky investments. The main five risks exposed were 1) the lack of information, e.g. in majority of cases white papers are incomplete, unbalanced and unaudited; 2) the unregulated space, vulnerable to fraud or illicit activities; 3) high risk of losing all the capital investment because the majority of ICOs are launched by companies that are at a very early stage of development and therefore have an inherent high risk of failure; 4) the lack of exit options because the investors do not have any guarantees that those tokens will be able to be trade in exchanges and 5) possibility of flaws on code as well hacking activity. (ESMA50-157-829, 2017). In July 2018 Satis group published a report of an analysis on almost 1,500 ICOs, highlighting that prior to trading, the 78% of these listed coins/tokens are scams, against 15% that continued listed /traded, 4% failed and the rest 3% will be dead (ESMA22-

106-1338, 2018). Therefore, both Information Asymmetry, Capital misallocation, weak of legal protections and systemic risk are the main risks in respect of ICO according to (Zetzche *et al.,* 2018).

Information asymmetry. The lack of information in the white papers represent the biggest limitation to any investors that want to make a rational investment. Moreover, this documents in most of the cases do not provide any information about the initiators and backers of the project and also do not explain how the initiators of the project plan further developments of the technology that needs to be funded. This information asymmetry continues to persist after finishing an ICO, taking the fact that only a few cases after being funded reported how much money was invested in the project. In most cases, auditors had certified the information presented in white papers like it happened in IPO prospectus (Adhami, 2017).

Capital misallocation. Even if the volume of ICOs continues growing, the absence of some risks does not seem to warn the investors. Some studies concluded that less than 10% of the tokens acquired by investors can have a real use on the platform network and the rest 90% being merely available for trading like a speculative instrument (Kharif, 2017). Even where trading is expected to be uncertain, the ICO's participant tends to trade their token due to transfer issues related to tokens that cause difficult legal issues in countries where the tokens were created. According to the data reported by CoinMarketCap less than 50% of ICOs are listed on trading platforms. These weaknesses are not only harmful for investors, bit they also lead to capital misallocation and contribute to the increase of scams (SEC, 2017; ESMA22-106-1338, 2018; Zetzche *et al.,* 2018).

Another important risk to consider is the *weak legal protection provided to investors.* Thought the limited information provided in the white paper, it is difficult or almost impossible for the private law to make an action without knowing who is behind the ICO. In these cases, the consequences of the law remain only related to the investors. According to Zetzche *et al.* (2018), the 31% of white papers contains information on the applicable law, in 33,26% of cases the name given as the author of white paper differ from the name of the initiator of the ICO. In addition, 48,11% of cases the white paper does not provide any information related to the name of the initiator of the ICO. As the time of writing, as reported, the market capitalization is about 189 billion USD ($189 086 685 767) and the number of the cryptocurrencies is about 2,166, contrasting with the market capitalization

of 795 billion USD reached on 12 of January of 2018 and with the number of cryptocurrencies around 1400. Therefore, the ICO market may seem to be too small to justify regulatory action based on *systematic risks* concern (CoinMarketCap, 18/01/2018).

2.4 Regulations differences and implications

In the past years, regulatory and financial authorities worldwide have been issuing a variety of warnings, some of these warnings are about risks that cryptocurrencies and ICOs carry out for investors and others more related to regulatory framework that firms involved in ICOs have to be aware of. On the 18th of January, the International organization of Securities Commission (IOSCO) issued a communication concerning some risks related to ICOs such as high speculative nature of this type of investments and the fact that some investments could raise issues about investor protection because the supporter of the project may be located outside an investor jurisdiction, which may be operating illegally in violation of existing laws or may not be subject to regulation. Together with its member and other regulatory bodies, IOSCO has established an ICO consolation Network with the aim to discuss their experiences and help to mitigate these risks (IOSCO, 2018). Draghi reported to lawmakers that "We must understand that Bitcoin and other digital currencies are in unregulated space and should be considered as very risky assets (...) Banks should measure the risk of any digital currency retention in your wallet." (Reuters, 2018).

Most of the countries are developing a legal framework not only for ICOs but also for cryptocurrencies and blockchain. Some countries, like Switzerland, have already published some guidelines (FINMA, 2018) for companies consider issuing an Initial Coin Offering but so far, any country have legislation that encompass in integra this recent innovation. Other countries such as China and South Korea have prohibited any use of ICOs (Yuji Nakamura and Sam Kim, 2018; David Meyer, 2018). As far as this topic is concerned, we will discuss possible regulatory approach and will state some differences in regulations and implication in U.S., European Union and Switzerland. Therefore, given the fact that ICO could have a wide range of different structure and natures, it is impossible to have on-size-fits-all legal analysis. So, the majority of the countries when think about the legal assessment try to follow an approach of case by case basis.

We will begin to discuss some existent regulatory framework that could apply for this new method of capital formation. For the record we did not consider any form of donation in this analysis, the only non-financial nature we consider in this analyze is the case of Utility Tokens (when the benefit of an investment is in form of access to a platform or to a service). Despite, most of people involved in ICOs truly believe that cryptocurrencies and blockchain based platforms could run behind the eyes of the law, the fact is that authorities bodies around the world are taking serious actions to know which ICOs are conducting unlawful activities. Independent from jurisdiction, most of ICO represent a contract thought two parties, when one issue a commitment to the public and accept the consideration from other making this a legally relevant conduct. So, considering the presence of a legally relevant action, most of the jurisdictions have specific legislation to ensure protection of consumers. In the U.S. this task is responsibility of the Federal Trade Commission (FTC) that have to prevent "Unfair methods of competition in or affecting commerce, and unfair or deceptive acts or practices in or affecting, are hereby declared unlawful" (Federal Trade Commission Act, 15 U.S.C. §45(a)(1), 2006). Despite of the difficult to prosecute an action that occurred overseas, this legislation is also extended to acts or practices foreign commerce that cause or are likely to cause reasonably foreseeable injury in the U.S (Federal Trade Commission Act, 15 U.S.C. §45(a)(4)(A), 2006; Jay Clayton, 2017). The FTC is empowered to begin a series of proceedings against persons or corporation who engage in unfair or deceptive conduct, and potential remedies include restitution of victims (Federal Trade Commission Act, 15 U.S.C. §45(b), 2006). In Europe similar consumer protection exist across all member states due to European harmonized consumer protection legislation (Europe Directive on Consumer Rights (2011/83/EU). Since ICOs are offers to the public by some commercial enterprise, where consideration is required in order to participate, the general consumer protection legislation of the relevant jurisdiction will apply (Zetzsche *et al*., 2018). However, in some countries, several legislations could apply and displace the general consumer legislation. Two fields of law are particular important in displacing consumer legislation. First, if ICO participation results as membership in a company or partnership, company or partnership law could apply, in some cases, instead of consumer protection law. Whether this is the case, it depends on the private law qualification of the blockchain participation. Secondly, other instance of specialized legislation being applicable is the financial law. Considering this, we will discuss some different scopes of the financial law that could be applicable in U.S., Switzerland and Europe.

In United States most of the tokens are treated as securities. On the 11th of December 2017, the SEC chairman Jay Clayton, issued a statement regarding cryptocurrencies and Initial Coin Offerings and advised firms that before launching a new cryptocurrency/ICO, its promoters must be able to demonstrate that the currency or product is not a security or, if it is the case of a security, it has to comply with the security law. Tokens that incorporate features and marketing efforts that emphasizes the potential for profits based on the entrepreneurial or managerial efforts of others continue to contain the hallmarks of a security under the U.S. law (Jay Clayton, 2017). In accordance with Howey test, if the token qualifies as an "investment contract" and under the Securities Act of 1933 and the Securities Exchange Act of 1934, those transactions will be considered securities and therefore subject to certain disclosure requirements, investor protection and registration requirements. Additionally, selling securities requires a license, so every participant of the market that facilitates the trade and selling of this cryptocurrency has to respect the Security Exchange Act of 1934 and be registered as exchange or broker-dealer. Moreover, it has to comply with anti-money laundering (AML) and know-your-customer (KYC) obligations as if cash is being handed in these transactions. In turn, investment vehicles that hold cryptocurrencies considered to be securities and those who advice others about investing in this type of securities, including managers of investment vehicles, must be registered and comply with regulatory and fiduciary obligations under the Investment Company Act of 1940 and the Investment Advisor Act of 1940. The U.S., at the moment, is actively intervening through SEC division of enforcement with cooperation of FinCEN and is investigating possible unlawful practices and conducting enforcements actions against those who practice some violation of the federal securities law. On 16 of November of 2018, the commission persecuted Paragon and AirFox regarding the sale of tokens consider to be securities that weren´t register under section 12(g) of the Securities Exchange Act of 1934 and doing so, this companies had to pay a penalties, file periodic reports for the commission and had agreed to compensate investors who purchased token in the illegal offerings if an investor make a claim (SEC, 2018).

Switzerland is considered one of the leading countries in cryptocurrencies and has established an ecosystem well known as "crypto valley". Although, at the moment ICOs are currently not governed by any specific regulation. Tokens in Switzerland are treated as assets. FINMA, the Swiss Financial Market issued guidance on how FINMA intends to deal with such transactions in a regulatory manner (FINMA guidance 04/2017).

Depending on how an ICO is structured, however, some parts of the procedures may already be covered by existing regulations. This concerns the following areas in particular: provision on combating money laundering and terrorist financing; banking law provisions; provision on securities trading and provision set out in collective investment scheme (CIS) legislation. On 16 of February 2018, FINMA stated a guideline with information on how it will deal with regulatory framework for ICOs. Due to a variety of classifications of ICOs and the tokens that result from them, FINMA will base its approach considering the economic function of the token. FINMA established is own taxonomy of token as: Payment tokens, utility tokens, asset tokens and hybrid tokens (FINMA guidelines, 2018). FINMA will base its action considerer as to whether tokens qualify as securities following the legal definition presented in the Financial Market Infrastructure Act (FMIA). Follow the taxonomy, Asset tokens will be considered securities within the meaning of the article 2 let. b FMIA or if it represents a derivative and the token is standardized and suitable for mass standardize trading. Payment tokens will not be considered a security neither utility tokens if their only intention is to provide digital access rights to an application or service and if the token at the point of issue can be used. However, utility tokens could be considered securities if there has an investment purpose at the point of issue. On the other hand, in cases of ICOs that have undergone a pre-sale, the claims of acquire the tokens in the future will also be treated as securities if they are standardized and suitable for mass standardized trading. By the moment that FINMA denominated the category of the token as a security, they will fall under the Stock Exchange Act (SESTA) and in case of creation and issuance of derivative product will be regulated by Art.3 para.3 Stock Exchange Ordinance, (SESTO). In these cases, the issuance of tokens similar to equity and bonds can also require a prospectus under the Swiss Code of Obligations and may be part of supervisory law (Art. 37 Draft FinSA) in the future. In relation to Banking license, it will be needed in cases which is establish a promise to return the capital with a guaranteed return. The provision of the collective investment schemes act is relevant in cases which funds accepted are managed by third parties. In respect with Anti-money Laundering Act anyone who provides a payment services or manages of payment service or who issues is consider a financial intermediary subject to Art. 2 para. 3 let.b AMLA, have to comply with AMLA and have to report a requirement to establish the identity of the beneficial owner and obligation to affiliate to a self-regulatory organization (SRO) or be subject directly to FINMA supervision. In

cases of exchanges of cryptocurrencies and offerings of services to transfer tokens if the service provider maintains the private key fall under Art. 2 para. 3 AMLA.

European Union has a concerned attitude towards cryptocurrencies and may treat tokens as financial instruments. At the moment, it does not have any legislative regulatory established to cover Cryptocurrencies and ICOs but is planning to do so, due to potential terrorism financing and tax evasion. On the 13th of November 2017, ESMA issued a statement alerting firms involved in ICOs about the need of complying with relevant regulatory requirements and reported that ICOs qualified as financial instruments have to conduct regulated investment activities and any failure to comply with the applicable rules will constitute a breach. Additionally, national rules may apply. Following the approach of case by case basis, every ICO needs to pay attention to: The Prospectus Directive, the Market in Financial Instruments Directive (MiFID II), the Alternative Investment Fund Managers Directive (AIFMD) and the Fourth Anti-Money Laundering Directive.

The prospectus Directive has defined the publication of a prospectus as a requirement, before the offer of transferable securities to the public or the admission to trading of such securities on a regulated market situated or operating within a Member State is made. Exclusions or exemptions criteria might apply. Depending on how the ICO is structured, the coin or token could fall within the definition of a transferable Security and could necessitate an approval by a Competent authority on the publication the respective prospectus. The Market in Financial Instruments Directive (MiFID II) established that firms that provide an investment services/activity in relation to financial instruments as defined by MiFID need to comply with MiFID requirements. In the case of ICOs whose cryptocurrency qualify as a financial instrument, the process by which a coin or token is created, distributed or traded is likely to involve some MiFID activities/services, such as placing, dealing in or advising on financial instruments. In relation to the Alternative Investment Fund Managers Directive (AIFMD), an ICO scheme could qualify as an AIF, to the extent that it is used to raise capital from a number of investors, with a view to investing it in accordance with a *defined investment policy*. Firms involved in ICOs may therefore need to comply with AIFMD rules. The Fourth Anti-Money Laundering Directive applies to firms including credit institutions and financial institutions, the latter including MiFID investment firms, collective investment undertakings marketing their units or shares and firms providing certain services offered by credit institutions without being one. The Directive also requires that firms need to carry out due diligence on

customers and need to have in place appropriate record-keeping and other internal procedures. Firms have an obligation to report any suspicious activity and to co-operate with any investigations by relevant public authorities (ESMA50-157-828, 2017).

2.4.1 Opportunities and limitations of ICOs

ICOs emerged after the development of blockchain technology and cryptocurrencies. With the adoption of blockchain-based technologies, it is possible to take several advantages such as reducing the costs of capital financing (crowdfunding platforms) and eliminating third parties in the business (banks). ICOs are also appealing for investors because they are inherent global, highly liquid, easily tradable low transactions and settlement costs and represent an ideal investment in terms of diversification of portfolio. In fact, as demonstrated by previous studies (Chen, 2018; Ivashenlo *et al*., 2018) the price movements of blockchain tokens have little correlation with the price movements of traditional assets. Additionally, tokens and ICOs also allow to realize open development projects based on the decentralization of business. However, the fact that exists a limitation on access to cryptocurrencies becomes a negative effect for those who want to invest. Others disadvantages also reported are: the price volatility and the asymmetric information inherent in most of ICOs (i.a. Zetzche *et al*., 2018). ICOs benefits came from blockchain tokens that can be transferred in a network P2P without the involvement of a central entity and can be traded on digital currency exchanges without borders (Chen, 2018). The main limitations related to the ICOs are: the lack of legal nature and legal status in some jurisdictions; the absence of tax regulation (could be seen as an advantage), the fact that, without regulation, most of the authorities cannot impose any taxes (Diemers *et al*., 2018; *Chen,* 2018).

2.4.2 Determinants of success ICO

On the process of building the sample to identify determinants of the successful ICOs, different proxies from previous studies have been used. The taxonomy made by Fridgen *et al.,* (2018) was the basis of the dataset given that it was the firsts taxonomy that encompasses the characteristics of ICOs. Other interesting variables used in prior studies were calculated to control the mode empirical models. The independent variables detect the presence of three main groups of characteristics, such as: i) technological capabilities, ii) characteristics of the ICOs campaigns and iii) firms' controls.

i) Technological capabilities

In order to control the presence of a venture with more technological capabilities it was introduced '*Length Ws'* that emphasize the information disclosed by the company that held the ICO and '*Num crypto'* that measure number of different cryptocurrencies accepted by the project as method of investment. ICOs are available to accept numerous cryptocurrencies require more significant blockchain expertise in order to integrate functionality among them. Some studies have measured the length of the white paper using the number of words (Fish, 2018). In this study it was replicated the same proxy of Amsed *et al*.,2018 to measure the length of white paper with the number of pages. We believe that has higher is the length of white papers, less information asymmetry is provided to investors. For the other hand Amsden and Schweizer (2018) suggested that ICO that normally accept a variety of cryptocurrencies have higher probability of having listed their token in the future.

ii) ***ICOs campaigns characteristics***

Despite of the heterogeneity of structures and characteristics of ICOs campaigns, these variables have been used in prior crowdfunding research area (Amsden and Schweizer, 2018). Therefore, the following variables are examined as main characteristics of the ICOs campaigns:

Tokens sale (share). In an ICO campaign the majority of ventures did not sell all of the tokens issued but they preferred to retain some ratio of the Token supply in the company. Some researches argue that entrepreneur's willingness to invest in their own venture indicates higher commitment and represents a signal of higher quality (Vismara, 2016; Fisch, 2018). Moreover, ventures that opt to retain a large fraction of tokens tend to align the interest of owners, employees (who are usually rewarded with tokens) and investors.

Pre (dummy). In other methods of capital formation like crowdfunding is noted that attracting early investors is crucial for campaign success (Vismara, 2018; Adhami *et al.*2018). In ICO context Pre-sale are usually conducted with aim to sell a small share of tokens to early investors that sometimes benefit from bonus/discounts or lower prices of the tokens during a limit period of time. Therefore, some authors argue that a Pre-sale can

increase the amount funded like it happens on crowdfunding and be used as marketing strategy for early investors promoting the projects.

Institutional (dummy). The majority of ICOs usually conduct a previous sale of tokens inherent to an ICO. Some Pre-sales are only available for some target investors or VCs and Business Angels and is designated as Private Pre-sales. In other cases, the Pre-sale is Public because it does not discriminate anyone that want to invest in this early stage. Some authors state that an existence of a Private sale can be a trustworthy for the project but for the other hand, a Public pre-sale is more open and democratic way to collect more funds cause no restrictions are imposed.

Bonus discount (dummy). Typically, most of ICO campaign held different types of bonus, some of them happened during the Pre-sale and are higher than other discounts that occur on the main sale of the tokens. According to Amsden and Schweizer (2018), this discount can impact the amount raised on the project.

Days (duration). The majority of crowdfunding and ICO research frequently include the campaign duration as a control variable (Vismara, 2016; Fisch, 2018). In ICO context normally ICO stipulate a period of time to sale their tokens or when the venture reach the hardcap, the maximum amount. Some set very short lengths of time, while others set very long lengths of time. The previous studies had shown a strong association between shorter duration and the amount raised and argued that campaigns that reach their goals quicker are more successful (Fisch, 2018). Therefore, we control for the '*days*', primarily to rule out a confounding influence on the amount raised.

Utility (dummy). In ICO context the purpose of token sometimes is difficult to demystified because most of the ventures does not specify well the different rights inherent on the token and normally classified their token as Utility against Security as a way to avoid more law enforcements and bureaucracy. Despite the study made by (Fisch, 2018) that does not find any relation between Utility and the amount raised, the dummy variable *'Utility'* has been introduced to test is influence also on listing a token on a trading platform or reach softcap.

Token supply (log). Despite the fact that tokens are divisible, making it possible to buy a fraction of a single token, ventures can freely decide the total number of tokens that will

be issued. Also, token supply should not have an impact on the amount raised because the signal is not costly to produce. The variable is transformed by its natural logarithm due to its high skewness (Amsden and Schweizer 2018; Fisch, 2018).

Ethereum (dummy). Companies can create their own DLT (Native platform) or build on existing ones (On-chain platforms). As of 2018, a variety of DLT platforms were created with the purpose of developing applications on and be used as their infrastructures (e.g., Ethereum, NEO, Waves). The most common platform used to create the tokens is called "Ethereum". Typically, most of tokens are created though ERC20 ("Ethereum Request for Comment") or ERC223, which is the technical standard they implement. Ethereum was the first platform to popularize and implement "smart contracts" and "dApps" (decentralized applications), which enable the use of Ethereum's blockchain for various applications. As such, develop a token based on Ethereum may signal a higher future utility if investors believe that Ethereum standard will successfully establish itself as the benchmark for ICOs and therefore can positively affect the likelihood of having list tokens on an exchange in the future (Fisch, 2018)

Restrictions (dummy). With required registration, the possibility of restricting investors is introduced. While in some cases we found no restrictions imposed, in others ICOs some geographic or/and accreditation restrictions. So, we decided to implement this control variable to understand their influence on the ICO "success".

Icobench ratings (numerical). Asymmetric information is very well present on ICO context, some whitepapers do not disclose all information needed to make a rational investment. So, the majority of investors have to take a look on other sources such as ventures websites, their social media and ICO-tracking sites. This ICO-tracking website are the main source of information for common investors because they gather information on the team, and others financial details of the ICO and as well a Rating made by a robot and/or experts that is scale from 0 to 5. Icobench is the main ICO-tracking site and is usually used by different authors of studies on ICO space (Fisch, 2018; Adhami *et al*.2017). Recent studies have not investigated the influence of this ratings, thereby the variable 'Icobench ratings' captures the effects of the ratings of Icobench.com website on ICO success.

Voting rights (dummy). Despite the typical discussion on whether an ICO issues a utility token or security token, some tokens grant rights to their holders like enabling holders to vote on certain proposals. This control variable was implemented to measure the importance of these voting rights (Adhami *et al*., 2017).

Sidechain (dummy). A few ICO implement their token on so called Sidechain which can be interpreted as a solution in-between a blockchain and a smart contract. Sidechain is a blockchain that validates data from other blockchains. This technology was developed as an alternative to promote integration between blockchains and add features, without the need to modify blockchains scripts. The existence of several isolated blockchains has led to a fragmentation of markets and development. Sidechains have emerged as an alternative to solving these problems, allowing assets to be moved between the chains. (Fridgen *et al.,* 2018). It has been implemented this variable *'sidechain'* though an analysis of whether a venture consider their ICO project a sidechain in their whitepapers. Until now this variable wasn`t introduced yet in any study.

Fixed sales price (dummy). Experts have mentioned that ICOs can differ at the sales prices, which can either be fixed or floating, meaning it fluctuates and is influenced by factors such as demand. Thus, we include the '*Fixed sales price'* to understand this effect.

Firms' controls

Recent researches have also studied the possible effects related to the companies that conducted an ICO. Therefore, we believe that these following variables are the most important:

Team size. Researches on crowdfunding show that venture´s team can be crucial signal of quality and also important in order to raise more money. But in the context of ICO, given the peculiarities of ICOs in comparison to more traditional funding settings (i.e., higher potential for identity fraud, greater concern for anonymity), the impact of a given venture's team might be less pronounced in ICOs than in more traditional settings. To control these effects, we include the numerical variable 'Team size'.

Location. Location of the venture is crucial for attracting finance, such as venture capital and even crowdfunding, albeit to a lesser extent for the latter due to its online context. Recent researches suggest that Switzerland, that has already established a crypto valley

in Zug, is undertaking various efforts to attract blockchain projects and ventures that are willing to carry out an ICO (Fisch, 2018). To explore a locational effect on the amount of funded and listed on exchange, we have included dummies variables that capture whether a venture is based in the US, Europe, Asia or the rest of the world.

Sector. To account for different impacts of sector and industries of these projects, we introduced the proxy used by Adhami *et al.,* (2017) that distinguished between the sectors 'smart contracts', 'marketplace/exchange', 'high-tech services', 'finance/fintech', 'payment solutions', 'media and entertainment', 'investments/VCs/incubators', 'gambling platforms', 'gaming', 'adult entertainment', 'advertising' and 'others'.

Tax haven (dummy). In previous studies that analyzed determinants that influence the success of an ICO only Amsden and Schweizer 2018 implemented the control variable *'Tax Haven'* as a way to measure the impact of this countries on ICO context. Regarding these effects we decided to build this variable though information gather from PwC report of 2018 of tax haven countries.

ICO Regulation (dummy). Countries with a strong legal environment characterized by legal rules and the quality of law enforcement have relatively large size and high liquidity of capital market than countries with poor legal systems (Vismara *et al*., 2018). Despite the fact that most of the countries does not have regulation on ICO, cryptocurrencies and blockchain we decided to follow the proxy of the previous study of Vismara *et al.*2018 to measure the possible effects of regulation. So, we create the variable *'ICO Regulation'* that equals 1 when a country or territories have acted or are acting to regulate bitcoin, or that have stopped short of regulating bitcoin, but have imposed taxes; it is equal to 0 for countries that have banned bitcoin, that are undecided in respect of digital currencies or do not regulate bitcoin (Pinsent Masons, 2017).

Team vesting period (dummy). The ability of the team behind an ICO has the power to influence the market price of tokens by selling their stake (Buterin, 2017). To avoid the opportunistic profit taking and to protect investors, some ICO contain specific clauses that team members of the company are locked-up for a certain period (Fridgen *et al* 2018). Lock-up periods are also common in IPOs and Venture Capital, where they are referred to as *vesting period*. To address this characteristic, we introduced the control variable *'Team vesting period'*.

3. Research Hypotheses

Understanding the determinants of the success of an ICO plays a decisive role in guiding future proponents to design and structure their token sale. Therefore, is fundamental to understand the characteristics that can be considered as "determinants" of successful ICOs projects. Differently from other methods of capital formation, ICOs are characterized by a strong information asymmetry and opaqueness. Investors rely on a very limited set of information and few channels to obtain information about the 'white paper', that represents the main source of information. ICOs tracking websites are other channels that disclose information about the ICOs, although very often they are used by investors to find a resume of financial details about ICOs such as specific information (sometimes are missed on white papers) such as ratings of these projects. The Icobench website is the main tracking list of ICOs reported in different studies and it incorporates a dataset with more than 1,602 ICOs (Evgeny Lyandres, 2018). Ethereum Platform, instead, is typically used to deploy smart contracts and incorporates the Etherscan website that shows valuable information for investors such as: part of the code, owners of the tokens, transferability of tokens and other characteristics of the token sales. Moreover, as suggested by Adhami *et al*. (2017), the disclosure of the source code could lead to higher chance of hacking strategies but from other perspectives. However, these open-sources strategies can offer the potential for a more flexible technology and quicker innovation since it typically has thousands of independent programmers testing and fixing bugs like for Github pages. Since cryptocurrencies and ICOs normally rely on self-governed decentralized organizations the disclosure of more information such as rating provided by Icobench and the availability of codes in Ethereum can have a positively impact on the success of ICOs.

For the reasons reported above, this work intends to test the following hypothesis H1, H1.A, H1.B, H1.C:

H1: The amount and quality of information disclosed affect the probability to find potential contributors and therefore affect positively the probability of successful ICOs.

H1.A: The length of white papers reduces the asymmetric information and positively affects the probability of successful ICOs

H1.B: The rating provided by specific ICOs sources (Icobench website) positively affects the probability of successful ICOs.

H1.C: The disclosure channel affects the probability of successful ICOs, specifically Ethereum Platform increases the probability of successful ICOs.

In the same way that blockchain spreads behind cryptocurrencies, ICOs are the main mechanism used to fund blockchain startups (Amsden and Schweizer, 2018). Smart contracts are the faster and easier way to develop an ICO and as we can see on table 2, 'smart contracts' were the sector with highest frequency.

So, it has been introduced the hypothesis 2 as follows:

H.2: The creation of an ICOs through a smart contract can have substantial effect on the campaign's ultimate success.

Finally, the lack of a legislative framework on ICOs in majority of countries could influence the growth of this fundraising mechanism, specifically some ICOs only accept investments from particularly countries or specific target investors (Fisch, 2018). Also, there was a significant change in country of issuance of cryptocurrencies between 2017 and 2018; the shift from USA, Switzerland, Singapore to the Cayman and Virgin Islands and other jurisdictions may be a consequence of risk awareness and regulatory pressure in some countries, resulting in a shift of issuance of crypto-assets towards less regulated or unregulated countries (ESMA22-106-1338). Therefore, for the reasons reported above we test the following Hypothesis H3:

H.3: The choice of launching an ICOs in countries typically known as Tax Haven can have a significant and positive effect the probability of successful ICOs.

All Hypothesis will also test the presence of linear relations between successful ICOs and the aspects mentioned above.

4. Methodology

4.1 Data and Sample

Given the recent introduction of ICOs in the market, there is not a universal database available. Therefore, the sample used in this analysis was collected manually from an exhaustive analysis of the white papers and websites of the respective projects of ICOs completed by the end of October of 2018.

Firstly, the Coindesk[6] list of ICOs served as basis from the creation of the dataset. The dataset contains a population of 231 ICO that were completed from June of 2017 (first entry) until October of 2018. Due to the asymmetry of information on ICOs world, the information was collected mainly from the white papers and websites, when specific information was not available, the website Icobench.com was used as the third source. Icobench is the main ICO-tracking site and has been used as one of the main reference data by prior studies (Fisch, 2018; Adhami *et al*.2017, Lyandres, 2018). Icobench provides information on the amount raised in the ICO (in USD), the country of origin, sector, platform, ratings, social media presence and end date of the ICOs. Other information has been collected from the ICO-tracking sites (such as company location) as well as from the respective company homepage and other sites. Secondly, additional information has been collected from CoinMarketCap[7], such as the list of all ICOs traded at the time on the main (this info was collected on February 2019). Thirdly, every white paper has been collected from the company website or from ICO-tracking pages. Despite considerable effort, several ICOs had to be excluded. Specifically, ICOs that had missing data observations (25 observations) were eliminated from the dataset. After excluding the above-mentioned observations, the final sample was reduced to 206 ICOs.

4.1.1 Dependent variables

Several proxies have been calculated to examine the determinants of success (unsuccess) ICO: Softcap, Trading, CoinMarketCap Listing (CMC) and Amount funded. These proxies have been used also by prior studies (Adhami *et al.,* 2017; Fisch, 2018; Amsden and Schweizer, 2018; Lyandres *et al.,* 2018).

[6] https://www.coindesk.com/
[7] https://coinmarketcap.com

Specifically, ICOs have been classified as "successful" (or unsuccessful) whether the ICOs:

- reached the minimum funding goal established in the white paper. "Softcap" is the dependent variable that assumes value 1 in case of successful ICOs, 0 otherwise. When the ICO is unsuccessful, sometimes the investor receives a refund;
- has been listed on at least one exchange with the purpose of having a token tradable by investors. Similarly, to Amsden and Schweizer (2018), "Trading" is the dependent variables that assumes value 1 in case of ICOs traded, 0 otherwise;
- has been reported in CoinMarketCap (CMC). Similarly, to Amsden and Schweizer (2018), CMC is the dependent variables that assumes value 1 in case of the related token is traded or futures on the token are listed as traded on CoinMarketCap.com (CMC), 0 otherwise; This is the stricter form of the dependent variable Trading, because it requires sufficient trading volume.

This thesis also investigates the factors that could influence the amount funded (in USD). Following Fisch., (2018) and Amsden and Schweizer (2018) this proxy has been calculated as applied a natural logarithm of total amount funded in USD.

4.1.2. Independent variables

Regarding the independent variables used to control the success of an ICO we follow different proxies from previous studies as Adhami *et al.,* (2017), Fisch, (2018) and Amsden and Schweizer (2018).

So, after considering this, we measure the independent variables as follow:

- 'Token sale (%)'. Percentage of tokens distributed in the ICO.
- 'Token supply'. Natural logarithm of the number of total tokens
- 'Days'. Number of days the ICO lasted.
- 'Length Ws'. Number of white paper pages.
- 'Team size'. Number of team members.
- 'Icobench ratings'. Rating from Icobench.com that span between 0 and 5.
- 'Num crypo'. The number of cryptocurrencies accepted in the ICO.
- 'Continents'. It has been developed a series of dummies for this categorical variable that shows distributions of ICO for: USA, Asia, Europe, the rest of the world.

- ‘Sectors’. In the same way of ‘continents’, it was created dummies for each categorical variable that shows the distribution of ICO by sectors: Smart contracts, Marketplace/Exchange, Finance/fintech, High-tech services, Payment solutions, Media and entertainment, Adult entertainment, investments/VCs/incubators, gambling platform, gaming, advertising and others.
- ‘Token implementation level’. Categorical variable of different types of token implementation, On-chain, Native and Sidechain. It has been developed dummies for each variable.
- ‘Pre’ (Dummy). Dummy variable that equals 1 if the ICO had a pre-ICO, and 0 otherwise.
- ‘Bonus discount’ (Dummy). Dummy variable that equals 1 if the ICO offers a lower price (referral bonus or quantity bonus) for early investors, and 0 otherwise.
- ‘Utility’ (Dummy). Dummy variable that equals 1 if the venture highlights the utility of its token, and 0 if the investment token is highlighted.
- ‘Ethereum’ (Dummy). Dummy variable that equals 1 if the ICO is on the Ethereum blockchain, and 0 otherwise.
- ‘Tax Haven’ (Dummy). Dummy variable that equals 1 if the country is on PWC report of 2019 about Tax haven countries, and 0 otherwise.
- ‘Ico regulation’ (Dummy). Dummy variable equal to 1 for countries and territories that have acted or are acting to regulate Bitcoin, or that have stopped short of regulating bitcoin, but have imposed taxes; it is equal to 0 for countries that have banned Bitcoin, that are undecided in respect of digital currencies or do not regulate bitcoin.
- ‘Voting rights’ (Dummy). Dummy variable that equal to 1 if the token holder has any type of voting rights on the project, and 0 otherwise.
- ‘Team vesting period’ (Dummy). Dummy variable that equal 1 when the team developing the project have not any type of lock-up that forbidden the sale of their own tokens, and 0 otherwise.
- ‘Fixed sales price’ (Dummy). Dummy variable when the price of the tokens on ICO are fixed, and 0 in case of the prices be floating.
- ‘Restriction’ (Dummy). Dummy variable that equal 1 If any type of restriction was imposed on ICO (could be geographical restriction or restriction the sale of tokens to professional/accreditor investors), 0 if an ICO does not have any type of restriction.

- ‘Institutional’ (Dummy). Dummy variable that equals 1 when an ICO presented a private sale preceding the main sale, and 0 when is public pre-sale.
- ‘Token supply growth fixed’ (Dummy). Dummy variable that equal 1 if the total supply of token is fixed, and 0 otherwise.

4.2 Descriptive statistics

The final sample consists of 206 ICOs that were completed from 2017 and 2018 and have raised more than USD 7 billions with an average of USD 30,04 millions, range from USD 0,11 million to USD. 4,1 billion, EOS that was the venture which collect more funds until now, more than USD 4.1 billions in June 2018. The project aimed to provide an alternative to Ethereum, creating a blockchain infrastructure for decentralized apps (Amsden and Schweizer, 2018; Fisc*h,* 2018). Additionally, almost 50% of the projects included in the sample raised $10 million or more.

The Table 1 reports in details the descriptive statistics of the sample, obtained from information available on the Web and official “white papers”. The ICOs geographical distribution (according to the predominant nationality of the team or the project) shows that Singapore accounts the highest number of ICOs 14,6% (30 projects), followed by the United Kingdom 10,2% (21 projects), the United States 9,7% (20), the Switzerland 7,3% (15), 6,3% British Territories[8] (13), and Estonia 5,8% (12). Interestingly, a relevant number of projects have been launched by Singapore and Switzerland, countries that issued specific actions for fintech companies (Adhami *et al.,* 2017). Other projects cannot be attributed to a dominant country of origin given that they adopt a “decentralized governance” mechanism. In the latter cases, ‘Unknown’ the project promoters cooperate online from multiple locations around the world adopting the decentralization approach that is the base of the distributed ledger technologies.

[8] British Territories includes countries as Cayman Island, British Virgin Island and Gibraltar.

Table 1. Initial Coin Offerings' characteristics. Sample of 206 ICOs from June 2017 to October 2018

Country of Origin	**Number**	**%**	**Team Size**
Singapore	30	14,6%	16,9
UK	21	10,2%	15,4
USA	20	9,7%	16,2
Switzerland	15	7,3%	22,9
British Territories	13	6,3%	22
Estonia	12	5,8%	17,7
Russia	10	4,9%	13,8
Unknown	7	3,4%	13,6
Canada	6	2,9%	17,3
China	6	2,9%	19,6
Other	66	32%	16,6
Blockchain technology	**Number**	**%**	**Team Size**
Ethereum	186	90,29%	15,6
Own blockchain	7	3,4%	18,6
Stellar	4	1,94%	14,5
Waves	3	1,46%	11,3
NEO	2	0,97%	9,5
NEM	2	0,97%	9,5
Others	2	0,97%	13,5
Pre type	**Number**	**%**	**Team Size**
Public	105	50,97%	12,9
Private	83	40,29%	19
None/NA	18	8,74%	14,7
Token Implementation level	**Number**	**%**	**Team Size**
On-chain	176	85,44%	15,6
Sidechain	23	11,17%	13,73
Native	7	3,40%	18,57

In our sample, the most popular blockchain-based network, chosen as platform to launch the project, was Ethereum (186 projects, or more than 90% of the sample). This choice might be explained by the fact that Ethereum was created with the purpose of managing "smart contracts," unlike Bitcoin. Instead of Ethereum, others alternative open-source blockchain platforms like Stellar and waves were adopted in (4) and (3) cases respectively, whereas in 7 cases the promoters aimed at developing their own blockchain. In most cases 91,26% (188) ICO projects were collecting money during a Pre-sale, whereas 40,29% (83) cases represent a private pre-sale preceding the main sale. The most common were public pre-sale 50,97% (105) offerings and were supposed to be followed by a more diffused ICO. The sample ICOs aimed to collect money for very heterogeneous types of projects (see Table 2). Not surprisingly, the majority of them refer to the development of new (or existing) blockchains and evolved smart contracts 30,58% (63 ICOs), the inauguration and operation of decentralized marketplaces and digital asset

exchanges 22,33% (46 ICOs), the provision of high tech services on the blockchain (e.g., cloud computing or telecom services) 12,14% (25 ICOs) and the creation of innovative financial services 10,19% (21 cases). Projects that aimed to develop new payment solutions 6,31% (13) and redefine platforms for media and entertainment 3,88% (8) were also found. In 3,4% (7) cases, the ICOs aimed to raise money to be invested in financial securities and funds (comprising venture capital), or to develop startup incubators—some exclusively directed at crypto-investments or green investing.

Table 2. ICO projects by sector. Sample includes 206 ICOs concluded from June 2017 to October 2018.

Sector/Project	Number	%
Smart contracts	63	0,31
Marketplace/exchange	46	0,22
High-tech services	25	0,12
Finance/fintech	21	0,10
Payment solutions	13	0,06
Media and entertainment	8	0,04
Investments/VCs/incubators	7	0,03
Gambling platform	5	0,02
Gaming	4	0,02
Adult entertainment	3	0,01
Advertising	3	0,01
Other	8	0,04
Total	206	100%

As we can state from Table 3. Europe is the continent where more ICOs were developed 48,06% (99), followed by Asia 28,16% (58) and by USA with 9,71% (20). Africa with 6,31% (13), North America with 2,91% (6) and South America with 1,46% (3) ICOs.

Table 3. Distribution of ICOs by continents. Sample includes 206 ICOs concluded from June 2017 to October 2018.

Continents	Number	%
Europe	99	48,06%
Asia	58	28,16%
USA	20	9,71%
Rest of the world	29	14,08%
Total	206	100%

Table 4. Show some distribution about determinants of ICO.

	Yes		No	
Determinants	**N**	**%**	**N**	**%**
Utility	180	87,38%	26	12,62%
Voting Rights	53	26,23%	149	73,30%
Registration needed	182	89,65%	21	10,34%
Bonus discount	154	84,15%	29	15,85%
ICO regulation	196	95,15%	10	4,85%
Tax haven	30	14,56%	176	85,44%
Pre	188	95,43%	9	4,57%
Fixed sales price	172	85,57%	29	14,30%
Token distribution deferrral	40	19,80%	162	81,20%
Total	206	100%	206	100%

Table 4 expose some important determinants present on ICOs. Ventures have been described the token purpose as 'Utility' in 87,38% (180) on white paper. Also, 26,23% of the cases investors granted voting rights when hold their tokens. In the same way, 89,65% (182) of the ICOs require that investors should register online in order to be able to invest. On the other hand, 14,56% (30) of the projects were developed in countries identified as Tax haven. Additionally, during the ICO campaign 84,15% (154) of the ventures have released bonus discounts for early investors of the ICOs require that investors should register online in order to be able to invest.

Regarding the Table 5 it is observed that countries that preceded more ICOs were: Singapore with 14,56% (30 ICOs), UK with 10,19% (21 ICOs), USA with 9,71% (20 ICOs) and Switzerland with 7,28% (15 ICOs) and, together, they have raised more than USD. 1 billion equivalents to 16,59% of the total amount raised on the sample, contrasting with 67,72% (USD 4,75 billion) of Cayman Island that only had 6 ICOs proceeded in their country. Despite the important fact that EOS was released in Cayman Island, it highlights the positive effect of launching an ICO through a tax haven country can have on amount raised.

Table 5. present a distribution of amount funded and number of ICOs by countries.

Country	Number of ICO	% of ICO	Amount Funded	% of Amount Funded
Australia	3	1,46%	23,24	0,33%
Belarus	1	0,49%	7	0,10%
Belgium	1	0,49%	-	-
Belize	2	0,97%	22	0,31%
British Virgin Island	2	0,97%	38,77	0,55%
Bulgaria	2	0,97%	3,3	0,05%
Canada	6	2,91%	72,69	1,04%
Cayman Island	6	2,91%	4749,5	67,72%
China	6	2,91%	60,4	0,86%
Czech Republic	2	0,97%	15,98	0,23%
Estonia	12	5,83%	125,499	1,79%
France	3	1,46%	30,9	0,44%
Georgia	2	0,97%	5	0,07%
Germany	3	1,46%	50,96	0,73%
Gilbraltar	5	2,43%	44	0,63%
Hong Kong	5	2,43%	90,043	1,28%
India	3	1,46%	53,406	0,76%
Israel	2	0,97%	28,74	0,41%
Japan	1	0,49%	40	0,57%
Latvia	2	0,97%	11,148	0,16%
Liechtenstein	1	0,49%	8,7	0,12%
Luxembourg	1	0,49%	4,5	0,06%
Malta	5	2,43%	62,663	0,89%
Mexico	2	0,97%	20,1	0,29%
Netherlands	1	0,49%	8,16	0,12%
Ningeria	1	0,49%	4,6	0,07%
Philippines	1	0,49%	5,5	0,08%
Republic Dominican	1	0,49%	23,9	0,34%
Romania	1	0,49%	0,11	0%
Russia	10	4,85%	56,204	0,80%
Saint Kitts and Nevis	1	0,49%	13,68	0,20%
Seychelles	4	1,94%	27,403	0,39%
Singapore	30	14,56%	360,269	5,14%
Slovenia	2	0,97%	21,68	0,31%
South Africa	2	0,97%	3,156	0,05%
South Korea	4	1,94%	43,05	0,61%
Spain	2	0,97%	68,58	0,98%
Switzerland	15	7,28%	220,88	3,15%
Tanzania	1	0,49%	4,27	0,06%
UK	21	10,19%	280,545	4%
Ukraine	1	0,49%	3,23	0,05%
United Arab Emirates	3	1,46%	34,54	0,49%
Unkown	7	3,40%	62,14	0,89%
USA	20	9,71%	301,52	4,30%
Total	206	100,00	7012,96	100

Table 6. Regression variables: Monovariate statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Dependent variables					
Softcap	136	0	1	0,77	0,42
CMC	206	0	1	0,50	0,50
Trading	206	0	1	0,64	0,48
Amount funded (log)	195	-2	8	2,00	1,31
Independent variables					
ICO regulation	206	0	1	0,95	0,22
Pre	197	0	1	0,95	0,21
Bonus discount	183	0	1	0,84	0,37
Utility	206	0	1	0,87	0,33
Ethereum	206	0	1	0,90	0,30
Voting rights	202	0	1	0,26	0,44
Marketplace/exchange	206	0	1	0,22	0,42
Finance/fintech	206	0	1	0,10	0,30
High-tech services	206	0	1	0,12	0,33
Smart contracts	206	0	1	0,31	0,46
Token sale	204	0,02	1	0,51	0,20
Token suply (log)	201	11,51	27,63	20,18	2,10
Institutional	188	0	1	0,44	0,50
Icobench ratings	179	1,7	4,7	3,55	0,66
Days	201	0	340	43,59	39,93
Num crypto	184	1	12	2,00	1,67
Fixed sales price	201	0	1	0,86	0,35
Tax Haven	206	0	1	0,15	0,35
Team vesting period	206	0	1	0,22	0,41
Sidechain	206	0	1	0,11	0,31
Asia	206	0	1	0,28	0,45
USA	206	0	1	0,10	0,30
Restriction	198	0	1	0,85	0,35
Token supply growth fixed	206	0	1	0,89	0,31
Length Ws	204	6	99	38,10	16,31
Team size	203	2	62	17,19	9,69

5. Analysis and discussion of empirical results

5.1 Models to estimate the success of ICOs

The logit regressions (models A and B) reported below have been run in order to test the hypothesis (H1, A, B, C, H2, H3) and to verify if the amount and quality of the disclosure of specific information can increase the probability of successful ICOs. Specifically both the length of the white paper (H1.A), the disclosure of an Icobench rating (H1.B), the disclosure through the platform Ethereum (H1.C), the creation through smart contracts (H2) as well as the Tax Haven location (H3) have been tested on the

success of ICOs, measured in term of minimum amount required (Softcap), status of ICOs traded in exchanges (Trading), status of ICOs traded in CoinMarketCap (CMC).

Model A allows to test the hypothesis H1, H1.A, H1.B, H1.C and H2, as follows:

$$Logit\ (Softcap) = \alpha + \beta Length\ Ws + \beta Num\ crypto + \beta Bonus\ discount + \beta Utility + \beta Ethereum + \beta Voting\ rigths + \beta Token\ sale + \beta Token\ supply + \beta SInstitutional + + \beta Icobench\ rating + \beta Fixed\ sales\ price + \beta Days + \beta Team\ size + \beta Smart\ contracts + \beta Finance/fintech + \beta Ico\ regulation + \varepsilon$$

$$Logit\ (Trading) = \alpha + \beta Length\ Ws + \beta Bonus\ discount + \beta Utility + \beta Ethereum + \beta Token\ sale + \beta Token\ supply + \beta SInstitutional + \beta Icobench\ rating + \beta Days + \beta Sidechain + Team\ size + \beta Marketplace/exchange + \beta Finance/fintech + \beta High\ Tech\ services + \beta Smart\ contracts + \beta Ico\ regulation\ + \beta Team\ vesting\ period + \varepsilon$$

$$Logit\ (CMC) = \alpha + \beta Length\ Ws + \beta Bonus\ discount + \beta Utility + \beta Ethereum + \beta Token\ sale + \beta Token\ supply + \beta SInstitutional + \beta Icobench\ rating + \beta Days + \beta Sidechain + Team\ size + \beta Marketplace/exchange + \beta Finance/fintech + \beta High\ Tech\ services + \beta Smart\ contracts + \beta Ico\ regulation\ + \beta Team\ vesting\ period + \varepsilon$$

Model B allows to test the hypothesis H3, as follows:

$$Logit\ (Softcap) = \alpha + \beta Length\ Ws + \beta Num\ crypto + \beta Bonus\ discount + \beta Utility + \beta Ethereum + \beta Voting\ rigths + \beta Token\ sale + \beta Token\ supply + \beta SInstitutional + + \beta Icobench\ rating + \beta Fixed\ sales\ price + \beta Days + \beta Team\ size + \beta Smart\ contracts + \beta Finance/fintech + \beta Ico\ regulation + \beta Tax\ Heaven\ + \varepsilon$$

$$Logit\ (Trading) = \alpha + \beta Length\ Ws + \beta Bonus\ discount + \beta Utility + \beta Ethereum + \beta Token\ sale + \beta Token\ supply + \beta SInstitutional + \beta Icobench\ rating + \beta Days + \beta Sidechain + Team\ size + \beta Marketplace/exchange + \beta Finance/fintech + \beta High\ Tech\ services + \beta Smart\ contracts + \beta Ico\ regulation\ + \beta Team\ vesting\ period + \beta Tax\ Heaven\ + \varepsilon$$

$$Logit\ (CMC) = \alpha + \beta Length\ Ws + \beta Bonus\ discount + \beta Utility + \beta Ethereum + \beta Token\ sale + \beta Token\ supply + \beta SInstitutional + \beta Icobench\ rating + \beta Days + \beta Sidechain + Team\ size + \beta Marketplace/exchange + \beta Finance/fintech + \beta High\ Tech\ services + \beta Smart\ contracts + \beta Ico\ regulation\ + \beta Team\ vesting\ period + \beta Tax\ Heaven\ + \varepsilon$$

Moreover, some OLS regressions (models A and B) have been run to test the hypothesis (H1: A, B, C, H2, H3).

Model A allows to verify:

- if the success of ICOs as amount raised is significantly and positively related with the increase in white paper's length and if positively related with the presence of Icobench rating, disclosure on the platform Ethereum (H1, A, B, C);
- if the success of ICOs in term of amount raised is significantly and positively related to the presence of smart contracts.

Model A allows to test the hypothesis H1, H1.A, H1.B, H1.C and H2, as follows:

$$Amount\ Funded = \alpha + \beta Length\ Ws + \beta Bonus\ discount + \beta Utility + \beta Ethereum + \beta Token\ sale + \beta Token\ supply + \beta SInstitutional + \beta Icobench\ rating + \beta Days + \beta Sidechain + \beta Voting\ rights + \beta USA + \beta Asia + \beta Restriction + \beta Token\ supply\ growth\ fixed + \beta Team\ size + \beta Marketplace/exchange + \beta Finance/fintech + \beta High\ Tech\ services + \beta Smart\ contracts + \beta Ico\ regulation\ + \varepsilon$$

Model B allows to verify:

- if the success of ICOs in term of amount raised is significantly and positively related to the launch of ICOs in Tax Haven countries.

Model B allows to test the hypothesis H3, as follows:

$$Amount\ Funded = \alpha + \beta Length\ Ws + \beta Bonus\ discount + \beta Utility + \beta Ethereum + \beta Token\ sale + \beta Token\ supply + \beta SInstitutional + \beta Icobench\ rating + \beta Days + \beta Sidechain + \beta Voting\ rights + \beta USA + \beta Asia + \beta Restriction + \beta Token\ supply\ growth\ fixed + \beta Team\ size + \beta Marketplace/exchange + \beta Finance/fintech + \beta High\ Tech\ services + \beta Smart\ contracts + \beta Ico\ regulation\ + \beta Tax\ Heaven\ + \varepsilon$$

5.2 Results

Table 7 reports the analysis of determinants on successful ICOs measured as probability of achieving the minimum amount of money necessary to launch an ICO (Softcap). In the model A column, *'Bonus discount'* and '*Fixed sales price'* are both positive and statistically significant (p-value < 5%). Both '*Institutional*' and '*Num crypto*' are negative and statistically significant (p-value < 5%) and (p-value < 10%)

respectively. Regarding Hypothesis H1, A, B and C only '*Ethereum*' is not statistically different from zero. Both '*Length Ws'* and '*Icobench ratings'* have positive coefficients and are significant at 90% and 95% respectively, demonstrating a. positive affect of H1A and H1B on "success" of ICO. Further, *'smart contracts'* is positive and statistically different from zero (p-value < 5%) emphasizing the positive effect of hypothesis 2 on "success" of ICO. Contrary to Adhami *et al*., 2017, in our model proceeding a Pre-sale, promising profit rights to investors and highlighting the jurisdiction of reference for the ICO do not have any relation with the probability of an ICO to reach the Softcap. With respect to model B, after adding the variable '*Tax haven'* to the model A, the same variables continue to be significant, but we concluded that hypothesis 3 does not impact on the success of ICO.

Table 7. Logit regression with Softcap as dependent variable. Logit regression results. Standard errors in parenthesis. *, **, and *** = significantly different from zero at the 90%, 95%, and 99% levels.

Softcap	**Model A**		**Model B**	
Variables	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
ICO regulation	24,632	28179,48	24,635	28191,25
Bonus discount	1,98**	0,95	1,98**	0,95
Utility	1,142	0,94	1,143	0,94
Ethereum	0,816	1,00	0,816	1,00
Voting rights	0,761	0,85	0,761	0,86
Finance/fintech	-1,361	1,02	-1,362	1,02
Smart contracts	1,883**	0,91	1,883**	0,91
Lenght Ws	0,045*	0,03	0,045*	0,03
Token sale	1,636	1,91	1,636	1,91
Token supply	0,279	0,18	0,28	0,18
Institutional	-1,872**	0,77	-1,873**	0,77
Icobench ratings	1,113**	0,53	1,112**	0,53
Fixed sales price	2,28**	1,03	2,281**	1,05
Days	0,003	0,01	0,003	0,01
Num crypto	-0,391*	0,23	-0,392*	0,24
Team size	0,046	0,04	0,046	0,04
Tax Haven			-0,005	0,89
Constant	-40,161	28179,48	-40,166	28191,25
Pseudo R2	49,10%		49,10%	
Wald Chi2	24,865		24,865	

When tested a different set of variables on dependent variable: '*Trading*', we can demonstrate from Table 8 a negative and statistically effect of '*Token sale'* at 95% and,

a positive and statistically different from zero both on '*Token supply'* and '*Team vesting period*' at 99% and 90% correspondent. Hypothesis 1 A, B and hypothesis 2 seem not to affect the likelihood of success. Although, hypothesis 1 C has a positive coefficient and is statistically significant at 95% on model A. Regarding the Model B, when we add the variable '*Tax haven'*, Hypothesis H1 C is not significant, so the information disclosed does not affect the "success" on '*Trading*'. Despite hypothesis 1 and 2 not being significant, the '*Tax haven'* is positive and statistically different from zero (p-value<90%), thus hypothesis 3 has impact on the probability of having a token traded at least on one exchange. When comparing with Amsden and Schweizer2018, we can state that '*Token sale'* is in order with our results as well as '*Token supply'*, for the other hand, they have concluded also that having a presence on Github, Telegram and proceeding a Bonus have a positive impact on "success.

Table 8. Logit regression with Trading as dependent variable. Logit regression results. Standard errors in parenthesis. *, **, and *** = significantly different from zero at the 90%, 95%, and 99% levels.

Trading	**Model A**		**Model B**	
Variables	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
Bonus discount	-0,845	0,71	-0,816	0,72
ICO regulation	-20,057	15105,56	-20,174	15151,28
Length Ws	-0,215	0,49	-0,222	0,50
Team size	0,498	0,89	0,599	0,92
Utility	-1,043	0,70	-0,947	0,70
Token sale	-2,416**	1,19	-2,498**	1,20
Ethereum	1,231*	0,71	1,031	0,72
Marketplace/exchange	0,047	0,59	0,191	0,60
Finance/fintech	-0,887	0,74	-0,873	0,77
High-tech services	0,76	0,82	0,82	0,84
Smart contracts	-0,128	0,57	-0,166	0,58
Token supply	0,317***	0,12	0,336***	0,12
Team vesting period	0,918*	0,53	0,956*	0,54
Icobench ratings	-0,371	0,33	-0,381	0,33
Days	-0,006	0,01	-0,005	0,01
Institutional	0,066	0,44	-0,056	0,46
Sidechain	0,53	0,94	0,689	0,97
Tax Haven			1,218*	0,67
Constant	17,773	15105,56	17,357	15151,28
Pseudo R2	29,80%		32,60%	
Wald Chi2	12,523		12,523	

On Table 9 we can empathize the positive and statistically significance of '*Utility*', '*Token supply'* and '*Team vesting period'* all of them with (p-value<10%). Further, '*Finance/fintech'* '*Token sale'* and '*Days'* were negative and statistical different from zero at 90%. Related to hypothesis, unfortunately, we cannot confirm both H1, A, B and H2 when success is measured with CMC which token is traded or futures on the token are listed as traded on CoinMarketCap. Instead, the coefficient of '*Ethereum*' is positive and statically different from zero at 95%, thus highlight the importance of launching an ICO through Ethereum blockchain can have influence on "success". Although, when we consider the model B the variable '*Tax Haven'* is not statistically different from zero so we concluded that H3 does not affect the probability of "success". Despite the decrease of significance on the variable '*Ethereum*', this coefficient continues to be positive and statistically significant (p-value<90%), thus we accept the hypothesis 1C. This result is aligned with some proxies of the Amden *et al*., 2018 such as '*Token sale'* and '*Token supply'*.

Table 9. Logit regression with CMC as dependent variable. Logit regression results. Standard errors in parenthesis. *, **, and *** = significantly different from zero at the 90%, 95%, and 99% levels.

CMC	**Model A**		**Model B**	
Variables	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
Bonus discount	-0,244	0,62	-0,234	0,62
ICO regulation	-0,592	1,22	-0,686	1,22
Lenght Ws	-0,336	0,49	-0,309	0,50
Team size	1,13	0,88	1,167	0,89
Utility	1,337*	0,78	1,345*	0,78
Token sale	-2,136*	1,20	-2,199*	1,21
Ethereum	1,928**	0,94	1,78*	0,95
Marketplace/exchange	-0,141	0,59	-0,026	0,60
Finance/fintech	-1,535*	0,81	-1,546*	0,82
High-tech services	-0,09	0,75	-0,088	0,77
Smart contracts	0,255	0,57	0,253	0,57
Token supply	0,189*	0,11	0,196*	0,11
Team vesting period	0,878*	0,51	0,89*	0,51
Icobench ratings	-0,112	0,32	-0,098	0,32
Days	-0,014*	0,01	-0,012*	0,01
Institutional	-0,233	0,43	-0,318	0,44
Sidechain	0,923	0,85	1,067	0,87
Tax Haven			0,75	0,59
Constant	-4,175	3,79	-4,421	3,84
Pseudo R2	35,50%		36,60%	
Wald Chi2	0,063		0,063	

Table 10. shows the effects on determinants of successful ICOs measured as amount raised (OLS regressions have been run). As we can see on model A of Table 10 the coefficient of the variable '*Asia*', '*USA*', '*Team size'*, '*Token supply growth fixed'* and '*Sidechain*' are all positive and statistically significant at 90%. '*Marketplace/exchange'* and *'Restriction'* are negative and statically significant both with (p-value<5%). The coefficient of *'Token supply'* and '*Token sale'* are both positive and statistically different from zero (p-value<95%). This result is in line with (Fisch, 2018) and Amsden and Schweizer 2018 that have stated positive and significant effect of token supply on the amount funded. Additionally, similarly to prior studies (Fisch, 2018) we found that a negative and statistically significant effect of the variable Days that measure the number of days since the ICO was launched (for both models A and B, p<0.10) This means that the amount of funds is raised in a short period. Moreover, It Is possible to confirm the positive and significant effect of the *'Icobench rating'* (p<0.10), H1 B is confirmed. Compared with previous models, in relation with the amount raised a negative effect of Smart contract has been found. Model B of table 11 shows that *´Tax haven'* is positive and highly significant at 99% so we accept the hypothesis 3. Also, on model B the coefficient of '*Institutional*' is negative and statistical different from zero at 95% and the variable '*Restriction*' is negative and highly significant at 99%. Both results show the importance of a venture open the token sale for the public without restrict someone to invest.

Table 10. OLS regression analysis on the determinants of the amount raised in ICOs (dependent variable = amount raised (log)).

Amount Funded	**Model A**		**Model B**	
Variables	**Coeff.**	**t**	**Coeff.**	**t**
Ethereum	0,44	1,120	0,241	0,621
Bonus discount	0,25	0,681	0,318	0,887
Institutional	-0,28	-1,218	-0,38*	-1,643
Utility	0,45	1,329	0,474	1,438
Voting rights	0,29	1,210	0,258	1,085
Token sale	1,296**	2,006	1,203*	1,901
Token supply	0,117**	2,079	0,127**	2,295
Days	-0,01*	-1,901	-0,007*	-1,757
Sidechain	0,723*	1,652	0,856**	1,987
Lenght Ws	0,14	0,541	0,176	0,696
Icobench ratings	0,288*	1,725	0,29*	1,776
Restriction	-0,8**	-2,212	-0,961***	-2,667
Token sypply growth fixed	0,712*	1,934	0,841**	2,316
Team size	0,736*	1,664	0,738*	1,706
USA	0,781*	1,664	0,965**	2,077
Asia	0,423*	1,645	0,395	1,570
Marketplace/exchange	-0,715**	-2,176	-0,628**	-1,945
Finance/fintech	-0,08	-0,200	-0,107	-0,263
High-tech services	-0,53	-1,349	-0,528	-1,385
Smart contracts	-0,501*	-1,666	-0,515*	-1,750
ICO regulation	-0,20	-0,305	-0,352	-0,552
Tax Haven			0,748***	2,501
Constant	-3,769	-1,817	-3,908	-1,927
R square	29,40%		33,20%	
Adjusted R2	16,20%		19,90%	

6. Conclusions and Limitations and future research

This research examines the characteristics of the new method of fundraising, where crypto assets are offered through the internet to potential investors in exchange for rights inherent to a future project or existing one. This paper addressed the question of which determinants influence a successful ICO. Information asymmetry, lack of regulation on cryptocurrencies and ICOs are the critical challenges on the future of these innovative funding mechanism. Although, despite these challenges and their novelty, the ICO success rate is high (51,20%). Considering the big question of whether the token purpose represent a utility or a security, in the majority of campaign the ventures stated that the issued token represents a utility (87,38%).

After analyzed our multiple regressions we conclude that characteristic that influence the success of an ICO change with the different dependent variables. So, considering our Hypotheses 1, the Length of white paper, rating of icobench website and smart contracts counts positively for a venture reach the Softcap, thus we accepted the hypotheses H1A, B and H2. Regarding the Amount Funded it has been concluded that launching an ICO in a tax haven country gives more probability of "success". Also, as regards 'Trading', H1C was accepted considering that developing an ICO through Ethereum platform has more probability of have a token tradable on an exchange, as like in 'CMC'. This last conclusion may see a little obviously because Ethereum is the second biggest cryptocurrency in terms of capital market, responsible from the grow of number of ICOs and had make the process of conduct a token sale easily with the leveraging of smart contracts and standards like ERC-20 or ERC-223. Also, despite the fact that the variable '*Ico regulation'* does not seem to have so much influence on success of ICO, countries that are typically referred as Tax haven seem to have influence also on having a token listed at least in one exchange and highly impact on the amount raised. Despite the fact that hypothesis 2 (Smart contracts) has a positive effect on a token sale to reach the minimum of amount requested (Softcap), this type of sector seem to negatively affect the amount funded.

When considering some limitation of this study, first of all we underline limitations coming from the sample size that might impact the generalizability of our

results. As regards the quality of information, both the heterogeneity of the disclosed information and, in some cases, the persistence of scams on ICO market, have hampered the task of gathering information, validating and take pertinent conclusions. To address these issues, we believe that, in order to reduce the information asymmetry, improvements in terms of quality of information disclosed are of primary importance. The development of a legislative framework, the requirement of being registered and/or an audit for the ICO projects will definitely help. However, considering the global scale that these token sales can take and the characteristics of some cryptocurrencies (that work outside of the traditional financial system, and also in anonymity) these challenges seem to require a cooperative work, with contributions coming from different jurisdictions. This will allow to find a way to both protect investors rights and, at the same time, control the exchanges responsible for the grow of this unregulated market. It is also worth mentioning that ICO have many advantages so, it is important to take into consideration both the weaknesses and the strength of this method of fundraising, before applying too heavy regulations that could prevent innovation. In terms of recommendation for future work on the determinants that influence ICOs success, we believe that is important to understand the impact of Ethereum and Bitcoin, but also the role that the main sources of information such as whitepaper, tracking-ICO-lists, code-source (open-source blockchain) and Github.

Appendix A – Correlation matrix of main determinants that affect the success of an ICO.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Softcap	1																		
Trading	-0,067	1																	
CMC	0,013	,742**	1																
Amount Funded (log)	,348**	0,108	,157*	1															
ICO regulation	,276**	-,169*	-,183**	-0,044	1														
Pre	-0,012	-0,059	-0,025	-0,099	-0,048	1													
Bonus discount	0,1	-0,108	-0,057	-0,098	0,109	,260**	1												
Utility	0,15	0,02	,172*	0,109	-0,086	-0,01	0,009	1											
Ethereum	0,162	0,062	0,095	-0,003	0,002	-0,067	-0,134	0,023	1										
Finance/fintech	-0,062	-0,049	-0,077	0,029	0,076	-0,007	0,008	0,08	0,002	1									
Smart contracts	,235**	0,08	,143*	0,037	-0,046	0,039	0,033	0,03	-0,067	-,224**	1								
Length Ws	0,106	0,133	0,135	0,087	-0,053	0,082	-0,112	0,085	,145*	0,089	0,041	1							
Token sale	-0,035	-,206**	-,283**	-0,012	,161*	0,115	0,103	-,242**	-0,073	0,019	-0,012	-,160*	1						
Token Supply	-0,027	-0,072	-0,044	0,008	0,008	0,02	0,043	0,026	0,018	-0,03	-0,025	0,016	-,159*	1					
Institutional	-0,105	,147*	,170*	0,039	-0,052	.[c]	-0,084	0,115	-0,093	-0,049	0,125	0,095	-,201**	0,121	1				
Icobench ratings	,202*	-0,003	0,06	0,097	-0,01	0,013	-0,134	0,001	0,009	-0,033	-0,02	-0,035	-,171*	-0,044	-0,069	1			
Days	-0,09	-0,135	-,187**	0,039	0,097	0,037	,159*	-0,115	-,166*	,156*	-0,053	-0,137	,345**	-0,057	-,294**	-0,024	1		
Team size	0,009	,142*	,188**	0,128	-,187**	0,029	0,011	0,017	0,097	-0,07	0,066	,226**	-0,047	0,098	,145*	-0,039	-,153*	1	
Tax Haven	0,077	0,108	0,059	,192**	0,093	0,091	0,036	-0,009	0,042	-0,048	0,084	-0,045	0,119	-0,042	0,095	0,019	0,039	0,024	1

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