

Govinda Shrestha

**FACTORS AFFECTING SUCCESS OF
INITIAL COIN OFFERINGS (ICOS)**



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ABSTRACT

Shrestha, Govinda

Factors Affecting Success of Initial Coin Offerings (ICOs)

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Supervisor(s): Laatikainen, Gabriella & Pekka, Abrahamsson

Initial Coin Offering (ICO) has been popular amongst entrepreneurs interested in the field of blockchain as a prime way of collecting investment for their ventures. Hundreds of ICOs are launched every year based on different blockchain technologies trying to contribute several different ideas in the field of blockchain industry however, only few of them are able to collect minimum investment required, often termed as Softcap, for starting their project while most of them fail. Likewise, among the successful ones very few are able to reach their maximum target, often termed as Hardcap. The success of an ICO is affected by various factors. The objective of this thesis is to test existence of relationship between ratings provided by experts based on team, product, vision and social activities of ICO and the success of the ICO, considering expert ratings to be one of the success factors.

For the purpose of thesis, the ratings provided by experts on ICOs based on ICO characteristics and social activities (independent variables) were collected from different ICO listing websites along with the amount collected by them (dependent variables). Different regression models implemented in thesis established the fact that there exists a statistically significant association between the aggregate ratings of the ICOs and the percentage of amount collected by them, and thus, the aggregate ratings available in ICO listings sites can be used as an indicator for ICO success. This thesis concludes that ICO entrepreneurs prior conducting an ICO should have a well-organized qualified team with expertise and experienced in relevant field with clear vision and strategy and should be focused in proper product development that is actually able to solve real-world problems. Also, they should not hesitate to provide information about themselves and their project in detail in their whitepapers and provide regular updates about their project in different social media platform. Likewise, from investors point of view, based on the findings of the thesis, it is advised that it would be wise to go through the experts' ratings for ICOs available in different ICO listing platform however it would be profitable to gather as much information as possible about any ICO prior the investment and not rely on experts' rating completely.

Keywords: ICO, blockchain, Bitcoin, Ethereum, Pre-ICO, Post-ICO, Hardcap, Softcap, white paper, ERC20, cryptocurrency, token sales, distributed ledger technology (DLT)

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1 INTRODUCTION

Until the introduction of blockchain technology, Venture Capitalists (VCs) and Angel Investors were the main investors for startups and entrepreneurs at their early stages of their ventures. Initial Coin Offerings (ICOs) are one of the most prominent applications of blockchain technology for financing which consists of creation and distribution of digital tokens by small and medium-sized companies (SMEs) in exchange for fiat currency or the most popular cryptocurrencies like Bitcoin and Ethereum (OECD, 2019).

Blockchain is the technology introduced by Satoshi Nakamoto in 2008 with his paper titled "Bitcoin: A Peer-To-Peer Electronic Cash System" where he described blockchain as a new mechanism of exchanging electronic cash from one party to another directly without a need of middleman (Nakamoto, 2008). Most of the ventures and projects which implement ICOs for raising their investment are based on the blockchain technology.

Blockchain can be seen as a distributed database that is able to maintain continuous and growing list of records that are linked to each other (Laatikainen et al. 2020a). Blockchain technology, in past few years, has grown widely and has become one of the most important innovations of modern times as claimed by Zhang et al. (2019). A research conducted by one of the leading market research resource, Research and Markets predicted that with the growth in blockchain based enterprise applications, the annual revenue for blockchain based enterprise applications may reach \$19.9b by 2025 from \$2.5b worldwide in 2016, which is an estimated compounded annual growth of around 26.2% (Econotimes, 2016). The blockchain is an emerging technology (Lansiti & Lakhani, 2017) and has been growing due to its potentials and intrinsic characteristics like transparency, robustness, auditability, and the security (Greenspan, 2015a; Christidis & Devetsikiotis, 2016). It ascertains users with security and valid storage of data by implementing an additional layer of security throughout the time.

Bitcoin is the first ever digital currency based on blockchain technology introduced by Satoshi Nakamoto (Frankenfield, 2021) whereas the first ICO was launched in the month of July 2013 by Mastercoin which is also a digital coin

built on Bitcoin's blockchain (Shin, 2017). Following success and with the motivation of raising funds for ventures, recently, ICO has become very popular and everyday numbers of ICO projects are being launched in different ICO platforms. As per report by CoinSchedule, a combined fund of around \$6.2bn was raised by 366 ICOs in 2017 alone which increased to \$7.8bn in the first quarter of 2018 which accounted for only 254 ICOs (Fisch, 2018).

Although hundreds of ICOs are listed in various ICO listing platforms every year and are able to raise multi billion dollars of funds from investors, not each of the ICOs launched in the market are able to raise funds as expected. In fact, very few of them are able to reach their targeted minimum investment whereas most of them are not even able to reach their minimum target either. As such, there could be various factors that could be the reason for investors to invest in certain ICO ventures however not everything is known so far.

There have not been many studies conducted in order to determine the factors that could possibly act as influencing factors for ICOs to raise their investment and reach their goal. However, the leading studies made in this field have focused only in factors like whitepapers (Adhami et al., 2018, Fisch 2018; Amsden & Schweizer, 2018), jurisdiction of ICO projects (Adhami et al., 2018; Amsden & Schweizer, 2018), code availability of the project (Howell, 2018; Adhami et al., 2018), type of team and team members and the technology used in the project (Howell, 2018; Amsden & Schweizer, 2018). These findings somehow are different from those of Baum and Silverman (2004), where they consider human capital, social (alliance) capital and intellectual capital to be the most important three factors that investors may consider to assess the goodness and quality of a project.

There are many features that most of the ICO ventures have in common, one of them being developing applications on the existing Ethereum platform (ERC20 token). It is seen that a big number of the ICO projects is based on the ERC20 platform however there are also some ICOs that implement different blockchain technologies while some use blockchain of their own. Likewise, ICO ventures have team members with different expertise, but the number of team members and the expertise are usually different for different ICO ventures. Similarly, the objective and targeted problem to be solved of ICO ventures are usually different for different ICO ventures.

There are several online platforms where new ICO projects are launched. These platforms are usually websites that also list the information about ICOs, while some of them also keep track of the ICOs activities. Icobench.com, icorating.com, icomarks.com and icodrops.com, are some of the most popular listing platforms. Many of these websites also have ratings systems for each ICO project based on various factors of the ICO venture like their goal, roadmap, targeted milestones, proposed products, size of team, team members, whitepapers, targeted amount to be raised and business model. These websites have volunteering experts in ICOs and relevant fields responsible for rating ICOs based on those various features and factors. It is assumed that these ratings could be one of the influencing factors for inves-

tors. As the quality whitepaper has a positive effect in raising investment from investors (Schweizer & Amsden, 2018), there could also be some effect of such ratings provided by ICO-platforms over the fund raising process of the ICOs. In general, experts working for those websites rate higher for those ICO projects which seem promising and trustworthy based on information available in public domain about their scope, business models, minimal viable product (MVP), future targets, whitepapers and team involved in the project whereas the rating is usually low for those which are not promising and could possibly be scam. Since the ratings are generally done by experts in the field of ICO and people having good experience in relevant fields, investors' sentiments are generally affected by such ratings which can be seen as a result of the amount the ICOs raised.

Earlier researches were focused on finding out the factors affecting the ICOs to raise investment however the rankings provided by such ICO-listing platforms have not been considered as an affecting factor in raising the investment. Therefore, this thesis is focused on to study the impact of these ratings over investors and find out if there exist any kind of statistically significant association between these ratings and the success of ICOs by hypothesizing these ratings as one of the success factors of ICOs and the existence of positive and significant relationship between them.

1.1 Objective

The main objective of this thesis is to determine if the ratings of ICOs available on different listing websites can be seen as one of the factors that could affect the investment an ICO receives throughout the ICO period, based on the data available in various ICO listing platform and research literatures available in this domain and not focused to study on -how to lead a successful ICO but help investors and stakeholders to understand factors of an ICO to be looked upon prior investment in one hand on other also help ICO ventures to help focus on the factors that could be helpful for them to target and attract potential investors.

Also, the objective of this thesis is to try to understand whether presence of ICOs on different social media can influence investors and experts and find out if it has any impact on the fund raising process.

1.2 Thesis Structure

The thesis hereafter will be divided into following sections. Section 2 reviews about the success factors listed in different research literatures available in this domain as well as introduction to key concepts and terms being used in the paper followed by development of hypotheses to be used in thesis in Section 3.

The 4th section contains description about the methodologies being used for research along with description of variables and various factors to be assessed which is followed by discussion of empirical results of the data analysis in section 5. The section 6 will be discussing and analysis about the findings of results from section 5. And finally section 7 will conclude the thesis with findings.

2 LITERATURE REVIEW

This section consists of two sub-sections. The first section contains introduction to various key concepts, terms related to ICOs used in this thesis whereas the second part contains the reviews made by different literatures available in this domain about the impact factors of success for ICO.

Although the term blockchain technology has been introduced about a decade ago ICO and ICO phenomena are relatively new and hence limited number of research articles and papers are available focusing on the factors leading for an ICO to reach its targeted investment.

2.1 Background and key concepts

Laatikainen et al. (2020) claim that, "The emergence of blockchain technologies disrupt industries by enabling decentralized and transactional data sharing across a network of untrusted participants, among others". It provides a decentralized environment and helps in value creation by replacing the central body of controlling and recording used in traditional system by a) "smart contracts" which are a self-executing digital contracts and b) "smart properties" which are the assets that can be controlled via the internet (Laatikainen et al., 2020). This potential of blockchain technology has played a vital role in the emergence of a new and unregulated fundraising model, called Initial Coin Offerings (ICOs). In order to understand ICO better, a clear understanding of blockchain technology and its implementation is required.

2.1.1 Blockchain

The core concept of Initial coin offerings is based on the blockchain technology. The blockchain technology was the brainchild of pseudonymous developer, Satoshi Nakamoto. He introduced the concept of blockchain technology and first ever cryptocurrency called Bitcoin in his paper "Bitcoin: A Peer-to-Peer

Electronic Cash System" in 2008. Nakamoto described blockchain as "a revolutionary technology to create a genuine decentralized peer-to-peer monetary system". Furthermore, he explains blockchain as "a purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution" (Nakamoto, 2008). Based on the definition provided by Nakamoto, blockchain can be described as a mechanism by which financial as well as non-financial transactions or digital assets can be completed without the need of any centralized architectures or third parties for verification by implementing decentralized way of verification with the same level of certainty.

In other words, a blockchain can be considered as a distributed database that has been organized in the form of ordered and committed blocks that are immutable in nature (Casino et al., 2019). The distributed database, commonly known as distributed ledger, is usually managed by a peer-to-peer network (Buterin, 2014; Nakamoto, 2008) and transactions are recorded in the form of linked blocks that are connected to each other in the form of a chain. And once a transaction is completed, it is recorded into a new block. This block which when is filled up gets chained to the previous block once it gets filled up which causes data to be chained in chronological order. It is a decentralized mechanism therefore, no individual person or a group has control over it like in the traditional system but all the users in the network control it in a collective way.

Bitcoin is the first real-world application implementing the blockchain technology that uses blockchain to keep records of payments and also maintains transparency (Conway L. 2020). Bitcoin being built over blockchain technology was the first one to tokenize and decentralize money and has led to disruptions in financial markets (Larios-Hernández, 2017). The first ever commercial use of Bitcoin was recorded when Laszlo Hanyecz used Bitcoin for payment of two pizzas in 2010 where Laszlo paid 10,000 Bitcoins (Bort, 2014) which is about \$ 5 million with present value of Bitcoin in cryptocurrency market. At present, according to leading website in cryptocurrency listing and trading platform called CoinMarketCap, more than 11,500 cryptocurrencies are available in the market which accounts for more than \$2.12 Trillion and Bitcoin being the biggest of them all accounting for about \$ 893 Billion which is more than 42% of total market capital being invested in the crypto market.

2.1.2 Blockchain Architecture

Blockchain technology can be explained in simplified form with the help of an illustration as shown in Figure 1, which depicts simple blockchain architecture. The architecture consists of blocks in a chain containing records of transactions distributed in a decentralized way and is accessible to all users of the chain. Each block in the chain consists of mainly two sections: header keeping information about the block, timestamp, a cryptographic hash to identify previous blocks and the body, responsible for holding records of all valid trans-

actions with a counter. The number of transactions a block can hold is limited by the size of the block and the size of individual transactions. Whenever a new transaction occurs, it is validated and recorded in a new block which proceeds to one existing in the chain (Ghosh, 2019).

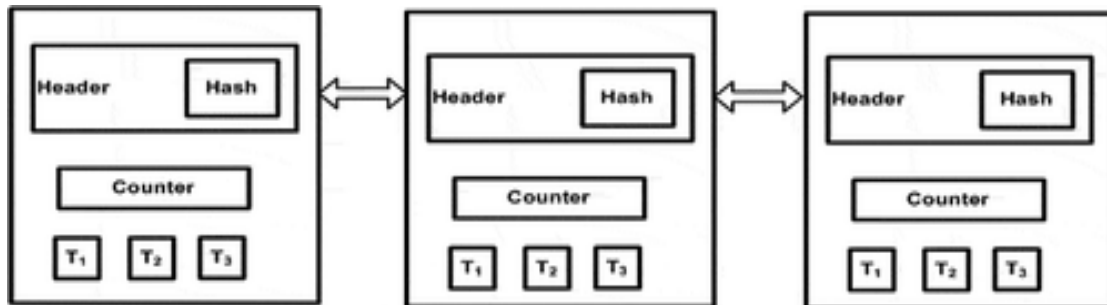


FIGURE 1 Simple blockchain architecture (Ghosh, 2019)

Each block consist information about its own hash and one preceding it. The hash is unique and is used for identification of the block and its contents, and acts like a fingerprint. Whenever a block is created, a hash is generated for the particular block which changes whenever data inside the block is changed which becomes useful for detecting changes made to the block. Every time hash changes, the block is no longer the same block. So whenever change occurs in one block, it will invalidate the following blocks. However, since modern computers can generate large number of hashes in seconds, using hash is not enough to prevent the block from being tampered. Therefore, blockchain also implements proof of work which is a mechanism to slow down the creation of new blocks which makes it difficult for tampering the blocks as one has to recalculate the proof of work for all the blocks in order to tamper one which makes it difficult and time consuming (Cherednichenko, 2020). Similarly, blockchain architecture implements distributed mechanisms to ensure security instead of central entity. It uses distributed peer-to-peer (P2P) network and allows anyone to join the network such that whenever one joins to the network, they become a node and part of the network and get full copy of the blockchain. This information is used to by node to verify and ensure everything is in order.

The key built-in features of blockchain architecture are (Cherednichenko, 2020):

- Blockchain is immutable i.e. data recorded in blockchain cannot be easily modified or deleted.
- Blockchain transactions are secured since the transactions are verified by complex computations along with cryptographic proofs.
- Blockchain architecture is decentralized and hence every node in the architecture can access the entire distributed database and the whole network is managed by consensus algorithm

- Each member on the blockchain network is anonymous as they don't have any user ID but generated addresses.
- Each transaction occurring in the network is verified and is traceable till the origin of the transaction, thus making it transparent.

2.1.3 Benefits and challenges of blockchain

Chen (2018) suggests that blockchain can be used for executing and keeping record of financial transactions since blockchain has characteristics that enable transactions to be validated through complex computations and then recorded as a block in a peer-to-peer network in the most secure, permanent and irreversible way.

Conway (2020) supports Chen (2018) and argues that since data recorded in blockchain are immutable in nature, any number of data points could be used for other fields like voting in democratic elections as fraudulent voting would be more difficult to occur if blockchain is implemented. Conway (2020) adds to his claim that blockchain can be helpful in reducing cost required for verification of transaction manually or by third-party with improved accuracy and by virtue of decentralization; it adds more transparency, and also makes tracking of any data easier in one side while on other makes the tampering of data to be harder. This ultimately helps in building trust in the system among the members as verification of transaction records can be done easily as well as ensures the irreversibility and permanency of the record.

With due course of time, after the introduction of the first cryptocurrency based on blockchain technology there has been many updates in this field due to which tokenization of assets and money has become possible (Tapscott, 2016). Realizing this potential, a general-purpose platform was initiated with name "Ethereum" with a purpose of creating decentralized applications and digital token (Buterin, 2014) which enabled developers to tokenize other assets along with money which therefore helped in initiating tokenizing of projects and selling the tokens to accumulate funds (Chen, 2018) which marked the initiation of ICO.

Zhao et al. (2016) claims blockchain to be the most exhilarating invention after the invention of the Internet realizing its potential to be a "frontier of venture capitals that has attracted the attention of banks, governments, and other business corporations". At present, many big companies are interested in making investment in blockchain technology and are already doing it as they see the possibility of making their architectures decentralized and potential to minimize the cost of transactions as the whole process has become safer, with transparency and speed (Casino et al., 2019).

International Finance Corporation claims that blockchain could be used in a wide spectrum of transactions and has the potential to transform virtually all the facets of the global economy including financial, energy sectors and supply chains however, there exists some concerns about the trustworthiness of the systems between international finance systems due to anonymity about the ac-

cess of the data in the work in spite of proper verification of recorded transaction into blocks (IFC, World Bank, 2018). Another challenge regarding blockchain is that, although it can be used in replacing the need of intermediaries in transactions, it is limited to transactions where there only exist crypto-assets like cryptocurrency which can be verified without need of intermediary, but in real world intermediary is required for verification for real-world physical assets in order to ensure the existence of the asset and the verify the condition it. Mathew Saal (Head of Digital Finance, IFC) argues that with blockchain being at its initial development phase, beyond cryptocurrencies, DLT does not actually dispense with trusted third parties.

2.2 Initial Coin Offerings (ICOs)

Initial Coin Offering (ICO) is a form of crowd funding based on blockchain technology used by start-ups to raise capital for their projects. With ICOs, the ventures raise investment by distributing digital assets like coins and tokens to investors (Fisch, 2018) in exchange for capital. Introduction of ICOs have dramatically changed the process of investment by allowing anyone residing in any part of world to invest in any startup formed by members residing in different parts of the world (Boreiko & Sahdev, 2018). Tokens used during the ICOs are basically cryptographically protected digital assets developed based on blockchain, which is novel approach of recording data and transmitting it across a network in an immutable manner (Li & Mann, 2018) for which ICOs have been considered as novel form of crowd funding which has enabled huge number of businesses implementing blockchain to raise billions of dollars (Laatikainen et al., 2020).

Realizing the potential of the blockchain technology and Bitcoin, J.R Willet drafted the project for the first ever ICO named Mastercoin in 2012 and released it as a whitepaper titled "The Second Bitcoin Whitepaper". Willet, in his draft, realized that by using existing Bitcoin at the foundation new currency layers could be developed with new procedures (Alam, 2018). Willet (2012) further claimed his MasterCoins protocol intended to be a base upon which others can develop their own currency as he claimed his protocol could act as an interface between the existing bitcoin protocol and users' currency.

Although Mastercoin was built on the blockchain of the Bitcoin network, Ethereum later introduced "smart contract" protocol in 2014 which was able to calculate funds raised automatically, and also distribute new tokens after completion of crowdsale. Ethereum has also eased the process of creating new derivative tokens and platforms. Houben & Snyers (2018) define smart contracts as "*self-executing contracts or applications that are able to run exactly as programmed without any possibility of downtime (i.e. the blockchain is never down), censorship, and fraud or third-party interference*". Ethereum has eased the process of ICO and hence most ICOs at present prefer Ethereum blockchain over Bitcoin

blockchain or any other and have been using ERC-20 tokens (Cryptopedia, 2021).

At present, due to the presence of blockchain and technologies based on blockchain, ICO has become a popular and easy way for entrepreneurs to find investors and arrange funds for their projects. One of the reason for the popularity of ICOS can be accounted for the empowerment it has brought among entrepreneurs to attract financiers from all over the world with no limitation of local financial system and no need of selling their larger share to venture capitalists (Boreiko & Sahdev, 2018). Also many online platforms have provided their platform to launch ICOs due to which any startups or company interested to create new product, coin or app, or looking to deliver new services can launch ICO in those platforms and find potential investors that would be interested to invest into such projects by making payment possible with fiat currency as well as popular digital tokens like ether, bitcoin, litecoin and many others. Investors receive new cryptocurrency token specific to the ICO distributed by the smart contract and if ICO fails to reach their target, the amount is returned to the investors (Iyer, 2018).

2.2.1 Tokens and Token Types

The tokens are digital assets issued by companies usually at their initial phase in exchange of the investment from investors which give certain rights to the investor like right to use the platform service being developed or ownership right. Also they can be exchanged for other crypto-assets or fiat currencies in secondary market (Farooq et al., 2020). Schweizer & Amsden (2018) explain tokens as “a coin refers to a standalone cryptocurrency functioning on its own blockchain (platform) and a token refers to a cryptocurrency that requires the usage of a separate coin blockchain in order to operate.” In simple words, tokens are basically value or digital asset investors receive as a result of their investment in ICO which can hold certain rights for holders like right to use the products or service.

There are different kind of tokens in the world of ICOs and cryptocurrency, however security token, equity token and utility token are the most common and widely used in almost every ICO.

Utility tokens are the ones designed and released by companies for particular purpose with scope to be used within the platform of the ICO allowing investors to make payment for new company product or services. Wilmoth (2018) describes utility tokens as app coins or user tokens that enable users with ability of access to future product or services or play a role of means of payment on a blockchain platform.

Security tokens refer to any trade-able asses backed by real asset like gold, real estate or bonds (Wilmoth, 2018; Medium, 2018). Equity tokens are also security tokens and analogous to stock or share of a company distributed to investors at end of ICO which provides token owner with certain rights along

with sharing in company stocks. According to Wilmoth (2018) equity tokens represent ownership of an asset, as debt or stock of company.

Despite the type of tokens, the tokens issued by ICOs do not have a counter value in real world during the time of ICO although it may entitle owners with rights and/or share of the company or assets. However, the tokens are important for the investors since they entitle the holder of the token for future participation in the project that uses tokens in its respective utility-providing function (Kaal & Dell' Erba, 2018; Russo and Kharif, 2017).

2.2.2 The ICO process

As ICOs are unregulated model of fund raising for startups implementing blockchain technologies, there is not any specific rule about starting an ICO. Any venture or startup willing to raise investment through ICO need to put their idea about their project, its outcome and related details into whitepaper and set a roadmap and build a team. They need to create token to be distributed to the investor. The company then decides what kind of blockchain platform to be implemented which could be either existing ones or creating new ones. It is the company that decides the minimum and maximum amount to be raised from the investors, the duration the ICO campaign would be open for investment, and type of assets or currencies to be accepted (Safron, 2018).

The process of an ICO begins with formation of business plan and other initial activities like:

- development of idea,
- team formation,
- deciding blockchain platform (e.g. Bitcoin, Ethereum, or own or other blockchain) to be used
- token release and distribution strategy
- setting up roadmap
- developing minimum viable products (MVP) or prototype of product or service
- designing whitepapers
- develop marketing strategies, websites, and
- setting up community channels

The second step is generally known as pre-ICO and is often called as pre-Sale. This is the stage before the actual start of the ICO itself and hence is termed as pre-ICO. At this stage, some of ICOs choose to undertake a private offering of tokens to some selected group of parties in discounted price in order to obtain funds for the process of set-up and undertaking of the ICO and also it can be a good way to test the market (Delivorias, 2021; OECD, 2019). The pre-Sale of offerings are generally seen as price discrimination as they tend to favor insiders with heavy discounts on the tokens with the same risk as an investor purchasing the same tokens in normal price during ICO (OECD, 2019).

During ICO phase, investment is raised from investors in exchange of tokens. Also, activities like ensuring the security of the system, handling activities like scams, being accountable to community, help investors and potential investors with their problem through community channels are done during ICO phase. At this point of time, general investors can invest their Ethereum, Bitcoins, Fiat or other currencies as accepted by the ICO issuers to buy the ICO tokens (Robinson, 2020).

After completion of ICO campaign, the next step for issuers is to get their ICO listed on a token exchange which enables investors to transact their tokens for fiat and other cryptocurrencies. The listing in exchange ensures that the tokens issued by the ICO to be tradable which is the main stream of liquidity for any ICO. Generally, only those ICOs who have successfully obtained their seed money during ICO are able to be listed in such exchange while many who could not collect their minimum targeted capital end up with delisting (OECD, 2019). This is also the phase ICO need to keep the investors and potential investors interested by communication channels like Twitter, Telegram and sending out newsletter.

2.2.3 ICOs and IPOs

Farooq et al. (2020) explains tokens as digital assets issued by companies usually at their initial phase in exchange of the investment from investors which give certain rights to the investor like right to use the platform service being developed or ownership right. Also they can be exchanged for other crypto-assets or fiat currencies in the secondary market (Farooq et al., 2020). Schweizer & Amsden (2018) explain tokens as *“a coin refers to a standalone cryptocurrency functioning on its own blockchain (platform) and a token refers to a cryptocurrency that requires the usage of a separate coin blockchain in order to operate.”* In simple words, tokens are basically value or digital asset investors receive as a proof of their investment in an ICO which can also hold certain rights for holders like right to use the products or service.

There are different kinds of tokens in the world of ICOs and cryptocurrency, however in general security token, and utility token are the most common and widely used in almost every ICO.

Utility tokens are the tokens designed and released by companies for particular purpose with scope to be used within the platform of the ICO allowing investors to make payment for new company products or services. Wilmoth (2018) describes utility tokens as app coins or user tokens that enable users with the ability of access to future product or services or play a role of means of payment on a blockchain platform.

Security tokens refer to any trade-able assets backed by real assets like gold, real estate or bonds and therefore are similar to financial investment (Myalo & Glukhov, 2019). Equity tokens are also security tokens and are analogous to stock or shares of a company and are distributed to investors at the end of ICO which provides token owners with certain rights along with shares of the

company stocks. According to Myalo and Glukhov (2019), due to the requirement of know your customer (KYC) and anti-money laundering (AML) procedures, security tokens, although being the safest type of token, are complicated by implementation.

Despite the type of tokens, they do not hold value in the real-world during the period of ICO; however, they can hold rights and shares of the company to the owners which makes them valuable for the investors and also entitles the owner of the tokens to be eligible for future participation in the project that uses tokens in its respective utility-providing function (Kaal & Dell' Erba, 2018; Russo and Kharif, 2017).

2.2.4 ICOs and Security Tokens and Security Token Offerings (STOs)

The ICOs can offer tokens in the form of utility tokens or security tokens (Ahmed et al., 2021). ICOs issue digital token known as utility tokens entitling owners with access to community-based ecosystem and also rights on their product or service (Catalini & Gans, 2019; Howell et al., 2020). Also ICOs offer security tokens that are basically cryptographic token tied to securities offering and are also representation of company share (Mitra, 2020). Furthermore, Ahmed et al. (2021) claim that utility tokens although can be exchanged for voting rights they aren't entitled to any rights to profit for investors whereas security tokens entitle owners with financial rights and hence owners become liable to receive a share of profits of a company as well as are entitled to voting rights to have view upon the operations of the project.

The security tokens are the digital tokens complying with the Howey Test and deriving their value from external assets making them tradable and hence are analogous to securities which make them subject to federal securities and regulations (Mitra, 2020). The security token can also be seen as an investment contract representing the ownership of physical or digital assets like ETFs, equities, real estate, bonds, stocks etc. (Mitra, 2020; King & Malleons).

Although in the US Howey test is applied by Securities and Exchange Commission (SEC) to determine eligibility of an asset or token to be security on the basis of different parameters, the European Securities and Market Authority (ESMA) has not regulated (security) tokens in order to fit into European prospectus rules and financial instruments under the 2nd Markets in Financial Instruments Directive (MiFID II) (Ante & Fiedler, 2019). Ante & Fiedler (2019) state that the main benefit of the security tokens is the underlying blockchain technology, which provides the tokens to be more transparent, pseudo-anonymous, and secured whereas Ahmed et al. (2021), consider the ability of security tokens being analogous to traditional securities entitling the owners to have financial benefits like shares of ownership, dividends or other financial benefits to be most beneficial aspect of security tokens.

Ventures can raise investment for their projects also with Security Token Offerings, (STOs) which is similar to ICO but are more regularized and secured than ICOs (Singh, 2021) and are subjected to an abide set of regulations set up

by the governing body. Since ICOs are unregulated in nature and are not backed up by any kind of collateral of the company they are subjected to many scams whereas STOs are backed up with assets of companies and have monetary values which makes it more reliable and safe for investors. Like ICOs, STOs also issue digital tokens based on blockchain technology but are known as security tokens. Lambert et al. (2021) defines a security token as, “A security token is a digital representation of an investment product, recorded on a distributed ledger, subject to regulation under securities laws.” In simple words, security tokens can be considered as digital representation of a company's share using the potentiality of blockchain technology and are regulated by regulatory bodies thereby making it secure from scam. Unlike ICOs, STOs comply with security regularities and KYC and AML laws (Hamilton, 2021) which require investors and venture owners to prove their identity, which makes STOs to be more difficult to be launched than ICOs (Pauw, 2019).

2.2.5 Defining ICO success

A number of ICOs are launched every day. According to one of the leading cryptocurrency platforms CoinMarketCap, there are more than 11,500 cryptocurrencies in the market with a total of more than 2.13 trillion USD of market capital as of April 2021. Bitcoin dominates the market with more than 55% of the share while Ethereum has a share of more than 12% of the value and trade on the market. However, there is no definite criterion to define success of an ICO. The success of an ICO has been defined in different perspectives in different literatures.

Adhami et al. (2017) consider an ICO to be successful if it is able to reach the minimum target capital from investors (soft cap) and does not need to return hence collected capital to the investors thus are able to continue with their project thereby does not have security issues regarding the token sales and is not a scam whereas some consider to be able to reach the maximum target capital (hard cap) to be criterion for successful. Similarly, Fenu et al. (2018) consider ICO to be successful when the tokens are trade-able in the crypto market and have higher degree of ROI.

Giudici (2018) consider reaching minimum funding target to be successful criterion whereas Fisch (2019) uses log of amount raised as the dependent variable and Amsden and Schwiezer (2019) consider the token being able to be traded on exchange tracked by CoinMarketCap and total amount raised as their key measure of success (Roosenboom et al., 2020).

Therefore, the idea and criterion for ICO success is different across the various research works. Most of the papers have, to some extent, a common idea about the fund being collected by ICOs, and measure of success although not explicitly stated. In general, ICO is the phenomenon of raising investment for a project so that the project can be completed with the investment. Based on this idea, it can be concluded that any ICO project that is able to collect the minimum fund they have targeted during ICO, i.e. softcap can be considered to be a

successful since it's the minimum requirement for any ICO to continue with their project further and would need to the investment to investors otherwise. Being able to reach softcap can ensure that ICO now can further continue and hence it can be considered as the threshold of success. Other measures like token being able to be traded and to be able to be enlisted in trading platforms would not be possible if an ICO is not able to reach its softcap, thus making them to be less important compared to the softcap. Hence, the criterion presented by Adhami et al. (2018), has been accepted and used for measuring the success of ICO for this thesis.

2.2.6 Factors affecting the Success of ICOs

Since the start of the first ICO, every year hundreds of ICOs have been introduced in the market and raise billions of dollars in investment. Amsden & Schweizer (2019) claim that the growth in ICOs can be accounted for reasons like lack of proper regulations, elimination of central authorities, reduction in cost, and ICO being easy with no restriction for investors and marketing. Different literatures have identified different factors to be the factors affecting success of ICO. Also, there are some common factors that have been accepted in different literatures as the success factors of ICO. Some of the factors studied in different literatures and their impact on success of ICOs have been discussed briefly in this section followed by a summary of findings of those literatures can be seen in table 3.

2.2.6.1 Availability of Whitepaper

Whitepaper is one of the most common factors that has been studied in a number of literatures and has been considered to be one of the factors affecting the success of an ICO across different literatures. A white paper is similar to a business plan and is an electronic document that provides key information about the ICO campaign (Fisch, 2019). A whitepaper can be compared to the business plan as it usually contains information about the business relevant for investors (Ante L., 2018). A business plan is considered to be a very important and relevant aspect for successful creation of a business (Longo, 2019). Laatikainen et al. (2020) found whitepapers in general consisted of information regarding goal and motivation of the project, details about key partners, and customer being targeted, token information, underlying technological details along with risks and other details about the project. Generally, white paper is launched by an entrepreneurial firm during the pre-ICO phase in order to provide detailed information about the ICO campaign. White papers are not subjected to any specific standards and are published voluntarily, so not all of the ICOs have them however; it is common to have one. White paper can be of different kinds and information included can be specific to any ICO (Amsden & Schweizer, 2019). In general, white paper consists of the detailed information

about the ICO project, information about the team members involved during the project, the product or services being developed, technological details to be used during the process of ICO project, the milestones, future targets and visions, financial aspect about the project like targeted amount the ICO project is expecting with both softcap and hardcap as well as other information specific to the project and the project member like social connections and duration for which ICO will be campaigning will be done and the future expected steps after the ICO campaign.

Adhami et al. (2018) studied the white papers of 253 ICOs from 2014 until August 2017 and found that the probability of success of an ICO is not affected by presence of whitepaper and also claim that the white papers are not seen as valued documents by investors as they are neither certified nor audited by any means. In contrary, Amsden & Schweizer (2018) claim that the absence of white papers can negatively impact the success of ICOs. This is in line with Fisch (2018) where they claim that a technical white paper can be an effective signal for success of an ICO and emphasizes to have a good and technical whitepaper. But, Amsden & Schweizer claim that increase in length of white paper have positive effect on the success of an ICO.

2.2.6.2 Availability of Code

The availability of code project can be considered as one of the success factors for an ICO. Many ICOs make their code available online in different online public platforms such as Github which is an open source community for programmers. Choney et al. (2018) claims that the source code is a very strong signaling factor of technological capability of the venture. The source code published in public platform can be helpful for ICOs as many ICO tracking platforms consider presence of source code as asset (Fisch, 2019). Similarly, different literatures have studied and importance of assessing the source code available in Github as guidance prior to invest (Adhami et al., 2018; Amsden & Schweizer, 2019; Burns & Moro, 2018).

Adhami et al. (2018), and Fisch have similar opinion about the code availability of the project. Adhami et al. (2018) claim that the power of coding is very strong characteristics of ICO projects and argues that making full or partial code available has a positive impact on investors since it can be seen as tangible assets of ICO project and proof-of-concept. Likewise, Fisch (2018) supports claim made by Adhami of code availability having positive effect, however Fisch emphasizes on availability of high quality code in GitHub repositories and claims that only such code can be associated with having positive impacts on amount of funding. According to Fisch, availability of code is the one of the most important and outlooked characteristics of ICO as it is the characteristics the most investor's guides suggest investors to assess prior making decision on investment on an ICO. For those investors that don't have good idea about quality code, Fisch suggests that multiple aggregate metrics present in Github

can be helpful for investors to make reference to the venture's technological capabilities. In contrary, Amsden & Schweizer argue that making code available in Github repositories by the team of ICO can have negative consequences, since it could reveal flaws in the code and affect the venture quality and success negatively.

2.2.6.3 Regulations and Jurisdiction

There are number of platforms that help to ease the process of launching ICO and investing in ICO projects. They work in similar way as the platforms that manage crowd funding projects making the job of investors and the ventures easy. Although ICOs work in similar fashion as IPOs, ICOs have not been completely regulated all over the world, thus increasing the risk factor related to investment.

The understanding and approach to regulate the ICO ventures and cryptocurrencies varies widely all over the world. Although, the need of regulating has been realized by almost every country, there has not yet been common understanding among them and have regulated inconsistently in different part of the world (Myalo & Glukhov, 2019). This could be because of the reason that ICO and cryptocurrency are novel financing concept and hence regulators worldwide have not been able make a common consensus for regulation of ICOs (Tobias et al., 2019). Different countries have different rules regarding ICOs which impacts greatly in performance of ICOs.

Some countries have stricter rules trying to regulate ICOs and cryptocurrencies while some have easy and favorable conditions for them to perform. Countries like China, South Korea and India have banned ICOs and cryptocurrency trading since 2017 whereas countries like USA, Switzerland, Gibraltar and Singapore have favorable regulations for ICOs (Tobias et al., 2019).

Statcher (2018) claims that difference in treating of tokens by different regulatory bodies can result in decrease in the attractiveness of the ICO location. He further argues that due to the fact that USA with an objective to restrict the boom of ICOs, classifies all tokens as securities. This has resulted in boom of ICOs in ICO-friendly countries of Europe and Asia like Switzerland and Singapore which are considered as the hub for ICOs. Statcher further adds, in order to promote ICO-friendly environment and regulations Singapore has extended international collaborations with other regulators from different countries. Similarly, countries like Gibraltar and Malta have regulatory framework to attract investors from other countries in crypto markets whereas US Securities and Exchange Commission (SEC) and Ontario Securities Commission, Canada have been strict about ICOs and even issued series of warnings against ICOs (Tobias et al., 2019).

It is due to difference in regulations of ICOs in different regions of the world; there is huge difference in distribution of ICOs in different part of the world. From analysis of 5728 ICOs listed in icobench.com USA seems to be most popular countries both in terms of establishing ICO as well as in terms of

raising the amount. The Table 1 and Table 2 shows the top countries where ICO projects are located and top countries in terms of fund raised as per icobench.com from its database of 5728 ICOs till date. The regulations are however not same always everywhere, for example, although ICOs were banned in India, the country is slowly opening up to the concept of ICOs, whereas China being huge and open market, has recently implemented stricter regulation against ICOs and trading with ICOs.

Adhami et al. (2018), based on study of 253 ICOs found that the jurisdiction of reference for the token sale has positive effect on success of ICO. They found that most of the ICOs had used Singapore, Gibraltar, Estonia and Cayman Islands as their jurisdiction of reference for token sale. They claim that although legal protection in case of fraud was minimal in such jurisdiction, it seems to be not affecting investors to invest rather the choice of jurisdiction by ventures was appreciated. In contrary, Amsden & Schweizer (2018) found no effect of choice of jurisdiction over success of ICO.

TABLE 1 Top 5 countries by successful ICO projects (Icobench.com, 2020)

Country	Number of ICOs
USA	753
Singapore	567
UK	503
Russia	332
Estonia	292

TABLE 2 Top countries by total funds raised (icobench.com)

Country	Fund raised (billion)
USA	\$7.5
British Virgin Islands	\$2.4
Singapore	\$2.4
Switzerland	\$1.9
UK	\$1.5

2.2.6.4 Team composition

The quality and composition team often termed as Human Capital is one of the key resources for organizational success (Becker, 1993; Lee et al., 2001). The team refers to the man power behind the ICO venture having different roles and position in the project. Generally, team consists of different kind of team members like CEO, developers, advisory board, business development, product and marketing management, and people with various other roles, each team member in jointly can only run a good and successful project. Based on study of

various successful ICO campaigns, Siegel et al. (2018) conclude that the stakeholders are concerned in three main factors the team, the goals of the project and the protection of investors' interests. Different literatures have studied team as factor of success of ICOs. Most of them have focused their study on the size of the team, number of people in advisory board and the profile of team members specially CEO in LinkedIn (Fisch, 2018; Howell, 2018; Amsden & Schweizer, 2018) and have different findings.

Different literatures have different findings regarding the team. Howell (2018) claims that experience of the team members has a positive correlated with volume and liquidity whereas Fisch (2018) suggest of no such correlation between founders of the ICO and the success. Fenu et al. (2018) findings are in line with Fisch and claim of non-existence of correlation between size of the team and the success of the ICO project. In contrary, Amsden & Schweizer (2018) have different perspective. Their study found that the success of ICO is positively related to the number of team members and ICO advisors and claim that bigger team can have a positive impact on the chances of the token becoming tradable and the amount collected. Also, they claim that CEO with good profile and lot of connection in LinkedIn can indicate to have higher quality of venture for investors. Therefore, unproven and/or anonymous team can highly impact the investors from investing as such team is likely to serve as major red flag (Siegel et al., 2018).

2.2.6.5 Presence in Social Media

Regarding social network activities many of researches have studied the impact of social networks like Twitter, Telegram, YouTube and Facebook on interest of investors and success of ICOs (Adhami et al., 2018; Fisch, 2018, Amsden & Schweizer, 2018; Benedetti & Kostovetsky, 2018; Panin et al., 2019) and have different findings regarding the association.

Many of the ICOs have their own Twitter account where they keep the updates about their projects. Benedetti & Kostovetsky (2018) based on Twitter statistics, claim that there is positive relationship between the numbers of Twitter followers following the Twitter account of the ICO with the market capitalization and claim that more users lead to a larger market capitalization. This finding is in line with Howell (2018). The claim is also supported the by Fisch (2018) and suggest that the presence of Twitter page of an ICO venture positively affects the profitability of the venture. This could be for the reason that the venture activity on social networks can constantly attract investors' attention. Being active in Twitter with regular messages and updates ("Tweets") can signify the venture's intention of reaching out to the interested partners and followers and communicating with them with transparency which thereby can play vital role to build positive image about the venture in one side while on other can also be helpful in reducing information asymmetry (Benedetti & Kostovetsky, 2018).

Amsden & Schweizer (2018) find that venture not being active in communication channel like Telegram can adversely affect the success of ICO. They argue that the ICOs that are not active in social networks and those that are not present in channels like Telegram can signal less transparency.

2.2.6.6 Bonus schemes and marketing

Amsden & Schweizer (2018) found that bonus schemes, presale initiatives have strong significance and have positive effect on success of ICO and claim that such campaign helps tokens to become more trade-able. They claim that pre-ICO sales can be used to attract sophisticated investors like hedge funds and venture capital funds which can help in attracting other investor. They however consider bonus as double-edged sword, as the sophisticated investors are involved usually when there are higher bonuses and in terms there is chances that they can dump their tokens at 100% profit which can affect other investors.

In contrary, Adhami et al. (2018) claim that such bonus schemes don't have effect on success of ICOs distributing large number of tokens can have negative effect as they claim that larger percentage of tokens distributed can be signal of lack of confidence of the ICO team. They suggest that the ICO ventures should be transparent and should provide information to potential investors and provide good business plan. The findings of Farooq et al. (2020) are also in line with Adhami et al. (2018) where they argue that implementing bonus schemes, pre-sale programs in large number during ICO can be counterproductive as they could be received by investors as aggressive and unreliable marketing which in terms could affect negatively otherwise.

2.2.6.7 Blockchain-Platform used

There are several different blockchain platforms an ICO project can be developed on however the ventures can implement blockchain platform as per their requirement. They can either use an existing one or even opt to develop new as per their requirement. The choice of platform can also be sought to be factor affecting success of an ICO. Fisch (2018) and Amsden & Schweizer (2018) claim that developing ICO projects with Ethereum-based tokens has positive effect as Fisch (2018) argues that choosing established platform reduces risks compared to build or use new technology.

Amsden & Schweizer (2018) on other hand claim that using Ethereum platform could have negative impact on total amount raised by ICO although it positively affects the probability that token will be easily trade able because of the fact that Ethereum platform has limitations which could not meet all requirements and functionalities especially for bigger projects that could be met by building their own blockchain. Despite of this argument, Ethereum is the most common and the Ethereum-based tokens commonly referred as ERC20

("Ethereum Request for Comment") has gained the popularity and has emerged as the de-facto standard for issuing tokens since ERC20 standard makes the assets more easily interchangeable on one hand while on other it also ensures that they can work with dApps (Siegel et al., 2018).

The Bitcoin blockchain has implemented only the basic principles of "smart contracts" and "dApps" (Decentralized applications) but Ethereum was the first platform to develop and implement the concept and principles of smart contract (Magas, 2018). Boreiko & Sahdev (2018) outlined that Ethereum project was successful in developing a toolkit which enabled the implementation of the first programmable blockchain and introduced the concept of "smart contracts" that automated protocols to execute predetermined actions when some prerequisite conditions were met and thus introduced means to create proprietary tokens with little effort. Moreover, Ethereum has defined rules that transactions need to follow for greater interoperability between transaction parties in the Ethereum ecosystem which could be one of the factors that had gained trust of investors and have raised their expectation about Ethereum that it can become benchmark for the ICOs (Fisch, 2018). This can be depicted from Figure 3 that Ethereum has been used as platform by over 84% of ICOs in 2018 whereas Waves has been the second most used platform (ICObench) accounting for 132 ICOs as seen in Table 3. The table 3 shows the list of most used platforms.

TABLE 3 Popular platforms based on number of ICOs (ICObench 2019)

Platform	Number of ICOs
Ethereum	4861
Waves	132
Stellar	81
Individual blockchain	53
NEO	44
Other	392

The pie-chart in Figure 3 is evident that more than 84% of total ICOs have accepted Ethereum as their platform making it the most widely used followed by Waves being second most widely used platform.

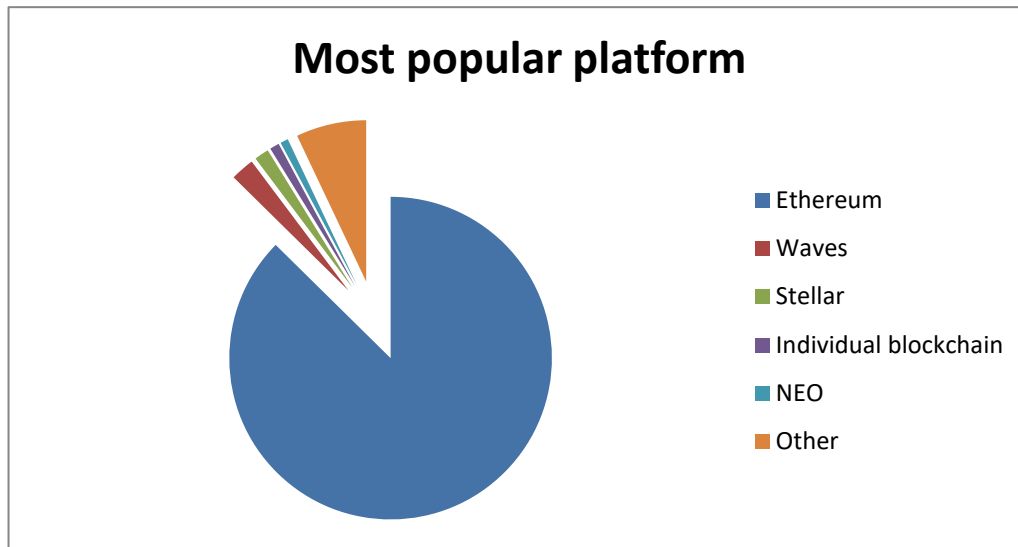


FIGURE 2 Statistics of blockchain platforms used in ICO projects

2.2.6.8 Accepting Fiat currencies

ICO ventures raise funds from investors in various form of cryptocurrencies as well as FIAT currencies where Fiat currency refer to any legal currencies like USD, Euro, British Pound, Japanese Yen and any other currency backed by government (Amsden & Schweizer, 2018) . The effect of accepting Fiat currency over success of ICO has been not been widely studied.

Myalo & Glukhov (2019) claim that use of fiat currency for investing in ICO has positive impact over success of ICO as they claim that investors interpret the use of fiat currency as a safer way of investing. In contrary, Amsden & Schweizer (2018) have different conclusion about accepting fiat currency for ICO. They claim that use of fiat currencies would mean ICO to have ties with traditional banking system which could signal insecurity of the ventures and lack of confidence to complete the ICO by cryptocurrency investors and have feeling the need of “Fiat investors” as well to complete the ICO.

2.2.6.9 Requirement of Know your customer (KYC)

Know Your Customer (KYC) is one of the factors indicating success of an ICO. KYC is basically is a process of verification of the investors that helps ICO and the ICO teams to be certain about the investors identity and purpose of investing and thus helps to reduce the chances of fraudulent or money laundering (Burns & Moro, 2018). The security tokens issued by ICOs need to comply with KYC and anti-money laundering (AML) rules (Conley, 2017). With the help of KYC, it becomes easier to keep important details about the investors and the project owners and helps to keep track of the money being invested which thereby becomes helpful to preclude clients with illicit objectives and criminal

background (Coinfactory, 2018). Burns & Moro (2018) claim that the process of KYC helps in reassuring the legitimacy of an ICO campaign and also assures that the ICO is adhered to the regulatory requirements.

Different literatures have different perspective about KYC as success factory of an ICO. According to Yadav(2017), KYC is an important indicator of ICO success whereas Momtaz (2018) finds it to have negative correlation with the success of the ICO. Likewise, Myalo & Glukhov (2019) found KYC to have negative effect on success of ICO and claim that KYC makes the project to be complicated although it adds transparency thus making it less attractive.

2.2.6.10 Summary of factors affecting the success of ICOs based on the literatures

The Table 4 provides an executive summary of the factors that have been considered as success factor in different research works. It lists various factors and their effect over the success of an ICO as perceived by different authors in their corresponding literatures. The table shows whether a factor has positive (+ve) and/or negative (-ve) effect over the success of an ICO while also if no effect was concluded in the literature, it has been presented likewise in the table with “No-effect”. The table only shows results for those factors that have been mentioned in the corresponding literature. The blank cells in the table means that either the factor has not been considered as an important factor in the literature or it has not been studied as factors affecting the success of ICO.

TABLE 4 Comparison of ICO Success factors in various Literatures

Factors	Adhami et al. (2018)	Fisch (2018) 423 samples	Amsden & Schweizer (2018)	Howell (2018)	Myalo & Glukhov	Farooq et al. (2020) 503 ICOs
Whitepaper	No-effect	+ve	+ve if longer -ve if shorter			
Code availability	+ve	+ve	-ve	+ve		
Regulation and Jurisdiction	+ve		No-effect			+ve
Team			+ve number of team member	+ve		+ve
Social Network	No-effect	+ve for Twitter	+ve for Telegram channel	+ve for Twitter		

Blockchain platform		+ve for ERC20	+ve for ERC20			
Accepting Fiat			-ve		+ve	
Bonus schemes	No-effect		+ve			-ve

2.2.7 Research Gap

The available literatures although have identified various factors like whitepapers, teams, jurisdiction, platform and technologies used, code availability and social activities as signaling factor for success of ICO, there has not been any studies regarding the rating of the ICO ventures. Various ICO tracking platforms like ICObench, ICOholder, ICOMarketData, ICOStats and others do provide rating for the ICO projects based on various factors. Since such rating is provided by experts on ICO, that could be one of the factor that could be helpful for any ICO to be successful and attract investors and raise investment. The empirical study can show that the ICOs with higher profile and good expert rating are the ones that have been able to attract most of the investors and collect huge investment for the project.

The websites like icobench.com, icomarks.com, icoholder.com, icodrops.com, icobazaar.com and other similar platforms provide rating for ICO projects based on detailed study about the ICO and other elements like quality of the project itself, type of the team members and advisory board, the technologies being used and other various factors by experts in the field. One of the most looked factors for rating is ICO profile which is done by the quality and amount of information about the ICO. The general rule of thumb for rating is more detailed the information provided more positive is the rating. The most crucial information includes:

- General information about the ICO provided by artifacts like white paper, articles, or videos or talks
- Targeted milestones of the project with definite and achievable goals
- Financial information like target Hardcap and Softcap
- Technologies and platform used like Ethereum, Waves etc.
- Information about Pre-ICO
- Types of tokens being issued for capital funding

Likewise, other evaluation indicators used during rating include evaluation of team involved in the ICO project. Different platforms have different way of evaluation however most commonly used evaluate the team based on type of team members and advisors involved. The general criterion for evaluation includes relevant background, experience and connections of the team members. The team is rated high if the members are more known have relative background and more experience and low scores goes to those with less or no relevant background, or whose information are not available proving their

knowledge in the field. Similarly, if the team has good circle of advisors with good experience, profile, connections and commitment, good ranking is provided to such team. It's relevant that having team of good and experienced people with relevant background can have good vision and better understanding of their job and responsibility in the project. And, such projects are likely to be more successful if provided with sufficient funds to kick off their project.

Rating is also provided in most of platform based on the product the ICO is planning to build. Better rating is done for the products that are futuristic yet realistic and could be proven good in the market once are ready. Indeed, product evaluation has three main criterions: proof of concept, minimal viable product (MVP), and technology used (Icomarketdata, 2018). The product concept is highly valued if the idea is relatively new comprehensive and proof that the product design can address real problem whereas those which are not promising in solving real need or problem and with unclear concept are rated low. With an MVP, the product is greatly evaluated if there already exist an MVP or is to be launched in near future whereas if MVP is already launched and tested or there exist fully working MVP higher rating is provided based on such MVP. But if there does not exist an MVP or concept about it rating is lowered. Depending upon the innovativeness and productivity, products are rated by the experts. Innovative product able in contributing to the blockchain system and offering solution to high interest problem are seen with high potential. It is viable that if the ICO has clear vision of problem being solved, they need to have products that is innovative in one hand while on other should be able to solve the real problem and be able to contribute to the blockchain system. Those ICOs which seem to be promising have clear concept about the product and technologies and hence are rated higher which ultimately increases the probability of getting investors.

3 Hypothesis Development

This section focuses on developing hypothesis for the research topic. As mentioned earlier, there has not been adequate quantitative as well as qualitative research conducted in order to determine existence of relationships between the success of an ICO and 1) the social activities of the ICO in medium like Twitter, Telegram, Bitcointalk.org, Facebook and 2) ratings of experts provided to an ICO in different ICO listing websites like icobench.com, icoholder.com, icomarks.com, and icobazaar.com based on various characteristics of ICO like the composition of team, product concept, vision, whitepaper, and social activities.

All kind of technical and non-technical information provided in whitepapers and available in other platform about ICO may not always be easy to comprehend. However, different websites active in listing information about ICOs, icobench.com & icomarks.com, for instance, provide ratings to ICOs based on available information about the ICOs. The ratings are provided by experts with thorough knowledge about cryptocurrencies and the underlying market dynamics of ICOs. These experts voluntarily review ICOs and rate them based on the information (Roosenboom et al., 2020) as shown in Figure 3.

For any project, the composition and competencies of team, plays vital role. A knowledgeable and experienced leadership can lead to project success by convincing people of need to change and to motivate them to work together (Keller, 1992; Juli, 2010). Also it has been established that a team composed with experienced and matching background to the project can lead to success (Pratt, 2010). Since the team rating of an ICO by experts are based on team composition, the background and expertise of team members and leaderships,

H1: The team rating by expert has positive impact over the amount raised by an ICO

Along with having a good team, the success of any project depends on the vision of the team and the product being developed. Having a clear and achievable vision and roadmap can help project to move in specific direction as described by Kotler (1995) as well as enables project management team to effectively perform ensuring alignment of goals (Christenson & Walker, 2004). The

product or service being developed by an ICO is one of the factors according to Gompers (2020) that institutional investors assess. Similarly, product concept and availability of MVP is also one of the factor experts rate an ICO on. Based on these following hypotheses H2 and H3 have been hypothesized:

H2: The product rating by experts has positive impact over the amount raised by an ICO

H3: The vision rating by experts has positive impact over the amount raised by an ICO

The activity of ICOs in social media platform can help an ICO not only to provide the updates of the projects to the followers but also reach potential investors. Similarly, being active in such platform can be helpful in trust gaining by building up transparency and filling up the information gap about the ICO among the followers which can help in better performance of the ICO as explained by the signaling theory which states that “several markets are characterized by an information gap between buyers and sellers, particularly the financial markets where the investors do not have the same level of information as the entrepreneurs(Leyland & Pyle, 1977).” Therefore:

H4: The activity on social media has positive impact on the amount raised by an ICO

The experts also provide ratings for ICOs based on their social media activities in different social media platform likes Facebook, Twitter, Bitcointalk.org and Telegram as indicated in Figure 3. Based on the frequency and relevancy of updates, tweets, messages and social engagement related to the ICO, experts from ICO listing platforms like icobench.com, icomarks.com and icoholder.com provide rating which can affect the investor’s perspective about an ICO and the investment. Similarly, venture consisting of qualified and experienced team members with advisory board can gain trust of investors and can have impact their investment making decisions positively. Also, these are the characteristics which are looked upon by experts of different websites like icobench.com, icomarks.com and icoholder.com for rating ICOs. These rating can help investors and general public to understand and build an opinion about an ICO and hence influence the fundraising process.

As shown in figure 3, the experts rate an ICO categorically based on characteristics of team, project, vision and concept of the product and the business model. Likewise, and additional rating is also provided based on the all those aforementioned categories as an aggregate rating for an ICO, which is thereby a comprehensive rating of an ICO. The aggregate rating provides a single gateway to understand an ICO without having to look at individual rating about ICO based on various categories. Therefore we hypothesize that:

H5: The average social activity rating and aggregate rating based on characteristics and social activities collectively impact positively on the amount raised by an ICO

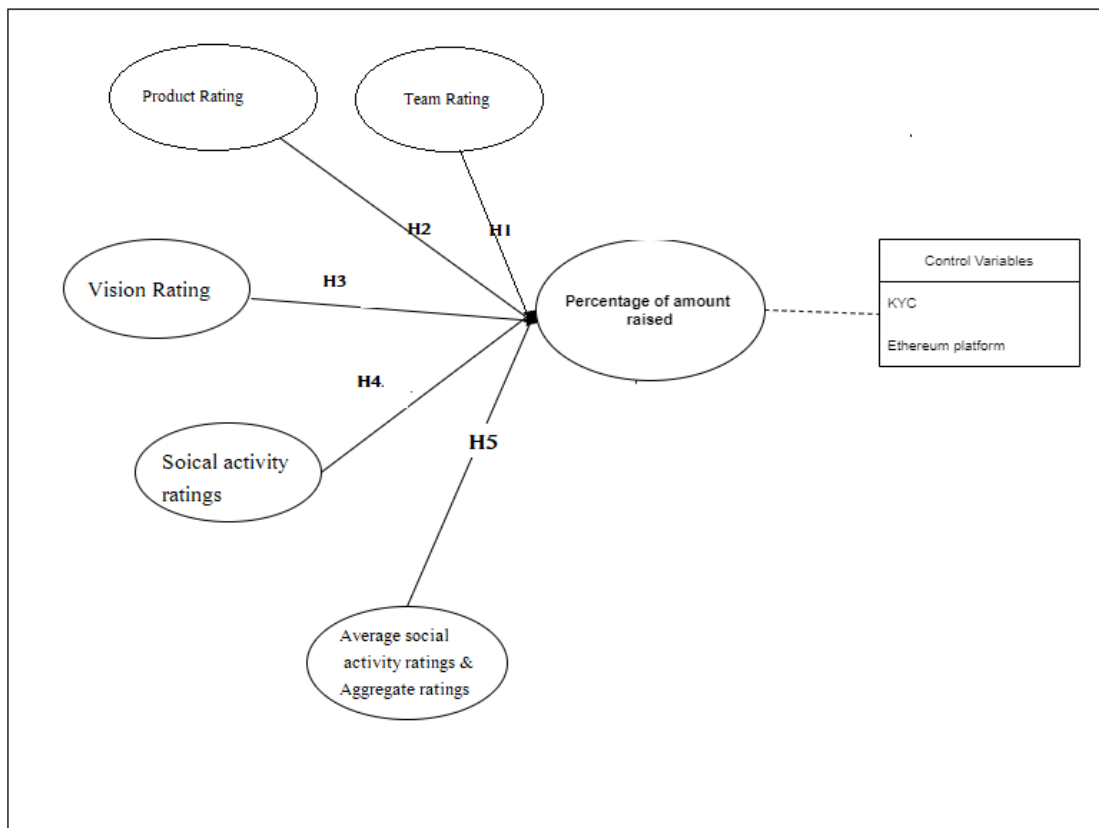


FIGURE 3 Figurative depiction for effect of variables

4 METHODOLOGY

This section will be discussing the process of data collection and methodologies implemented for research during the thesis starting with details about data collections, types of variables used and the actual research process followed.

4.1 Data Collection

A single database is not present that holds data for all ICOs nor all of the ICO tracking systems have feature for rating ICOs. For the purpose of research three different websites have been used to collect the data and verify namely icobench.com, icoholder.com and icomarks.com. However, icobazaar.com, icodrops.com, and coinmarketcap.com have also been used for further verification and during cleaning of datasets.

The figure 2 illustrates the process of data collection implemented during the thesis. First, python script was created for each of the websites; icobench.com, icoholder.com, and icomarks.com. Icobench.com is the first set of database used which lists huge set of ICOs from beginning and also provides critical analysis of each ICO based on the project details with the help of experts on the topic. It rates an ICO individually based on its team, product, whitepaper and other various factors. Also, it provides weekly, monthly and annual reports about the ICO market. Similarly, next set of database used is the Icoholder.com which holds records of over 600 ICOs. It provides rating for an ICO based on team, vision of the project, product, the potential of the idea and the product of the team, social activities of team over different channels like Bitcointalk.org, Facebook, Twitter and Telegram. Likewise, the third most important dataset is icomarks.com which rates the ICOS like other websites do.

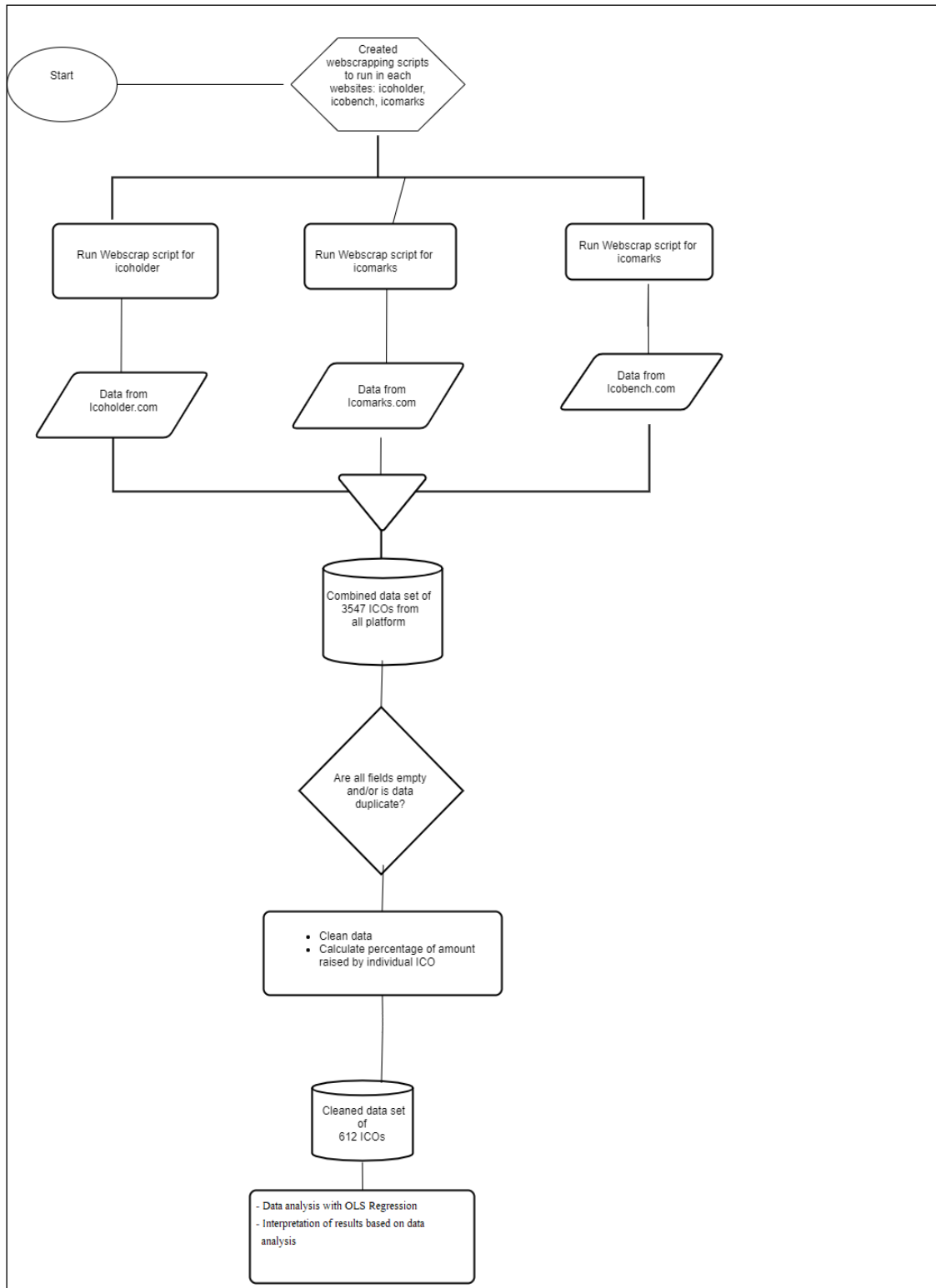


FIGURE 4 Data Collection and Research Methodology diagrammatic representation

Additionally, other web platforms like icodrops.com, icobazaar.com and coinmarketcap.com have also been considered for the purpose of handling missing data and data verification from the first three websites.

The script was first run on icobench.com to gather different information on ICOs data like name, token, Hardcap and Softcap of the ICO, platform, underlying blockchain technologies, however it was mainly focused on collecting data on the capital collected by individual ICOs (if any), ratings like team rating, vision rating, product rating by experts and overall rating of the ICO. Similarly, web scraping scrip for icoholder.com was run and similar data on ICOs available icoholder.com was collected which helped in verification of data on ICOs available in other platform although the script was focused on collecting data about social activities of ICOs like activities and updates in Facebook, Twitter, Telegram and Bitcointalk.org. Next, third script created for icomarks.com was run in the website to collect basic information on ICOs as well as information regarding rating of ICO. This helped in further validation of data collected from other sources and consistency of data collected. The contradicting data were verified using several other websites like icodrops.com, icobazaar.com, coinmarketcap.com and many others.

The crawling script generated a list of more than 3500 ICOs from all three websites which also included about 10% of duplicates. After dropping of the duplicates, it was found that a huge number of ICOs enlisted had almost no information available other than name and ticker. The missing data were tried to be supplemented from websites like icodrops.com, icobazaar.com and others. If the required data was not available in other platform as well, then such ICOs data were dropped. Most of the ICOs dropped contained information about only the name and ticker of the ICO. To ensure the consistency of data, in case of data asymmetry, data was validated based on data found in other platforms as well.

The ICOs enlisted are the ones completed between year 2017 and end of 2019. The crawling script generated a list of about 220 ICOs from 2017, more than 2200 ICOs from 2018 and more than 1000 ICOs from 2019. After dropping the duplicates and cleaning, 612 ICOs were used for research.

4.2 Variables

In this section, we describe the independent variables, dependent variables and control variables of the study.

4.2.1 Dependent Variables

Since the success of ICO is based on the amount it raised during the ICO period, percentage of amount raised has been considered to be the main dependent variable.

4.2.1.1 Amount Raised (in %)

Most of the ICOs have defined targeted capital to be raised during ICO through sales of tokens. There are two types of capital, Hardcap and Softcap. Hardcap is the maximum amount which the ICO targets to collect from the investors whereas Softcap refers to the minimum amount the ICO thinks they require to collect from investors to move their project on and launch the ICO to development phase.

Only few ICOs are able to reach their Hardcap compared to Softcap. If an ICO is not able to collect the targeted Softcap, the project is dismissed and in general the amount collected during the sale period is returned to the investors (Adhami et al., 2018). Hence, for the purpose of research, capital raised has been taken as a dependent variable. The variable capital raised in percentage, is the percentage of Softcap an ICO is able to raise from the investor ranging from 0 to 100%. If an ICO is able to collect more than 100% or even reach the Hardcap, for the purpose of study, it has been assumed to be 100%.

For the purpose of this thesis, dependent variable-amount raised in percentage was calculated based on the data about Hardcap, Softcap and the amount raised available in the ICO listing platforms. The variable was calculated by using following algorithm:

- If Hardcap, Softcap and amount raised is present,
 $Amount_raised_in_percentage = total\ amount\ raised / Softcap * 100 \%$
- If Hardcap, and amount raised is present, the missing Softcap was searched in other websites and if not found, the Hardcap was used as basis of calculation as:
 $Amount_raised_in_percentage = total\ amount\ raised / Hardcap * 100 \%$
- If percentage of amount raised based on Hardcap was available along with Softcap but missing total amount raised, then total amount raised was first calculated as:
 $Amount\ raised = Hardcap * percentage\ of\ Hardcap\ raised$
 $Amount_raised_in_percentage = total\ amount\ raised / Softcap * 100 \%$
- If data on Hardcap, Softcap and amount raised are missing and also could not be obtained from other sources, the data was dropped

4.2.2 Independent Variables

The expert rating of ICO based on ICO characteristics like team, product, vision, platform and KYC have been included as control variables.

4.2.2.1 Team Rating

A team is the backbone of any project. Better and more experienced the team, the probability of meaningful and better output becomes higher. Team rating is done on the basis of team composition and team members. Team rating is provided based on:

- Whether founder team members of the project are known and/or have relevant experience
- Whether team members have verified and detailed information available in LinkedIn,
- Information about the team members are available in other platform or not
- Do the team members have background information available along with their relevant experience or not,
- If the team members have any experience, how relevant or solid it is regarding their project and the technology being developed
- How committed the team members and advisors are into the project
- The number of advisors and team members with relevant experience and connections
- The reputation and profile of advisors and/or team members

The team consisting of highly reputed team members with relevant and good experience, good profile with verified LinkedIn profiles and huge number of connections, good understanding of technology and the concept of the project, committed advisory group with well understanding of relevant project are rated higher by experts whereas team missing advisory groups or with no reputable advisors with relevant experience and team with people without relevant technological experience and academic background are likely to be rated lower.

The team rating is basically based on rating provided in icobench.com and icomarks.com. The icobench.com rates the team on scale of 5 whereas the icomarks.com rates on scale of 10.

4.2.2.2 Product Rating

A product is the solution an ICO is planning to develop. The rating of a product depends on how well the product is able to solve the targeted problem as well how well the product can be accepted by consumers. Furthermore, the product rating is based on:

- Comprehensiveness and coherence of the product concept
- Usability of the product and ability of addressing real world problems
- Clarity and proof of the product concept, scope of its usability
- Whether the concept has been tested and developed
- State of the product development and timeline for its launch
- Use of relevant technology
- Availability of MVP
- If MVP exists has it been tested and launched or not
- Is the MVP functioning as expected or not
- How well the product is arranged
- What kind of technology is being implemented
- Innovativeness of the product and product concept

- Contribution of the product to the blockchain ecosystem
- Is the product similar to other product available ,
- The differences between the product and other similar product (if available)
- The safety measures implemented and the protocol implemented tackling serious problems

The product with clarity and proof of concept, addressing real problems, using safe and secured technology, presence of tested and/or working MVP, and efficient product concept are generally rated higher whereas product with incoherent concept or untested concept with no presence of MVP, presence of concept being similar to other available in the market or clone of such idea without any innovative ideas tend to be rate lower.

Similar to team rating, the experts from icobench.com rate the product of an ICO on a scale of 5 based on the aforementioned factors.

4.2.2.3 Vision Rating

Vision of an ICO is evaluated based on its relevance to the product and concept of the ICO and the business model. Furthermore, the rating is provided based on:

- Relevancy and reasonability of the valuation of the business
- Does the valuation and targeted capital align with the scope of the project
- Is the valuation modest or too high for the project
- Whether the business model suits the product concept of the ICO and if it has any competition
- Degree of the competition it has at present or could face in future
- Availability of strategies to compete with competitors
- Strength of the competition
- The scope of the market and scope of growth
- Availability of clear targeted market and limitation
- Potential of the growth

The rating is generally high, if the valuation of the business model is good and relevant to the project. Also, if the business model can have a solid market with chances of growth and presence of low or no-competition the rating is usually higher whereas a business model with high competition, low chances of growth, ludicrous valuation with higher and irrelevant valuation can tempt the ICO to be rated lower.

4.2.2.4 Social Activity Ratings

Social activity is important for any ICO to gain interest of people and keep the investors updated with the development of the project. It is a good way to interest potential investors. Social rating can also play a key role in the rating of an ICO. The rating is based on:

- Availability of website
- Availability of Telegram channel, official Twitter account, official Facebook page
- Number of followers and users in those channels
- Degree of updates and tweets in respective channels
- Degree of network growth, increase in number of followers or members

The social rating is higher if the ICO members have good presence in social media platforms with regular updates and tweets. Also ICOs with regular updates can help ICOs to grow their network of users and reach more potential investors hence such ICOs are rated higher whereas those ventures with very low updates in such platforms with very less number of followers and subscribers are rated low by the experts.

The social activity rating is based on ratings provided mainly by icomarks.com which uses a scale of 1 to 10 and another being icoholder.com where social activity is rated based on individual platforms like Facebook, Twitter, Telegram and Bitcointalk.org. The icoholder.com does not have any numerical scaling to rate the activity but denotes the activity status as Very High, High, Medium, Low and Very Low. This rating has been converted into numerical scale of 1 to 5 for the purpose of research as: Very High as 5, High as 4, Medium as 3, Low as 2 and Very low as 1.

Social activity ratings can further be classified into following types based on the rating for specific social media platforms.

1. **Facebook Activity Rating:** This variable refers to the rating provided by experts based on Facebook activity of an ICO. The rating is based on experts from icoholder.com where experts analyze the frequency of activity updates by the ICO team members.
2. **Twitter Activity Rating:** Twitter activity rating is based on the experts rating of icoholder.com where the experts monitor the frequency of tweets and updates from the ICO team.
3. **Telegram Activity Rating:** Telegram activity rating is also based on the rating provided by experts of icoholder.com based on the presence of ICO and updates in popular messaging channel called Telegram
4. **Bitcoin.org Activity Rating:** Like Facebook, Twitter and Telegram, this variable is rated by experts in icoholder.com based on the activity of ICO team members in bitcointalk.org forum

4.2.2.5 Aggregate Rating

In general, aggregate rating is the rating provided to an ICO based on the variables mentioned in section 4.2.2.1, 4.2.2.2 and 4.2.2.3. Aggregate rating is provided by different websites with different algorithms. For icobench.com it is based on all the features of the ICO including whitepaper, teams, vision, product, MVP, platform being used, and the product being developed and is done on scale of 5 whereas in icomarks.com it is done in scale of 10 and experts on icomarks.com further consider the social activities for providing the aggregate rating.

4.2.2.6 Average Social Activity Rating

It is the rating of an ICO based on various social activities of an ICO. The rating is an average of social activity ratings available in icobench.com and icomarks.com based on various social activities mentioned in 4.2.2.5. The value is higher for those ICOs whose presence in social media platforms is high. Since the aggregate rating of ICO based on its social activities and characteristics have an impact on the percentage of amount raised, aggregate rating based on characteristics of ICO and aggregate rating based on social activity have been included as independent variables.

4.2.3 Control Variables

4.2.3.1 Platform Implemented

Platform refers to the platform being used in the ICO project. Nearly 80% of total ICOs i.e. 487 have implemented Ethereum as their main platform whereas Waves has been found to be used in about 1.5 % and is the second most used after Ethereum. Hence, Ethereum platform has been used as a dummy variable for research and is equal to 1 if Ethereum has been used as the platform and 0 if any other platform other than Ethereum has been implemented.

4.2.3.2 Know Your Customer (KYC)

Know your customer regulations ensures the transparency of transactions and guarantees the legitimacy of token sale keeping the proper records of both investors and the ICO projects, however retaining the anonymity of all the parties (FinTech Weekly, 2018). KYC therefore ensures safety of investors' assets and prevents scammers. KYC has been used as a dummy variable and is equal to 1 if the project has compliance to Know Your Customer (KYC) criteria during ICO, and 0 otherwise.

4.3 Research Method

The quantitative research method has been implemented since the study aims to derive correlation between the impact factors and the amount raised in percentage by ICOs based on data analytics of 612 ICOs and test the hypothesis derived in section 3. The study aims at empirical observation of the effect of expert ratings provided in ICO listing platforms over the process of fund raising of ICOs.

For the purpose of study, an automated web scraping was done in three different websites, icoholder.com, icobench.com and icomarks.com separately. The websites included information about Hardcap, Softcap and amount raised during the whole ICO period, as well as other control variables in section 4.2.2. Likewise, the scrapping scripts also was able to provide other key information about the ICOs like platform of ICOs, date started and ended, presence of KYC and insights to the social media activities.

The data collected using the crawling scripts was cleaned as mentioned in section 4.1 and the final data of 612 ICOs was used for data analysis and interpretation of results. For the purpose of data analysis, the Ordinary Least Square Regression (OLS) model was used. The OLS is one of the simple and most commonly used methods to estimate the parameters of a linear regression model.

If

$$Y = \beta_0 + \beta_i X_i + \varepsilon \text{ be a regression model}$$

Where,

$$\hat{\beta}_0 \text{ and } \hat{\beta}_i \text{ the OLS estimators of } \beta_0 \text{ and } \beta_i$$

Then, under the assumptions of the Gauss-Markov Theorem of the linear regression model, the OLS estimators $\hat{\beta}_0$ and $\hat{\beta}_i$ are the Best Linear Unbiased Estimators (BLUE) of β_0 and β_i . These properties of OLS in econometrics are extremely important which makes OLS estimators to be the one of the most strong and widely used estimators for unknown parameters.

The key assumptions of OLS Regression are (Albert, 2021; Butekis, 2020):

1. All relationships are linear.
2. Independence of observations
3. No perfect collinearity and non-zero variances of independent variables.
4. Error term has expected value of zero given any values of independent variables
5. Error term has equal variance given any values of independent variables
6. Error term is normally distributed

For the purpose of study, the assumptions were tested. All the assumptions were satisfied by the model. As presented in Figure 5 (a), the linearity assumption was tested and confirmed by plotting observed predicted values which resulted in a symmetrical distribution of the values confirming the assumption of linearity holds for the model. The random sampling of observation assumption was verified by homoscedasticity test with a scatter plot between predicted residual values against actual residual values. . Likewise, the assumption normality of residuals was confirmed by a histogram plot which showed that most of the residuals fall near zero as shown in Figure 5 (b). The conditional mean of the residuals was found to be 0.341 which is close to 0 thereby confirming the assumption. Similarly, the absence of multi-collinearity was confirmed by calculating the Variance Inflation Factor (VIF) which was found to be 5.049 for both of independent variables which confirmed the presence of multi linearity of very small degree. Similarly, the assumption of no auto-correlation was confirmed by Probability plot (PP) (as visible in Figure 5 (c)) which showed that the almost none or very small number of the auto correlation values crossed the threshold of significance.

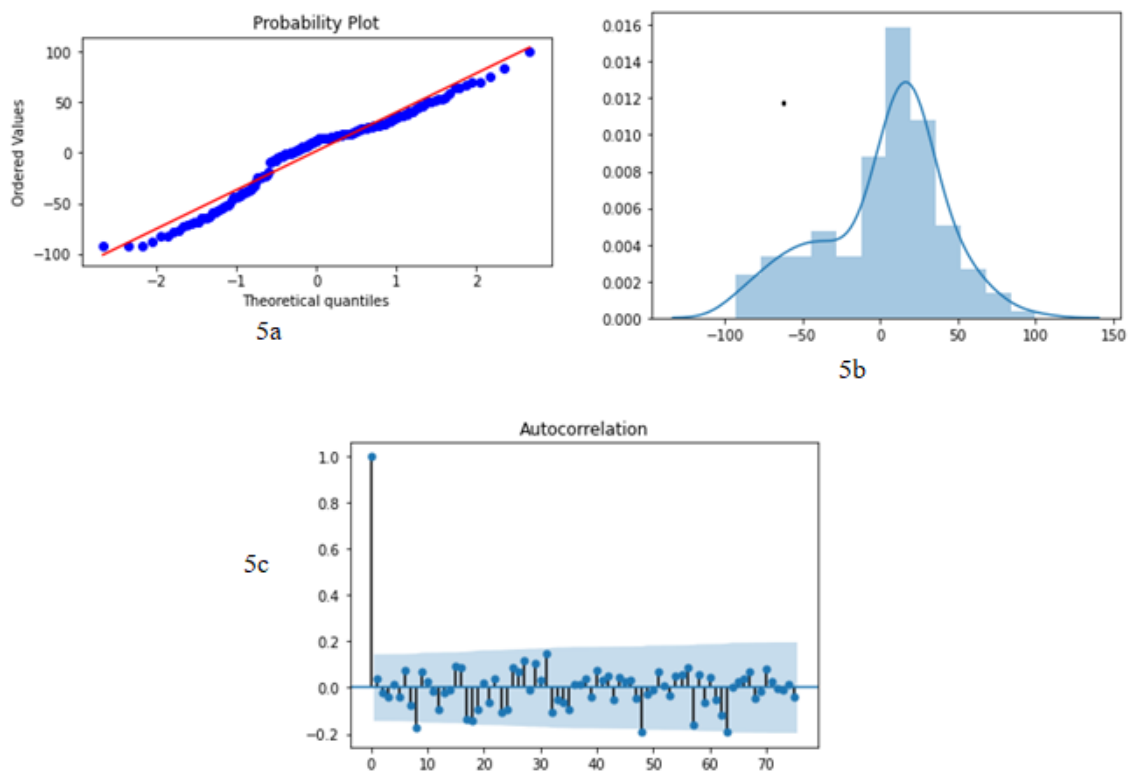


FIGURE 5 Test for OLS Assumptions a. Linearity Test b. Normality of residual test c. Auto-correlation test for residuals

5 EMPIRICAL RESULTS

The collection of sample data contained about 3500 ICOs completed between the year 2017 and 2019. However, after cleaning the dataset, total of 612 ICO projects were left for analysis which included 480 ICOs completed in 2018, 110 projects ended in the year 2019 and rest completed in 2017 as seen in Table 5.

5.1 Exploratory Tests

The Table 5 shows the number of ICOs that were able to collect between 0 and 100 percentage of Softcap based on the data collected. From the Table it can be seen that of the 612 ICOs under consideration, about 70% of the ICOs were successful to reach their Softcap or higher whereas more than 20% were not able to even reach 25% of their targeted Softcap.

TABLE 5 Amount raised in percentage (%) by ICOs with respect to Softcap

Amount raised (%)	Number of ICOs	No. of ICOs (%)
>= 25	123,00	20,10
>= 50	41,00	6,70
>= 75	19,00	3,10
>= 100	429,00	70,10
Total	612,00	100,00

The descriptive table analysis is presented in Table 6 for all the variables implemented during the thesis for analysis of 612 observed ICOs. From the table it is seen that the average of the total capital raised is 75% of the Softcap whereas variance for the amount raised in percentage is really high since some the ICOs for example IndaHash (1308%), ATFS Lab (1534%), Blue Whale (631%), The Bee (300%), Green Token Network (150%), Verasity (374%) and others have raised more than Softcap as well as Hardcap. Likewise, the average of the aggregate rating of the observation is 2.5 whereas same for the average social rat-

ing is near 1.6 with a standard deviation of 1.6 and 0.7 respectively whereas the standard deviation is 2 for team rating while average team rating of 2.6. The average rating of team is higher among all the other independent variables followed by aggregate rating of ICOs based on characteristics at 2.5 and bitcoin-alk status rating with 2.1 as mean value. The average rating for telegram activity rating is the least among all the independent variables and is about 0.83.

TABLE 6 Descriptive statistics of variables

<i>Variables</i>	Mean	Standard Deviation	Standard Error	Median	Sample Variance	Minimum	Maximum
bitcoi- alk_activity_ rating	2,191	2,115	0,085	2,000	4,472	0,000	5,000
face- book_activit y_rating	2,100	1,721	0,070	2,000	2,961	0,000	5,000
twit- ter_activity_ rating	2,078	1,718	0,069	2,000	2,953	0,000	5,000
tele- gram_activit y_rating	0,835	1,355	0,055	0,000	1,837	0,000	5,000
aver- age_social_r ating	1,595	0,727	0,029	1,800	0,528	0,000	2,500
team_rating	2,654	2,003	0,081	3,550	4,010	0,000	5,000
prod- uct_rating	1,961	1,891	0,076	2,000	3,574	0,000	5,000
vision_rating	2,089	2,005	0,081	2,350	4,018	0,000	5,000
aggre- gate_rating	2,505	1,674	0,068	3,200	2,802	0,000	4,700
amount_rai sed(%)	75,06 3	38,829	1,570	100,0 00	1507,692	0,000	100,000
Successful	0,634	0,482	0,019	1,000	0,232	0,000	1,000

The Table7 shows that, the number of ICOs that are able to reach the Softcap or more increases with the rating based on social activities of the ICO. The table shows that number of successful ICOs with Facebook activity rating between 2 and 3 is 53 while the number increases to 79 as the rating increases between 3 and 4. Likewise, of 74 total ICOs with average social rating between 2 and 3, only 41 were successful which increased to 94 as the rating increases between 3 and 4. It can be also seen that most of the ICOs that were able to reach their target capital have social activity ratings between 3 and 5. Similarly, the Table 9 shows that being active in social media mainly Facebook and Twitter has significant correlation with the percentage of amount collected which adds support to the claim made in hypothesis *H4* about relationship between the percentage of amount raised by ICOs and their activity in social media platform. Moreover, the higher correlation of Twitter and Facebook over Bitcoin.org may be because of the reason that, Facebook and Twitter are the most common and popular social media than bitcointalk.org and the numbers of users in Facebook and Twitter are more than bitcointalk.org. Hence, ICO owners may have been more active in Facebook and Twitter with regular updates than in bitcointalk.org.

TABLE 7 Distribution of rating based on ICO activity in different platform

Rating	Bitcointalk activity		Facebook activity		Telegram activity		Twitter		Average_social	
	count	Successful	count	Successful	count	Successful	count	Successful	count	Successful
0	251	155	166	107	492	327	169	110	32	22
< 1	0	0	0	0	0	0	0	0	15	5
< 2	37	21	92	47	51	17	92	48	72	35
< 3	43	25	85	53	29	19	85	52	78	41
< 4	60	42	124	79	20	12	123	79	137	94
<= 5	221	145	145	102	20	13	143	99	278	191
Total	612	388	612	388	612	388	612	388	612	388

Furthermore, the average social activity being aggregate of activity in all kind of social media, based on Table 9, has correlation coefficient of 0,1513 and p-value less than 0.01 which proves to be of stronger significance and have positive effect over the amount collected by the ICO. This indicates that higher the activity in different media, higher is the rating provided by experts, and hence the average rating for social media activity hence increases.

The other variable based on the ICO characteristics like team, product and vision also have positive correlation with the dependent variable as seen in Table 9. The Table7 shows that most of successful ICOs that were able to reach the Softcap or more have quality human capital and have team ratings mostly between 3 and 5. About 35% of total successful ICOs were the ones with rating between 4 and 5 (i.e. <=5) whereas it is nearly 17% as the rating drops between

3 and 4 (i.e. < 4) which further drops to 6% for the ICOs with rating less than 3. The higher rating provided by experts based on reliability and composition of team and the level of experience of team members seem to have impact in developing trust over the ICO team and its performance thereby impacting the motivation of investors to invest in such ICOs. This aligns with the claim made by Zacharakis & Shepherd (2005) about human capital that venture capitalists value human capital like academic qualifications, managerial leadership experience, and previous work experiences as well as supports Ahlers et al. (2015) theory that higher quality of human capital has positive impact on crowd funding success. Furthermore, this also coincides with Jong et al. (2020) claim about positive influence of a larger project team on the amount raised.

TABLE 8 Distribution of experts ratings based on ICO characteristics

Rating	Team rating		Product rating		Vision rating		Aggregate rating	
	count	Suc- cessful	count	Suc- cessful	count	Suc- cessful	count	Suc- cessful
0	279	159	274	156	274	157	170	89
< 1	0	0	0	0	0	0	1	1
< 2	13	4	16	6	18	4	15	2
< 3	33	24	46	30	30	24	85	61
< 4	87	66	137	103	94	69	204	144
<= 5	200	135	139	93	196	134	137	91
Total	612	388	612	388	612	388	612	388

Likewise, the product rating also seems to have positive correlation with the amount raised by the ICO according to the correlation matrix Table 9. It seems that more than 58% of total successful ICOs, as per Table 7 seem to have ratings between 3 and 5 which indicate to have higher product rating from experts can increase probability of becoming successful. Since the higher rating provided by experts is based on product concept, technology implementation and utility, it can play key role in building up the trust among the investors about the product as well as the ICO itself which could lead them decide to invest in ICOs.

Similarly, ICOs having achievable goals and clear vision tend to impress both the experts as well as investors resulting the positive outcome in decision of investors to invest and thereby positive correlation with the amount raised by ICO. This is indicated by the figures in Table 8 which shows that ICOs with clear vision and realistic goal tend to get higher rating from experts which is likely to interest investors in investing in them and hence the number of successful ICOs with rating between 3 and 5 increases as the rating does, with number of successful ICOs being highest for ICOs with product rating between 4 and 5.

In addition to product rating, the aggregate rating which is based on all these three factors clearly indicates direct and positive relation with the amount of ICO being collected as shown by the Table 8. The aggregate rate is higher for those with quality human capital, good product concept and vision implementing innovative product concept with quality technologies. Moreover, this also supports the claim of hypothesis H1, H2, and H5 about existence of relationship between experts rating on ICOs characteristics and the success. Furthermore, the OLS Table 13 also adds supports to the claim made by H5 that the aggregate rating provided by experts based on ICO characteristics has influence over the fund raised as it higher degree of coefficient.

The correlation matrix Table 9, also further adds support to the earlier claims that the correlation between the percentages of Softcap collected is high for aggregate rating of the ICO based on team, product and vision as well as with aggregate social rating of the ICO which is an aggregate of social activity of ICO in Telegram, Facebook, bitcointalk.org and Twitter. The values in VIFs column in Table 9 are less than 5 which represent no evidence of multicollinearity among the variables.

TABLE 9 The correlation table with significance of different variables after multi-linearity correction. *p < 0.05, **p < 0.01

amount_raised(%)	kyc	aggregate_rating	product_rating	team_rating	average_social_rating	telegram_rating	facebook_rating	bitcoinalk_rating	
0,0612	0,009371	0,211323	0,247191	0,2428	0,3747	-0,1881	0,1117*	1	bitcoinalk_rating
0,1053**	0,084698	0,213187	0,233870	0,24037	0,43865	0,0696	1		facebook_rating
-0,0339*	0,05072	0,0699	0,0284	0,0979	0,014062	1			telegram_rating
0,1518**	0,180019	0,315344	0,297420	0,3515	1				average_social_rating
0,1675**	0,294201	0,681796	0,971713	1					team_rating
0,1664**		0,673856	1						product_rating
0,2275**	0,388834	1							aggregate_rating
0,085697*	1								kyc
1									raised_amount (%)
3,9823	4,079	4,6388	4,6597	4,6163	4,9346	1,4588	3,1653	2,4509	VIFs
	0,0034	0,000	0,000	0,000	0,0001	0,0495	0,0091	0,1304	p-value

Even though the thesis is not focused on analysis of jurisdiction of ICOs, Table 10 has been constructed based on the analyzed data in order to provide a brief overview about the jurisdictions. The Table 10 presents the list of top 20 countries where the ICOs under study were based upon. It can be seen that Singapore has been the most popular hub for ICOs with more than 10% of total ICOs. This may be because of favorable environment and easy rules and regulations for ICOs. Similarly, UK stands on second position with 56 ICOs while Estonia and USA at third with 47 ICOs. Likewise, Russia and Switzerland stand at fourth and fifth topmost countries with highest number of ICOs with 38 and 23 respectively. In addition, with number of ICOs being developed, the number of ICOs successful to raise at least equal to the Softcap also depends with the number of ICOs being developed in those countries. In Singapore, for instance, has 42 successful ICOs which is more than 66% of total ICOs in Singapore whereas for UK, Estonia and USA it is respectively 38,30 and 28 which amounts to more than 67%, 63% and 59% of the total ICOs developed in those countries respectively. Whereas for countries like Belize, Canada, Gibraltar, Slovenia and Australia, although the number of ICOs in those countries are smaller, the percentage of ICOs that are able to reach the minimum goal exceeds 87% in each.

TABLE 10 Top 20 Countries for ICOs

Country	Count	No of ICOs raising amount \geq Softcap	No of ICOs raising amount $<$ Softcap
Singapore	63	42	21
UK	56	38	18
Estonia	47	30	17
USA	47	28	19
Russia	38	24	14
Switzerland	23	16	7
Hong Kong	18	12	6
Cayman Islands	15	10	5
United Arab Emirates	15	11	4
Malta	14	11	3
France	11	7	4
Belize	10	9	1
British Virgin Islands	10	6	4
Netherlands	10	8	2
Canada	8	7	1
Germany	8	6	2
Gibraltar	8	7	1
Slovenia	8	7	1
Australia	7	6	1

Similarly, the Table 11 shows the statistics of the successful ICOs per year starting from 2017 to 2019 according to KYC or Whitelist availability. It can be seen that year 2018 recorded highest number of successful ICOs (318) with almost 50%, i.e. 157 ICOs having KYC and whitelist whereas percentage of successful ICOs with KYC increased to 53% for total successful ICOs under study for that year. However, for the year 2017, the successful ICOs using KYC was 0 of total 7 successful ICOs of 2017. It seems that the percentage of successful ICOs with KYC has been increasing from 2017 to 2019 for the collection of ICOs. This adds support to the claim made by Lyandres et al. (2019) that the success of an ICO is positively associated with the presence of white and/or KYC requirements whereas opposes the claim made by Lee et al. (2021) who find KYC to be insignificant and have negative effect over the ICO success.

TABLE 11 ICOs number by year between 2017 and 2019

Year	Total ICOs count	Successful	KYC and/or Whitelist available
2017	22	7	0
2018	480	318	157
2019	110	63	34
Total	612	388	191

Furthermore, the Table 12 shows the statistics of the platform being used in the ICOs under study for this thesis. The data indicates that, Ethereum has been the most popular platform and has been used by 487 ICOs which accounts for nearly 80% of total ICOs. Whereas, Waves stands in second position among the popular platform followed by Stellar and others accounting for very small number. Similarly, of 487 ICOs implementing Ethereum, more than 62% were able to reach Softcap or higher. The extensive use of Ethereum and its ERC20 token can be credited to its good reputation, scalability, existence of huge support of and big community of developers (Panin et al., 2019).

TABLE 12 ICO statistics based on platform

Platform	# ICOs	Successful ICO	Unsuccessful ICO
Ethereum	487	305	182
Waves	8	3	5
Others	117	80	37
Total	612	388	224

5.2 Descriptive Analysis

The Table 13 shows the result of regressions run for different exploratory variables used during the thesis different regression models have been constructed in which the first model A shows the results of regression run only when control variables are considered Similarly, for second model, Model B same control variables were taken into account along with the other independent variables characterized as characteristics of ICOs i.e. team rating, product rating and vision rating. The third model, Model C takes into account all the social activity platform ratings as the independent variables, along with control variables. Likewise, the Model D considers all the ICO characteristics rating and average social rating as independent variables while Model E takes into account all the ratings for different social platforms and aggregate ratings. The Model F considers only the aggregate rating based on characteristics of ICO and average ratings based on social media activities and tries to test if the variables have significant impact over the amount collected by an ICO.

For each regression models, variance inflation factors were calculated in order to test multi-collinearity and only variables with variance inflation factors less than or equal to 5 have been included. Likewise, homoscedasticity assumption of OLS has been tested by Durbin-Watson. The value of Durbin-Watson value lies between 1 and 2 for all the models which ensures that the variance of errors is constant. Similarly, the probability p-value (F-statistic) for all the models is close to 0 with large of F-statistic which indicates that there is linear relationship between the variables and the dependent variable and thereby providing the basis to reject null hypothesis (H_0) in each case.

The coefficients for the variables in Model A shows that both the Ethereum platform being implemented for an ICO and implementing KYC or whitelist are positively associated with the percentage of amount raised by the ICO whereas having. The coefficients for both the control variables are positive and statistically significant, at $p < 0,01$. This implies that both the control variables have positive impact over fund raised by an ICO. The model has R-squared value of 0,679 and adjusted R-square value of 0,678 which implies that the model is able to explain more than 67% of the variance seen in the dependent variable and hence makes this model statistically significant.

The regression results of model B helps to interpret the relationship between characteristics ratings of ICO and the amount collected by ICO. The coefficients for team and vision are both positive and are statistically significant at $p < 0,01$ and $p < 0,05$ respectively implying existence of positive association with the dependent variable whereas the third factor product rating has negative coefficient and $p > 0,05$ thereby establishing statistically non-significant relationship with the dependent variable. The model has R-squared and Adjusted R-squared values of 0,694 and 0,692 which is a proof that it is able to explain the variable and their association more than the model A. Since the team rating and vision rating have strong and positive association this provides support for the

TABLE 13 Ordinary Least Square (OLS) Regression Results Variables

variables	Model A	Model B	Model C	Model D	Model E	Model F
Platform	53.1502 (3,645)**	40,99 (4,226)**	34,46 (4,04)**	15,04 (3,887)**	9,87 (4,6)	7,93 (4,517)
kyc	32,065 (3,891)**	25,797 (4,05)**	24,12 (3,808)**	23,8008 (4,3)**	-3,03 (4,6)	-5,1 (4,4)
team_rating_ib		9,2413 (4,169)**	-	11,10 (4,07)*		
Product_rating		-3,55 (5,585)	-	-2,486 (5,164)		
Vision_rating		9,1389 (4,63)*	-	6,829 (4,046)*		
aggre- gate_rating			-			
Face- book_rating			9,803 (5,78)*		7,82 (3,04)*	
Bitcoint- alk_rating			-3,4476 (5,75)		-3,98 (5,388)	
Tele- gram_rating			4,0325 (0,85)*		1,79 (0,0836)*	
Twitter_rating			2,0027 (1,08)*		1,539 (0,7)*	
aver- age_social_ratin g				10,73 (1,05)**		7,3645 (1,066)**
aggre- gate_rating					16,472 (1,76)**	14,563 (1,747)**
R-squared	0,679	0,694	0,717	0,739	0,753	0,761
Adjusted R- Squared	0,678	0,692	0,714	0,736	0,750	0,760
F-statistic	646,2	275,5	255,8	286	262,9	484,7
Prob. (F-tatistic)	2,18E- 151	1,76E- 153	2,04E- 162	4,28E- 173	8,07E- 179	1,76E- 187
Residuals	607	605	604	601	605	611
*p < 0,05 **p < 0,01						

hypothesis H1 and H2. This result is partly in line with the findings of Panin et al. (2019) where they claim that inspiring ideas highly and positively impact the

firm's ability of raising funds. Likewise, the statistically less significant relation between product ratings with amount collected contradicts with the claim made in hypothesis H3.

Similarly, Model C analyses relationship between ratings based on activities of ICO in various social media platforms and the percentage of amount collected by an ICO. The ratings on all the social media except Bitcointalk.org seem to have positive and statistically significant associations with the dependent variable. The association of Facebook activity rating has coefficient of 9,8 whereas rating based on Telegram and Twitter have coefficients of 4,03 and 2 respectively with statistical significance of $p < 0,05$ for each whereas Bitcointalk.org has a negative coefficient of -3,45 and a $p > 0,05$. The model has adjusted R-squared value of 0,714 which provides enough evidence for the significance of this model. This model thereby provides partial support for the claim made in H4 and also supports the claim made by Panin et al. (2019) about the existence of positive impact of utilization of Telegram channel over fund raised by an ICO firm.

Furthermore, in Model D running regression with characteristics ratings of an ICO and average social activity rating shows that the ratings have positive impact over the fund collected and also aligns with the findings from Model B that all the characteristics ratings but product ratings have positive association with percentage of amount collected by ICO. Similarly, it also shows that the addition of average social rating variable in the regression does not impact the association of the characteristics ratings of ICO with dependent variable but is able to explain the association more extensively than previous models as the adjusted R-squared for this model (i.e. 0,736) is fairly greater than those of models preceding it, thereby providing more support for the claims of H1, H2, and H4. Unlike Model D, the Model E runs regression with social activity ratings and aggregate ratings based on characteristics to depict the association between dependent and independent variables. The model has adjusted R-squared value of 0,75 which is significant than preceding models Also, it shows the existence of positive associations between dependent variable and other factors under considerations like Facebook rating, Bitcointalk.org rating, Twitter rating and aggregate rating and also aligns with the results of Model C which suggested existence of negative and non-significant impact of telegram rating over percentage of amount collected by ICO, however providing support to the claims made in H4.

The regression results of model F helps to interpret the relationship between the average social rating by experts based on activities of ICO in different social media channels like Facebook, Twitter, Telegram and Bitcointalk.org in particular and the aggregate rating of an ICO based on its characteristics like team, product and vision with the percentage of amount raised by the ICO. The model not only yields positive coefficients for both of the aggregate variables taken into account but also statistically significant with each having p-value $p < 0,01$ and with higher coefficients of 7,36 and 14,57 for average social rating and aggregate rating respectively which infers that both of the variables have strong

and positive impact over the percentage of amount raised by ICO. The model has an R-squared value of 0,761 and Adjusted R-square value of 0,760 which is a significant value for statistical analysis of the model. The results of regression model F, therefore aligns with Hypothesis H5 thereby supporting the claim that the impact of average social rating of expert of ICO is positive over the fund raised by ICO along with that of aggregate rating of ICO.

Furthermore, all of the models also suggest existence of strong and positive impact of control variables, Ethereum platform, over the dependent variable, percentage of amount raised. With this result it can be claimed that an ICO implementing Ethereum as its main blockchain technology is likely to raise higher percentage of fund than other blockchain platform. It could be because most of the ICOs implement Ethereum as their main blockchain technology and hence it is trusted and favored by both ICO entrepreneurs as well as investors. Likewise, the table also shows that the implementation of KYC is not significantly important and has negative relationship with the fund risen by ICO. This could be because of the fact the KYC and Whitelist being relatively new concept and has been implemented by only few ICOs in one hand while on other KYC implementation can be complicated for investor because of the fact that KYC requirement obliges token buyers to prove their identity by providing passport, national ID, or driver's license information (Lyandres et al., 2020). This is consistent with Lee et al. (2019) who finds KYC to be insignificant and have negative relationship with ICO success whereas is in contrast with Davydiuk et al. (2019) and Deng et al. (2018) who claim otherwise.

In nutshell, from the results of analysis of various data collected on ICOs, it can be concluded that ICOs that, team and its composition is one of the most important aspect of ICO that has been considered to be very important by both investors and the experts and therefore acts as signaling factor. It is therefore, a well composed team with professional background with expertise and experience in relevant fields and having better connection in LinkedIn can contribute to better perception of the ICO and thus, can contribute in its success. Similarly, having well defined and clear vision can also be considered to be a factor contributing to success of ICO. Furthermore, it can be claimed that ICOs with strong presence in social media platform can create greater influence on investors and the experts rating them. Being active and keeping updates about ICO, not only helps investors to be informed but also increases the level of transparency and can be helpful in reaching more potential investors thereby increasing the possibility of earning more investors and raising higher funds. Similarly, having a team with good professional connections and relevant background and work experience, clear vision with convincing product concept can be helpful in gaining the trust of both investors and experts thereby can have positive impact on both, the expert ratings and investors, and thus increasing the possibility of collecting higher funds. Thus, the results support the hypothesis H1, H3, H4 and H5 whereas it does not provide enough evidence in support of hypothesis H2.

6 DISCUSSION

6.1 Theoretical Implications

The analysis of financial data regarding Hardcap, Softcap, amount raised and the different ratings based on social activity and ICO characteristics shows that these factors are correlated with the total amount raised by ICO and hence its success. Some factors are more likely to be more related than others. For example, ICOs that were more active in social platform like Facebook and Twitter are more likely to be more successful than other platform like Bitcointalk.org. This can mean that having account in popular social media sites and posting regular updates regarding the ICOs can be helpful not only for getting good rating from ICO experts but also keeping investors updated as well as for attracting potential investors which subsequently plays vital role in increasing the investment for the project. Most of the findings of the thesis seem aligned to the findings earlier made in different literatures.

The importance of team and its composition in success of ICO has been studied in different literatures. The existence of relationship between the team and success of ICO has also been studied in the thesis and it is seen that a positive correlation between them as indicated by the p-value of higher significance for team rating in Table 9. This infers that having a good, professional and expertise team members can have positive impact over success of an ICO. This result aligns with Ante et al. (2018), Howell (2018) and Amsden & Schweizer (2018), whereas contradicts with the claims made by Fisch (2018) and Fenu (2018) where they disregard the existence of any correlation between team and success of ICO. Similarly, having a well composed team with relevant experience in relevant field can add up the positive rating of ICO in one side while on other looking at the rating of the team and composition of the team member can be helpful in gaining the trust among the investors and interested parties which again can increase the possibility of the ICO to reach its Softcap which is also supports the claim that greater human capital supports ICO success (Florin et al., 2003; Stuart et al., 1999). Similarly, the regression Table 13 indicates that ICO

with clarity in vision and achievable goals are more likely to increase their chances of becoming successful. This may be because having clarity in vision can be perceived by stakeholders that the team and the project members are clear about the problem being solved by the project itself and the target the project and the team is supposed to achieve thereby can be helpful in building positive notion among the experts and eventually among the investors. Also, it reflects that most of investors are interested in investing in those ICOs signaling strong quality of venture than blindly investing their funds across ICOs available in the market (Ante et al., 2018). Likewise, the product rating seems to be less likely to improve the chances of an ICO to increase the percentage of investment compared to team rating and vision rating.

The experts rate higher to those ICOs having adequate social media interactions and updates in different social media platform. This has a positive impact over the success of ICO which is presented by the significantly higher p-values of social ratings in Table 9 and positive coefficients in Table 13. Facebook, Twitter and Telegram are the most common social media platform among the ICO as most of the ICOs have their channels and page in those platform and relative less active in other platforms like Bitcointalk.org and others. The existence of positive correlation between social media activities especially in Twitter and success of ICO has also been confirmed by Benedettit & Kostovetsky (2018) and Ante et al. (2018). Likewise Amsden & Schweizer (2018) also have supported the existence of relationship between the success of ICO and activity of ICO over social media like Telegram. Likewise, the existence of insignificant relationship between activity in Bitcointalk.org and fund raised has been supported by Ante et al. (2018).

Of the total ICOs, nearly 80% of the projects implemented Ethereum as their main blockchain platform whereas more than 60% of the projects with Ethereum as their blockchain were successful which shows that the success of ICOs is positively correlated to the implementing of Ethereum as the blockchain which is contradicting to the claim of Amsden & Schweizer (2018).

The increasing number of ICOs with KYC from Table 11 shows that KYC is gaining importance in world of ICO. The statistics suggests that the more ICOs with KYC are becoming successful thereby establishing KYC as one of the signaling factor for ICO success. This adds support to the claim made by Lyandres et al. (2019) that the success of an ICO is positively associated with the presence of whitelist and/or KYC requirements whereas opposes the claim made by Lee et al. (2021) who find KYC to be insignificant and have negative effect over the ICO success. Similarly, Momtaz (2018) claimed KYC to have negative correlation with success of the ICO which contradicts to the finding of the thesis.

The choice of jurisdiction seems to be one of the factors ICOs consider to be important because of the binding rules and regulations. The ICOs seem to foster in jurisdictions where there are either no regulations regarding the ICOs or the ones with relatively easier rules or regulations. This is proven by the fact that ICOs have fostered and become successful in Singapore compared to other

6.2 Practical Contributions

The objective of the thesis was to study the factors that could affect an ICO to meet its objective and be successful by studying the existence of a relationship between the experts' ratings available on different online ICO listing platforms and the success of ICO. The preselected factors from different literatures were found to have directly or indirectly affected the success of ICOs. The empirical results based on different statistics can confirm that there is a positive relationship between the success of ICO and the ratings of experts. The findings of the thesis could be helpful for any individual interested in investing in ICOs as well as to the entrepreneurs.

Based on the findings, it is advisable that it would be wise to study various factors of an ICO before investing in them, like objective and goals of the ICO, business model, team and members involved and their background, the product or service the project is focused on and its possible implications, the level of transparency about the ICO, its team, and other relevant information in websites and activities in different media especially in Facebook, Twitter and Telegram. It should be noted that gathering information can be helpful not only to gain information about ICO but also can be helpful in becoming aware and getting into any sort of fraudulent ICO schemes. There are many of technical as well as non-technical information to be considered however many ICO listing platforms like icobench.com, icocoin.com, icomarks.com, icoholder.com and others have experts volunteering and involved in rating ICOs based on the information available. This kind of information can be helpful for investors to make a comprehensive decision about an ICO; however it is still advised that one should not completely rely only on ratings.

Similarly, the individuals or entrepreneurs involved in ICO should notice that studying different literatures based on ICOs and success factors of ICOs could be helpful in getting information prior to start an ICO. For those willing to start an ICO, based on findings of the thesis and different literatures, it is advisable to have a good team with good and relevant work experience and expertise along with a good business model, clear vision and product that has practical implications in the real world and can solve real world problems. The success of any project depends on defining success and therefore, the definition of success should be predetermined for the project. Likewise, making information available in different platforms especially in websites, whitepapers, and social media like Facebook, Twitter and Telegram can be beneficial. It can be helpful to get good ratings from different experts as well as attract more potential investors and hence increase the possibility of becoming successful.

In nutshell, it seems that ICO investors are interested in information and expert ratings about ICOs that are available in the public domain. However, it would be wise for investors to be also focused on market sentiments, and after-market performance whereas the ICO owners should be more focused on reducing information asymmetry about the venture and signaling factors about

ICOs like project quality, whitepaper, team composition, technological implementation, product concepts, KYC, MVP as well as presence in social media. It seems that ventures with more transparency about the project and the venture itself are more likely to be gain interest of both experts and investors.

7 CONCLUSIONS

This thesis has examined the existence of relationship between the success of ICO and various ratings provided by ICO experts in different ICO listing platform such as icobench.om, icholder.com and icomarks.com. Also, the impact of other factors such as team, product, platform implementation, jurisdiction and KYC have been studied and found that they are positive association with the success of factors. Section 2 reviewed various relevant literatures available and identified some of key factors of success of an ICO and provided information on some of key concepts about ICO and relevant topics. The core hypothesis of this thesis has been deduced in section 3 whereas the following section 4 described the research methodology. The section 4 also describes various variables used during thesis and also describes the process of data collection and analysis. The empirical results of the study have been presented in section 5. The section 6 discussed the empirical results and implication of thesis and tried to identify theoretical implications.

This section of thesis concludes with the empirical findings and its theoretical contribution, limitation and scope of future research.

With ICOs becoming more popular and easier source of finding investors for ventures, startup have been more focused in ICOs as main source of investment because of the fact that ICO eases the process of investment without the need of dilution of ownership of the entrepreneurs in spite of extreme information asymmetry (Boreiko & Sahdev, 2019). Factors affecting the success of ICOs have been studied and discussed widely in different literatures. Most of the studies focused on factors like whitepapers, jurisdiction, teams, blockchain platforms, bonus schemes and code-availability. The ratings provided by experts on ICOs volunteering for different well known ICO listing and trading web sites seemed to have not been considered as a factor that could impact success of an ICO. This thesis has hypothesized and tried to study and explore the impact of such ratings over the success of ICOs and found that these ratings have positive associations with the success of ICOs. The study has been made to explore what kind of ratings could possibly impact the investors and therefore the success of ICOs broadly dividing experts' ratings into two different sub-

categories: ICO characteristics and social activities. Furthermore, each sub-category has been divided into different categories and ratings associated to each of them have been studied for each of ICOs taken into account. The findings suggests that the aggregate ratings of ICOs based on social activities on different media platform and average ratings based on characteristics of ICOs have positive and statistically significant impact over the success of ICOs. Based on the results of regression models, it can be claimed that team can be considered as one of the most impacting factor in success of an ICO as has been claimed in several studies whereas the vision of the project also has direct and positive impact while the product and product based rating does not seem to have any significance contribution in success of ICO compared to team and vision thereby rejecting the hypothesis H2 but providing support to the hypothesis H1 and H3. Therefore, ICOs should focus on having a good and reliable team of expertise in relevant field and clear goals. Also, they should consider being open and active in different social platform about their project and provide updates on their project since the analysis provides a proof of existence of positive and significant association of impact of social media interaction of ICO on success and thereby supporting the hypothesis H4 and H5. These findings can be helpful for the blockchain community and those perceiving to study the factors affecting success of ICOs along with the stakeholders interested in building up ICO projects or investors interested in investing ICOs.

7.1 Contribution to the theory

The results from various researches have emphasized that it would be beneficial to have information related to the project and the updates about the project should be made available in public domain and in various social media platforms by the venture entrepreneurs seeking for investment (Solomon et al., 2012) in order to keep the investors updated and gain potential investors. Similarly, public availability of information to mitigate information asymmetry has been discussed in with signaling theory by Spence (1973). The findings are in line with the results of thesis which has realized the existence of positive and significant relationship between public ratings provided by experts on ICOs based on publicly available information about the project and the success of ICOs.

Having clear vision about the project, and well defined product concept with proper use of technology has key role in adding up the trust of ICO among the different experts involved in rating based on product and vision, subsequently makes the ICO more liable for becoming successful. In simple words, the results show that experts rating for an ICO is positively related to fundraising success which is in line with the notion “the wisdom of the crowd” according to which the opinions of people, experts in context of ICOs, are looked upon and followed by investors as the experts being know ledged in the field of investment are perceived to be credible. In other words, the thesis contributes the blockchain community with its key finding that success of ICO ventures as

measured by the percentage of Softcap raised is positively related to experts rating based on ICO characteristics like human capital, concept of business model & vision, and as well as social media presence of ICO team members, thereby claiming the existence of positive and statistically significant relationship between success of ICOs and experts ratings.

7.2 Limitations

The thesis is basically limited only on finding the existence of relationship between the success of ICO in terms of percentage of funds raised and the ratings provided available in various web platforms done by various experts in the field of ICOs based on different aspects of the ICO and the activity of the ICO over different social media platforms. The data set is mainly focused on ICOs that ended in 2018 although it includes some of ICOs from both 2017 and 2019. For this reason, the year wise comparison of the performance of has not been done more comprehensively.

Similarly, the detailed analysis does not include the platform of the ICO although descriptive analysis has been done with the help of Ethereum platform as dummy variable. The data has been collected from more than 4 websites and several other websites have been used for further verification of data. Although, it was expected to retrieve relevant and authentic data about ICOs online using multiple resources, surprisingly huge number of ICOs seem to be missing data other than their names, platforms and in some cases the amount they collected even though multiple platforms were sought for due to which huge number of ICOs were taken off from the list of ICOs while cleaning the dataset. Among the ICOs that were taken off from the list surprisingly were lacking transparency regarding their progress in one hand while on other hand not much information was provided in their official websites as well as many ICOs even didn't have working websites. A more comprehensive and statistically sound data could have been expected if the required information for dropped ICOs were available.

Furthermore, the price of Bitcoin has increased exponentially over the years, and has not been stable. This volatile nature of Bitcoin could have impact in investor's sentiment in deciding about the investment in ICOs. However, this factor has been out of scope of this study as it focuses only in the ratings based on various characteristics of the ICOs. Similarly, different other factors can act as signal for a good ICO and help ICO to raise the targeted capital like existence of quality Whitepapers and disclosure of information (Howell et al., 2020) about their team and technological capabilities, type of currency they accept, post ICO performances, ROIs of ICOs and many others have not been included in the study since those set of factors have been studied in various researches by many researchers. Likewise, the study also does not include factors that could proba-

bly have effect in success of ICOs like market sentiments, price of Bitcoin and Bitcoin returns (Hu et al., 2018) volatility of Ethereum and Bitcoin.

7.3 Scope for further researches

The thesis has analyzed the ratings available in different online platforms made by experts of ICOs and with expertise in relevant field however had some limitations as mentioned in section 7.2. The study has taken into account only 4 of the main ICOs listing platforms for data collection and used other online platforms for verification of collected data. Therefore, those platforms that can also be used for more data collection and verification. Similarly, another aspect of further study could be the study of effect of market sentiments on rating of ICOs and its success since it was seen that some ICOs were able to collect more than Softcap although the ratings from experts for such ICOs were really low or even missing in most cases. In contrary, there were few ICOs that were not able to reach their Softcap even though the ratings from experts were really good. Further studies can be carried out in order to reveal the factors that might have resulted those contrary results.

The ICO projects under study were related to different field like business, internet, communication, media, artificial intelligence, real-estate, health, education, blockchain and many others. However, it was not considered ICOs of which field were more successful or more attractive to experts and investors. Therefore, further studies could be carried out to figure out which categories of ICO projects are bound to be more popular amongst ICO experts and investors and likewise find out if it can be a factor affecting success of an ICO.

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