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Factors of Success of Initial Coin Offering. Empirical Evidence from 2016–2019

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ABSTRACT

Since 2013, Initial Coin Offerings (ICO) have allowed companies to attract financing with the help of cryptocurrencies. Statistics of ICO shows that the ICO market is increasing and demand for funds continues to grow with claims of over $ 15 billion raised in the first half of 2018. The increasing volumes of investment in ICO projects as an alternative method to venture capital or IPO are caused by, for example, the possibility of reselling the received tokens at a higher price after the launch of the project or obtaining the company's services at lower prices. While the importance of the topic is growing, there is the absence of fundamental works emphasizing the determinants of an ICO's success. The scientific novelty of the forthcoming research consists in the formation of the model evaluation of ICO success. Using econometric analysis based on data for 1392 projects, we show that the volatility of the main cryptocurrencies has a significant impact on the success of ICO. The constraints of the platform for Smart Contacts (ERC-20) and dependence on the Ethereum volatility overcome all other factors. Our data contributes to existing literature and shows the insignificance of the sector of the project, almost all location region and fluctuation of influence of quality of the team. This result may be explained by the uncertainty of the investor about the project (weak signals), absence of the regulation and legal framework. This result is beneficial for owners of companies since it is an argument for decreasing costs for marketing.

Keywords: ICO; investment; success of initial coin offering; digital economics; smart contracts; blockchain; crowdfunding

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ОРИГИНАЛЬНАЯ СТАТЬЯ

Факторы успеха ICO. Эмпирические данные 2016–2019 годов

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АННОТАЦИЯ

С 2013 г. первичное предложение монет (ICO) позволяет компаниям привлекать финансирование с помощью криптовалют. Статистика ICO показывает, что спрос на них продолжает расти. В первой половине 2018 г. на финансирование этих проектов было заявлено более 15 млрд долл. США. Растущие объемы инвестиций в ICO проекты как альтернатива классическим способам привлечения средств с помощью венчурных фондов или IPO в основном объясняются потенциальной прибылью с будущей перепродажи полученных токенов или получением услуг компании по более низкой стоимости. Важность данной темы однозначна, однако существует мало фундаментальной литературы, фокусирующейся на причинах успеха ICO проектов. Научная новизна данной работы заключается в формировании модели оценки успеха ICO. Используя эконометрический анализ на основе данных для 1392 проектов, мы показываем, что волатильность основных криптовалют оказывает значительное влияние на успех ICO. Ограничения платформы, связанные со Smart Contacts (ERC-20), и зависимость от волатильности Ethereum превосходят остальные факторы. Наши данные дополняют имеющуюся литературу и показывают незначительность сектора проекта, локации и качества команды. Этот результат может быть объяснен неопределенностью инвестора в отношении проекта (слабые сигналы), отсутствием регулирования и правовой базы. Данный результат может быть полезен для владельцев компаний, поскольку является аргументом в пользу снижения затрат в сфере маркетинга.

Ключевые слова: ICO; инвестиции; успех ICO; цифровая экономика; смарт-контракты; блокчейн; краудфандинг

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INTRODUCTION

According to the PWC [1], initial coin offering ('ICO', also token launch or token generation) is a term describing a limited period in which a company sells a predefined number of digital tokens (crypto coins) to the public, typically in exchange for major cryptocurrencies or increasingly against FIAT currencies.

ICO is conducted on one specific blockchain, which serves as an ICO platform (the most common is the Ethereum blockchain — 90.2%[1]). The project-specific coins (tokens) are issued by a smart contract on the platform blockchain. Smart contracts[2] [2] are computer protocols, which permit trusted transactions and agreements to be carried out among disparate, anonymous parties with no central authority, legal system, or external enforcement mechanism required after the execution criteria have been met. Before the ICO launch, the project seeking funds creates two smart contracts which define the key parameters of the ICO and the tokens to be distributed (the amount of money going to be accepted maximally (the hard cap), the time frame when the ICO happens, the prize of the project-specific coins and how many of these coins will exist). After these smart contracts are deployed on the blockchain, investors can participate in the ICO by investing to the ICO smart contract; however, funds are not paid directly to the project itself. After the payment by the investors, the following part of the process is completely automated, according to the pre-defined rules in the smart contracts. The project receives access to the funds paid into the ICO smart contract and the investors receive their share of tokens from the token smart contract. Thus, the core machinery of the ICO process — the exchange of funds for tokens — is a fully automated system running on a blockchain [3]. The main advantages of smart contracts are independence (no need to find intermediary to make a deal), security (contract is stored encrypted in the distributed registry), credibility (all information has many copies in blockchain), cheapness (low costs) and accuracy (low operational risk).

INITIAL COIN OFFERING: CHARACTERISTICS AND PROCESS

There are several reasons explaining the popularity of Ethereum platform for ICO projects. First, this is a public database with the ability to store digital transactions for unlimited time. Maintenance and protection of such a database do not require any key management systems. Second, the platform reduces the complexity of the operations and simplifies the process itself leading to reduced cost. Third, Ethereum token has a real demand from the participants of the market because in order to make actions in the Ethereum blockchain, the users pay a certain amount of GAS (its cost is related to the ether coin and is used exclusively as payment for actions). The next advantage is the ability to create your own contracts with your currency leading to a big community and many nodes in the network allowing faster confirmation of contracts [speed of building blocks (10 minutes (BTC) vs 12 seconds (ETH)]. Finally, the advantage of using this particular type of platform is clear regulation and proven reliability. *Table 1* represents the comparison of five biggest platform and lists the maim advantages and disadvantages of each.

ICOs are inconsistently regulated across the world, and, depending on the jurisdiction, they can take different forms including a security, utility token or digital currency. The United States Securities and Exchange Commission (SEC US) and The Swiss Financial Market Supervisory Authority (FINMA) divide tokens only into 2 main types: security tokens (this type is to some extent similar to securities) and utility tokens (this type gives its holders the access to services provided by the project). Also there exists the third specific type — payment tokens. SEC focuses on comparing tokens with securities, FINMA is focused on the economic functions of tokens[3]. Each type of token has key features:

1. Security token (SEC) / Asset token (FINMA). This category of tokens represents assets such as participation in real physical underlyings, companies, or earnings streams, or an entitlement to dividends or interest payments. In terms of their economic function, the tokens are analogous to equities, bonds or derivatives. Sharing profits of a project is implemented by Modum[4] or NEX[5].

2. Utility token (SEC) / Utility token (FINMA). This category provides access to the goods and services that the project will launch in the future. Also, they can be used as a type of discount or premium access

[1] Representative self-selected database used in the empirical part. Source: www. ICObench.com.

[2] Smart contracts are self-executing contracts with the terms of agreement between the buyer and the seller being directly written into the lines of the code. The code and the agreements contained therein exist across a distributed, decentralized blockchain network.

[3] ICOscoring (2018). URL: https://medium.com/swlh/types-of-tokens-the-four-mistakes-beginner-crypto-investors-make-a76b53be5406 (accessed on 07.03.2019).

[4] This is a Swiss company focused on the pharmaceutical logistics industry. URL: https://icodrops.com/modum (accessed on 07.03.2019).

[5] Neon Meta Exchange. Payment service. URL: https://bitgid.com/ico-nex/ (accessed on 07.03.2019).

Table 1

Comparison of top 5 popular platforms for execution of smart contracts [4, 5]

Platform	Advantages	Disadvantages
ETHEREUM (ETH)	Free to setup. Contract transactions are charged in gas. Ethereum token standard or ERC-20 Own smart contract programming language Solidity Clear guidelines for developers Cutting edge development community Lots of literature/help available Smart contract developers nearly always have experience using Ethereum	Network frequently overloaded (leads to decreasing the speed) Scalability (during a new large ICO the system falls) More expensive than other platforms Developers have found a number of security issues with the Ethereum code. Added to this, poor quality smart contract code has left many contracts exposed to hackers
WAVES	Requires very little background knowledge to create own tokens	Not versatile platform Small userbase
HYPERLEDGER FABRIC (HLF, 'chaincode')	Open Source and free to use Permissioned membership Supported by IBM Flexibility as allows contracts to be coded in a variety of languages (e.g. go language or 'golang') Reliable Performance Supports plug-in components	No token system
NEM	Created in Java so easy to use (lighter code) and has no platform specific programming language Scalability Excellent performance/faster execution (e.g. while ETH does a maximum of 15 transactions per second, NEM reportedly manages hundreds of transactions per second) High level of security Easy to update	Smaller development community than other platforms Fewer tools available NEM uses code off the blockchain which makes it less decentralized
STELLAR (SSC)	Simple platform Good performance (median confirmation time is 5 sec.) Well regarded within the industry Almost costless (no gas fee for computation only negligible transaction fee equals $\$ 2\times10^{-6}$ vs medium price for a transfer $ 0.094 in ETH)	Not suitable for more complex smart contract development Not Turing complete

Source: Compiled by the authors.

Table 2

Rights and responsibilities of different types of token*

	Pre-sale / The token doesn't yet exist, but the claims are tradeable [Simple Agreement for Future Tokens (SAFT)]	The token exists
Security token	The same as securities (not subject to Anti-Money Laundering Act (AMLA)	The same as securities
Utility token		1. No more securities, if exclusively a functioning utility token 2. Still the same as securities, if also or only investment function
Payment token		No more securities. Means of payment under AMLA

Source: ICOscoring.

* ICOscoring (2018). URL: https://medium.com/swlh/types-of-tokens-the-four-mistakes-beginner-crypto-investors-make-a76b53be5406 (accessed on 07.03.2019).

to the goods and services of the project. For instance, Ethereum provides infrastructure for a computer, the Ethereum Virtual Machine (EVM), which is accessible worldwide for anyone. In order to use this computer (e.g., deploy smart contracts), a fee uniquely payable in Ether is due. Hence, only the possession of Ether allows access to the service provided by the Ethereum computer. Other examples are Filecoin[6] [6], Gnosis[7].

3. Cryptocurrencies (SEC) / Payment token (FINMA). Usually, the tokens of this category have no further functions or links to other development projects. Cryptocurrencies purpose is to be items of inherent value (similar, for instance, to cash or gold) that are designed to enable purchases, sales, and other financial transactions. They are intended to provide many of the same functions as long-established currencies such as the U.S. dollar, euro or Japanese yen but do not have the backing of a government or other body. For example, Bitcoin, in its original sense of a currency allows to easily transfer value worldwide over the Bitcoin blockchain. Other examples are Dash[8], Monero[9].

Table 2 shows the rights and responsibilities of different types of token based on ICOscoring analysis.

It is important to notice that utility tokens are used in more than 95% of all the existence projects and sometimes they are given completely absurd functions[10]. This is an implication of the legal restrictions. Moreover, the safest type of token for investors is security token. However, this type of token makes ICO more complicated and requires KYC (know your customer) / AML (anti-money laundering) procedures. However, the type of token might be amended throughout the project development, or because of SAFT-agreements. For example, Ziliqa[11], Seele[12], and Credits[13] all issued ERC-20 tokens (utility) in the early stages of development and later aim to substitute them for own cryptocurrencies (payment tokens).

LITERATURE REVIEW

Due to the limited of published papers and academic proven works about ICO, literature review is divided into 2 parts: the reviews about crowdfunding and about ICO. The choice of study crowdfunding may be explained by similar mechanism and idea[14]. Note that under the crowdfunding we take into account only equity crowdfunding or crowdinvesting which delivers investors a share in the company. In the

[6] Platform for dementalized storage of data. URL: https://filecoin.io Howell S.T., Niessner M., Yermack D. in working paper 'Initial Coin Offerings: Financing Growth with Cryptocurrency Token Sales' made a case study of the company. Revised in April 2019. URL: https://www.nber.org/papers/w24774.pdf (accessed on 07.03.2019).

[7] Company offers prediction market platforms, decentralized trading protocols and secure wallet app. URL: https://gnosis.io (accessed on 07.03.2019).

[8] Decentralized platform and cryptocurrency. URL: https://www.dash.org/ru/

[9] The 9th cryptocurrency based on market capitalization. URL: https://monero.org (accessed on 07.03.2019).

[10] ICOscoring (2018). URL: https://medium.com/swlh/types-of-tokens-the-four-mistakes-beginner-crypto-investors-make-a76b53be5406) (accessed on 07.03.2019).

[11] The cryptocurrency. URL: https://zilliqa.com (accessed on 07.03.2019).

[12] Protocol. URL: https://miningbitcoinguide.com/ico/seele (accessed on 07.03.2019).

[13] Decentralized blockchain platform built on peer-to-peer principles for developing smart contracts and decentralized applications. URL: https://credits.com (accessed on 07.03.2019).

[14] Detailed comparison of IPO, crowdfunding and ICO in appendix 2.

contrast to classical crowdfunding (it is almost non-repayable), crowdinvesting has more similarities with ICO, e.g. the motivation of agents (receive dividends). However, Belleflamme (2012) [7] states that participants of both formats of crowdfunding receive some usefulness from involvement in a closed community. Ferrerira and Pereira (2018) [8] show that the motivations for investors in equity and reward crowdfunding are similar. With similar motivations it is possible to apply the data available for reward crowdfunding to equity crowdfunding, since both campaigns can be designed to answer the same needs and motivations. Moreover, according to Belleflamme (2012) [7] crowdfunding projects share major characteristics: pre-purchase a product, willingness to pay and community benefits. These make crowdfunding more comparable to ICO.

Ahlers (2015) [9] identifies three main signals that influence the success of a crowdfunding campaign: a well-designed roadmap (including exit strategies for investors, such as an IPO or sale of a company), a Board of Directors (in particular, their number and level of education) and the share of the company with which its founders are willing to part (it is assumed that the founders will want to keep a large share of the company only when they believe in its success). At the same time, third-party project quality certifications, such as patents or grants, have no significant impact on success of campaigns. It has been found that the depth of the project description (Xiao, 2014 [10]) ("the elements on the homepage of a project that can well describe the project are positively associated with its crowdfunding performance") or the requested amount of money (Mollick, 2014 [11]) ("crowdfunding success appears to be linked to project quality, in that projects that signal a higher quality level are more likely to be funded, while a large numbers of friends on online social networks are similarly associated with success") influence funding success. Communication with the platform members and visitors is important for successful project funding as well (Xiao, 2014). Xu (2014) [12] focused on the updates of project descriptions and found that these updates also influence crowdfunding success. Koch and Siering (2015) [13] found that the project description, related images and videos as well as the question of whether the founder has previously backed other projects, influence funding success. Li (2018) [14] showed that financing objectives, assignment of shares, and the number of inquiries have a significant impact on investors' willingness to invest; the minimum initial investment amount and the number of inquiries have a significant impact on financing efficiency, and early investment affects the decision-making behavior of investors later in the process via the herding effect. Ahlers (2013) [9] found that ventures with more board members, higher levels of education and better networks send out positive signals and are more likely to be funded. Moreover, the exit strategy, the existence of a financial plan and the age of the capital-seeking venture also play significant roles. Zvilichovsky (2015) [15] underlines that crowdfunding acts on both sides of the market which is a peer-economy phenomenon. Author finds causal channel from playing both sides of the market to increased crowdfunding success and provides evidence as to the existence of reciprocity.

All current research on ICO may be divided into two main categories (theoretical and empirical) with the three biggest research questions in the ICO literature: factors affecting the success of ICO, factors affecting the liquidity and volatility of tokes and underpricing of ICO.

Adhami (2017) [16] investigates the impact of various factors on the success of ICO process and proves that this is the correlation with the existence of at least a part of the code and the crypto tokens pre-sale, while the correlation with the existence of the white book, the type of tokens and sales bonuses was not confirmed. Yadav (2017) [17], on the basis of interviews of several experts in the crypto field, identifies the following signals, important for investing in ICO process: the local environment (government) relationship to invest in blockchain technology projects, company history, liquidity of issued crypto tokens and their distribution, response of crypto communities on the project, promotional bonuses and paid ads, and the quality of information in the White Paper.

The correlation of an ICO price to its success was explored by Benedetti and Kostovetsky (2018) [18] who found a negative correlation on the nominal ICO price and ICO success, as there is a higher demand for tokens with low nominal prices. An additional aspect that can influence ICO success is the **platform** used, as ICOs teams must decide which platform to release their tokens on during the ICO. Fisch (2018) [19] finds that **Ethereum-based tokens** positively affected the ICO valuation, as there are fewer risks in choosing an established platform compared to using new technology. Howell, Niessner and Yermack (2018) [6] find the adoption of the Ethereum blockchain to be positively correlated to ICO returns over five months. Moreover, authors state that success is associated with disclosure, credible commitment to the project, and quality signals. Amsden and Schweizer (2018) [20] found a positive significant impact of launching a token on the Ethereum platform and tradability success; however, they also found a negative correlation with the amount raised and the use of the Ethereum platform.

As in any project, a key signal for investors in an ICO is that of the **quality of the management team** as it provides a signal of the potential success of the venture. Momtaz (2018) [21] finds that the quality of the management team as measured by analyst ratings from the ICOBench platform is positively related to the first-day returns. Howell (2018) [6] discovers a positive correlation between entrepreneurial experience to volume and liquidity; however, they find no correlation to abnormal returns in five months. Within literature pertaining to the factors contributing to equity crowdfunding success which operates similarly to security tokens, Ahlers et al. (2015) [9] uncover that a higher quality of human capital had a positive impact on crowdfunding success. Fisch (2018) [19] researches whether the **number of founders in the management team** influences the likelihood of success and suggests no correlation between the number of founders and the profitability of the ICO. Conversely, Amsden & Schweizer (2018) [20] measure human capital by the number of team members and ICO advisors and find that a larger number of team members and advisors is positively related to the chance of the token being traded as well as the amount raised. ICOs imply a high level of uncertainty and a high information asymmetry (Amsden & Schweizer, 2018 [20]), the presence of female members in the management team should increase the success of the ICO.

Furthermore, ICO success is linked to the **market sentiment.** Previous literature shows that investor and market sentiment, as measured by social media statistics (Benedetti, 2018 [18]; Fisch, 2018 [19]) and Google trends (Polasik, 2015 [22]; Sovbetov, 2018 [23]), affects the returns of cryptocurrencies. Regarding Twitter statistics, Benedetti (2018) [18] compares the relationship between the amount of Twitter followers and market capitalization and uncovers that more users lead to a larger market capitalization. Howell (2018) [6] found a positive correlation between the number of Twitter followers and five-month abnormal returns, as well as volume and liquidity; while Fisch (2018) [19] suggests that the presence of a Twitter page post-ICO affects the profitability of the ICO. Pertaining to the effect of the frequency of Google searches of cryptocurrencies on their returns, Sovbetov (2018) [23] looks at the factors that influence the price of the top cryptocurrencies and suggests that in the short-run, a greater number of Google searches only leads to an increase in the price of bitcoin. However, in the long- run it leads to an increase in the price of each cryptocurrency in their sample. Polasik (2015) [22] shares the view that an increase in the amount of Google searches leads to higher returns for bitcoin. Conversely, within the stock market, Bijl (2016) [24] analyses whether Google trends data can predict stock returns and finds that high levels of Google search volume predict low future stock returns.

There is a need to define what a **success of ICO** is. Adhami (2017) [16] defines success as a binary variable, where value of "1" corresponds to the live ICO (it exists and performs) and "0" corresponds to ICO failure. Lyandres (2019) [25] uses five success measures of ICO: 1) a binary variable with value"1" if at least a minimal amount ($ 10000) was raised; 2) the log amount raised; 3) the ratio of the amount raised to hard cap; 4) a binary variable with value "1" if a token was eventually listed on an exchange; 5) a "disaster indicator" which is a binary variable with value "1" if a token is delisted within a year of listing or experiences cumulative return lower than 95% a year after listing — for subsamples of ICOs with high and low values of various ICO characteristics. Amsden and Schweizer (2018) [20] define ICO success in the way whether the token is subsequently listed on an exchange (token tradability) and traded actively or not. The authors explain the definition due to exchanges are protective of their reputations and as this definition is "the only consistent and unbiased method when the dataset consists of both security and utility tokens". Boreiko (2018) [26] tests if proxies for success of ICO are correlated as should be the case if they all correctly identify the successful ICOs. The authors found that some consistent significant correlation coefficient of some proxies among each other, none of them are correlated with tokens' long-run performance as measured by the return in five months following the first month of trading. As for proxies, the authors take Token LR return; Token Listed on Exchange; Token Coinmarketcap ranking; Total funds raised; Raised more $US 100k; Raised more than min cap; Reached hard cap; N. investors; N. Twitter followers; Listing coverage; Icobaazar rating; Icobench rating; Icoholder rating; Bitcoin LR return and Ether LR return. Burns (2018) [27] uses three proxies for success of ICO: the four-month return on investment (ROI) of the ICO, the first-day returns and the total amount raised for the entire duration of the ICO. We define the success as the total amount raised; success ratio and BENCHY rating[15]. The literature overview of the papers about crowdfunding and ICO served as a basis for the hypothesis.

The technical characteristics and constraints of smart contract platform lead to constraints in the

[15] ICObench (2019). URL: https://icobench.com/ratings (accessed on 08.06.2019).

future choices of the team. Moreover, the majority of them are connected to the exact cryptocurrency. Therefore:

H1: The choice of a platform for creating smart contracts matters to potential contributors and affects the probability of a project's success.

H1a. Volatility of Ethereum positively affects the probability of success.

H1b. Volatility of Bitcoin negatively affects the probability of success.

Different signs of cryptocurrencies are defined by different directions of volatility between Ethereum and bitcoin. The graphs 1 and 2 show relationship between Ethereum and Bitcoin.

H1.

$$1.\ lnraised_i = c + \sum_i \beta_i Market\ Characterisctics_i + \\ + \sum_i \gamma_i control\ varibles\left(ico\ characterisctics\right)_i + \\ + \theta_i team\_size + \varepsilon_i$$

$$2.\ dummy\_ss\_ratio_i = c + \sum_i \beta_i Market\ Characterisctics_i + \\ + \sum_i \gamma_i control\ varibles\left(ico\ characterisctics\right)_i + \\ + \theta_i team\_size + \varepsilon_i$$

$$3.\ r\_benchy_i = c + \sum_i \beta_i Market\ Characterisctics_i + \\ + \sum_i \gamma_i control\ varibles\left(ico\ characterisctics\right)_i + \varepsilon_i$$

More information is better for a potential investor due to the absence of the regulation and legal framework (because of the high level of risk). For example, the existence of a white paper, open code or review from experts increases the availability of information leading to the increase of the investors' level of confidence. Therefore:

H2: The availability and quality of the information regarding prospective ICO projects matters to potential contributors and positively affects the probability of a project's success.

H2.

$$1.\ lnraised_i = c + \sum_i \gamma_i\ ico\ characterisctics_i + \\ + \sum_i \beta_i\ rating\ characteristics_i + \\ + \theta_i team\_size + \varepsilon_i$$

$$2.\ dummy\_ss\_ratio_i = c + \sum_i \gamma_i ico\ characterisctics_i + \\ + \sum_i \beta_i\ rating\ characteristics_i + \\ + \theta_i team\_size + \varepsilon_i$$

$$3.\ r\_benchy_i = c + \sum_i \gamma_i ico\ characterisctics_i + \\ + \beta_i num\_expert_i + \varepsilon_i$$

Table 3 demonstrates list of all variables in the sample.

Since ICO market is unregulated, there is no single source of ICO data, the study was conducted on a sample of companies that carried out ICO in the period from 2013 to 2018 and the data are presented on the ICOscoring platform, in the list of Coinschedule and Coindesk. All data have been collected manually from ICODrops, ICOBench, Coinmarketcap and the companies' white papers. To collect the data, we wrote a special code at Python to automate the process. It allows to get the real time pricing data.

The process of the data collection was the following: we collected the data from open sources, then we added the information from social networks (Twitter, Facebook and Telegram), and finally verified the information by means of white papers. The open sources we used are the most comprehensive and reliable databases.

EMPIRICAL RESULTS

In our data sample were 1824 projects, but after the data was cleared only 1392 projects left. In the sample, the majority of projects started in 2017 (334) and 2018 (935). 56 countries are presented (USA (147 projects, 9.7%); Singapore (179 projects, 11.82%); UK and Ireland (131 projects, 8.65%); Europe (32 countries included, 436 projects, 28.78%); Russia (86 projects, 5.68%). These top five countries are 64.64% of all the projects in the dataset. Among the regulation in our sample are 503 projects where ICO is allowed, 339 — allowed, but there will be future regulation, 509 — regulations (98% of the projects in the dataset are presented in the countries with no ban). The majority of the projects are utility type tokens (1321) and 1261 projects are based on Ethereum platform. 166 projects represent finance industry, 167 — business services, 239 — cryptocurrency and 282 are presented by the sector platform. The team size varies from 0 to 50 participants, with skewness to the right, the majority of the projects have from 3 to 12 participants in the team. The same skewness is true for the number of experts.

Table 3

List of all variables and their description

Name	Description
Dependent variables	
lnraised	The logarithm of the amount of the funds raised during ICO
dummy_ss_ratio	The dummy variable: 1 — success ratio equal to or more than 100%, 0 — not. Success ratio,%, = raised (the amount that the ICO project raised during ICO, $)/hard cap (the amount that the ICO project put as a target, $)
r_benchy	The category variable from 1 to 5. Special assessment algorithm that uses more than 20 different criteria for each project, including the quality of the team members (photos, full names, social media links), ICO information, whitepaper, milestones, video presentation and marketing and social media
Independent variables	
	Financial details and exchange
durarion_ico	ICO duration, days
ln(vol24h_1d)	The logarithm of volume of funds, in $ for the first 24 hours
distributed	Distributed number of tokens, $
num_cur	Number of currencies accepted, including fiat and cryptocurrencies
fiat	The dummy variable: 1 — accepts fiat money, 0 — does not
ETH	The dummy variable: 1 — accepts ethereum, 0 — does not
BTC	The dummy variable: 1 — accepts bitcoin, 0 — does not
bonus	The dummy variable: 1 — additional bonus, 0 — not
traded	The dummy variable: 1 — listing, 0 — not
duration_listing	Listing duration, in days up to 6.08.2019
open_pr_usd	ICO price at the beginning of the 1st trading day, $
close_pr_usd	ICO price at the end of the 1st trading day, $
close_pr_usd_5d	ICO price at the end of the 5th trading day, $
close_pr_usd_10d	ICO price at the end of the 10th trading day, $
close_pr_usd_30d	ICO price at the end of the 30th trading day, $
close_pr_usd_60d	ICO price at the end of the 60th trading day, $
close_pr_usd_90d	ICO price at the end of the 90th trading day, $
close_pr_usd_180d	ICO price at the end of the 180th trading day, $
close_pr_usd_365d	ICO price at the end of the 365th trading day, $
	ICO Characteristics
wp_KYC	White paper and Know Your Customer requirement, the dummy variable: 1 — exists, 0 — does not
sector_finance	The dummy variable: 1 — industry finance, 0 — not
sector_platform	The dummy variable: 1 — industry platform, 0 — not

End of Table 3

Name	Description
sector_cryptocurrency	The dummy variable: 1 — industry cryptocurrency, 0 — not
sector_business	The dummy variable: 1 — industry business, 0 — not
location_us	The dummy variable: 1 — location in the USA, 0 — not
location_singapore	The dummy variable: 1 — location in Singapore, 0 — not
location_uk	The dummy variable: 1 — location in the UK (plus Ireland), 0 — not
location_	The dummy variable: 1 — location in Russia, 0 — not
location_europe	The dummy variable: 1 — location in Europe (32 countries included), 0 — not
utility_token	The dummy variable: 1 — type of token — utility, 0 — not
platform_eth	The dummy variable: 1 — platform type — Ethereum, 0 — not
	Team characteristics
team_size	The number of participants in the team at the beginning
Num_adv	Number of advisors
	Market characteristics
eth_return	Ethereum Bitcoin return on the ICO starting date
eth_vol_week	Weekly volatility of Ethereum (7 days before the ICO started)
eth_vol_month	Monthly volatility of Ethereum (30 days before the ICO started)
bit_return	Bitcoin return on the ICO starting date
bit_vol_week	Weekly volatility of Bitcoin (7 days before the ICO started)
bit_vol_month	Monthly volatility of Bitcoin (30 days before the ICO started)
ind_return	CRIX return on the ICO starting date. CRIX is the cryptocurrency index which represents a weighted market capital index of the top cryptocurrencies and is balanced monthly based on the market value and trading volume of the cryptocurrencies.
ind_vol_week	Weekly volatility of CRIX (7 days before the ICO started)
ind_vol_month	Monthly volatility of CRIX (30 days before the ICO started)
	Rating characteristics
r_team	Rating of a team at ICObench
r_vision	Rating of a vision of the project at ICObench
r_product	Rating of a product at ICObench
r_experts	Rating of experts at ICObench
num_expert	Number of experts for rating at ICObench
var_r_team	Variance of rating from experts for a team
var_r_vision	Variance of rating from experts for a vision
var_r_product	variance of rating from experts for a product

Source: compiled by the author.

All variables of the rating have been taken from ICObench. The methodology of the rating is the following: the algorithm divides the evaluation on 4 different groups (team, ICO information, product presentation, marketing and social media). An ICO can be evaluated many times a day and the rating cannot be manually changed. All ICOs are rated under the same condition, by the same assessment algorithm. The overall rating of the ICObench algorithm is a mark out of 5. ICObench allows to get expert review. Experts are rating independently. ICObench does not allow experts to give bad rates to their competitors just because they are higher on the leader board. Each expert's rate is weighted in regard to his or her expertise, years of experience in the field, and possible available publications. We consider this part of the rating the subjective part. The expert's rating from 1 to 5 is assigned to the ICO for team, vision, and product.

Table 1 In the Appendix 4 gives descriptive statistics for 52 explanatory variables and 3 dependent variables. From the Pearson correlation matrix, we found that the correlation between dependent and independent variables is high (e.g., the correlation between r_benchy and r_experts is 81.79%). This corrects the specification of models and variables used. For each regression, we calculate the max and average VIFs, which are all below 4, meaning no evidence of multicollinearity. The results of the multivariate analysis are presented in *tables 2*.

Tables 2 in the Appendix 4 represent the evidence for H1 and H2. We found that volatility of Ethereum positively correlated with the total amount raised lead to the conclusion that the bigger the fluctuation of the market is, the bigger the interest from the investors to the market is. That may be a signal for the speculation as the investor's interest is willing to earn more and the possibility to earn at the cryptocurrency market on Ethereum is higher due to technical issues. The significance is stronger for weekly volatility as there is more ambiguity for cryptocurrency market over the long run. Significant control variables are the same for all model specifications:

- ICO duration has a slightly negative impact. The longer the ICO is, the harder is to raise funds, e.g. the project located in inappropriate countries leads to an increase in the ICO period and is a signal of less willingness to invest.
- Bonus, existence of WP and KYC have surprisingly negative signs. We believe that these parameters show the ICO transparency, but the logic of the investors is the same as for the ICO duration: if the project is complicated, the founders try to make it as attractive as possible.
- The opportunity to invest ICO using fiat money has a positive impact, as investors interpret it as a safer way to invest (there is no need to convert fiat to cryptocurrency before investing).
- The location of ICO significance negative in Russia and Europe due to big uncertainty of regulation in these regions. In Europe some regulations are only in France, Cyprus and Luxembourg, and there are no legal procedures in the other 29 countries. Nevertheless, in Russia we also have regulation of cryptocurrency market the current status of ICO and cryptocurrency market are still not fully defined (according to the federal portal of regulatory legal acts of the Ministry of Economic Development of Russia[16], the legal procedure has not been completed yet). Despite the fact that there is a regulation of the cryptocurrency market in the USA, the variable is not significant. The explanation is the following: companies registered both within and outside the United States limit the participation of the U.S. citizens and residents in token sale due to the legislation in the sphere of securities and stock market, as well as with the activities of the regulator in the face of the Commission on securities and exchanges (Securities and Exchange Commission; SEC)[17]. Since there is a number of problems (the regulation varies from state to state; court practice suggests that bitcoin is money, while the CFTC stated that it is rather a commodity; a special license is required to conduct cryptocurrency activities in some states), the main office locates in the USA and the token is issued in a different place.
- An indirect factor of the team quality is the size, which has positive influence. Since there are no financial reports at the ICO sale stage, the team size is one of the methods to define the firm size [28], which is a classical factor of influence in the corporate finance.
- The number of experts at the ICObench has slightly positive impact as there is no transparent information how these experts are approved to rate the projects. However, due to the absence of an underwriting process, rating is the only good proxy for it leading to taking into consideration rating and the experts' opinion.
- Variance of rating of the team, vision and product (in different specifications) also has a positive impact on the total funds raised. This influence has an unexpected sign. However, taking into account the significance of the proxy for underwriting (number of experts) and insignificance of internal decisions (the existence of a bonus, white paper and KYC), the big-

[16] Federal portal of normative legal acts of Ministry of Economic Development of Russia (2019). URL: https://regulation.gov.ru/projects#search=цифровые&npa=79293). (accessed on 17.08.2019).

[17] KYC Center (2018). URL: https://forklog.com/ssha-kak-yurisdiktsiya-dlya-kriptovalyut-ico-i-blokchejn-startapov (accessed on 17.08.2019).

ger variance is, the better the quality of the rating is since different experts show the variety of arguments for and against the project.

Surprisingly, the sign of the Bitcoin influence is positive and only for weekly data, which leads us to the conclusion that the cryptocurrency type does not matter in the short term period; but due to the technical decision to use Ethereum platform to issue tokens, monthly volatility of Bitcoin is insignificant. This supports the sign of CRIX. We find statistical significance and present it in *tables 2 Appendix 4*.

The second definition of the ICO success (success ratio) supports our hypothesis as well with additional significant control variables. The list of the main differences between the two models (lnraised is the first model, ss_ratio is the second one) is the following:

- In contrast to model 1, the availability of bonus is insignificant. However, the existence of white paper and KYC has the same signs and impact as in model 1. The exception is model 2.1 (with Bitcoin volatility). The founders of the projects establishing the hard cap understand what they may offer to the potential investor, leading to understatement the hard cap and increasing the probability of reaching it.
- The projects in the sector of the platform have more chances to be successful due to the demand and prospects of the sector from the business side. Platforms allow to make ecosystems and provide technological improvement for companies. A survey of 500 CEOs conducted by McKinsey & Company in 2018 showed that technology can increase company profits and capitalization by 30–50% [29].
- The influence of the location changes: in model 2, the probability of success of a project from the UK is higher by 10%[18], since in March 2019 the Financial Conduct Authority (FCA) issued a new guidance on cryptoassets, where the big focus is on the protection of investors and token-holders.
- The availability of Bitcoin as a means of investing in an ICO reduces the likelihood of success, and this contradicts the sign of the influence of Bitcoin volatility (the correlation between them is negative), since the Bitcoin mining procedure becomes more complicated with each mined token and leads to increased costs for investors. So, if investors choose Bitcoin, for the same amount of money they invest less spending funds for transaction costs. At the same time, these transaction costs during the mining process ensure internal value of cryptocurrency and decrease its volatility.
- The number of experts has negative impact as it shows the inability to manage the project by the team.

The last measure of the ICO project success is ICObench rating; however, the factors of influence are very similar to model 1 and model 2. The new significance variable is the number of currencies accepted by the project. More currencies increase the chances of getting a higher rating from ICObench due to diversity and openness to investors. The location and industry of the cryptocurrency in the industry does not matter, since they understand the procedure for launching projects of this type and the results.

LIMITATIONS AND CONCLUSION

In the recent report the OECD[19] states that 'under specific caveats, regulated forms of ICOs have the potential to become an alternative financing mechanism for young SMEs with Distributed Ledger Technologies(DLT)-related projects and could facilitate faster financing at a lower cost compared to most traditional financing mechanisms, benefiting from cost efficiencies derived from automation and disintermediation through the use of DLTs and the blockchain'. This study is the first step in a large research, whose aim is to help investors decide on investing in ICOs. The current study focuses only on one side of the procedure and limited number of variables. Moreover, the dataset may suffer from self-selection or other problems with mainly collected data, but this is the first dataset which will be available for other researches and will be updated automatically by a special code. Further research will focus on team quality (which characteristics of the board of directors are a signal for investors), media coverage (the importance of social networks for ICO success) and case studies of STO, DAOICO and IEO as a new form of ICO.

Empirical results show that the volatility of the main cryptocurrencies has significant impact on the success of ICO. The constraints of the platform for Smart Contacts (ERC-20) and dependence on the Ethereum volatility overcome all other factors. Our data supplement the existence literature and show fluctuations in the importance of the project sector, region of location and quality of the team depending on the definition of success. This result can be explained by investor uncertainty regarding the project (weak signals), lack of any one type of regulation and legal base. This result is beneficial for company owners because it is an argument in favor of lower marketing costs.

[18] Financial Conduct Authority (2019). URL: https://www.fca.org.uk/publication/consultation/cp19–03.pdf (accessed on 17.08.2019).

[19] OECD (2019), Initial Coin Offerings (ICOs) for SME Financing. URL: https:// www.oecd.org/finance/initial-coin-offerings-for-sme-financing.htm (accessed on 17.08.2019).

Appendix

Appendix 1. Detailed smart contract process

A smart contract consists of three obligatory and one non-obligatory parts:

1. Data. Receiving input from a user or another contract.
2. Condition. Analysis of the correctness of the data and verification of compliance with the terms of the contract.
3. Action. Operations with input data, obtaining data from the registers, data processing, recording/updating data in registers, etc.
4. Conditions for changing the contact and/or conditions for viewing the contract. Option rights.

Here is an example of a smart contract procedure:

Step 1. Agent 1 identifies himself/herself with his/her blockchain address (public key) and uses a smart contact to define the terms of the contract signing it with his/her private key.

For example, the agent wants to sell his/her car

Step 2. Agent 1 makes his/her part of the deal. In our example this means that the agent leaves the car and the car key in the garage with a smart contract controlled by the smart lock. The car has its own blockchain address (public key) stored in the blockchain.

Step 3. Agent 2 is a counterparty of the deal. He/she sings the contract with his/her private key transferring money or making his/her part of the deal.

Step 4. The smart contract is verified by each node on the blockchain network checking agent 1 and agent 2 and their actions.

Step 5. If the network agrees that all conditions are true, agent 2 automatically gets the access code (in our example the code to the smart garage lock). The blockchain registers agent 2 as a new owner.

In case of ICO, the process is the following. Two agents are project (creates smart contracts before ICO) and investors (send capital to the smart contract and receive corresponding tokens automatically). There is an intermediary between the agents (Blockchain as an automated ICO Platform) where two types of smart contracts are made. ICO Smart Contract defines key parameters of ICO such as soft and hard cap, token prize and duration. Token Smart Contact facilitates the use of token, including the initial distribution and the subsequent transfer of tokens. Both contract types are created by the project side. The first smart ICO contracts work by transferring capital from investors on the project side, checking the transaction and launching the Smart Contract token, which delivers tokens to investors.

Appendix 2. Detailed comparison of various types of fundraising for companies

When describing ICOs, we must emphasize the difference between ICOs and IPOs. To make it simple, a comparison table with 7 categories is presented in table 7. The main difference between IPO and ICO is the aim why companies decided to raise funds. On the one hand, IPO is used for companies as additional investments. IPOs are not held in the first round, which may be a signal of trust for investors. ICO is very quick and there are no barriers to enter for either investors or companies. We aggregate the comparison of ICO and IPO at the *table 1* of *Appendix 2*.

Table 1

Comparison of ICO and IPO

	ICO	IPO
Goal	The company sells tokens to gain stakeholders in the product ecosystem (stakeholders use the tokens to interact with the product)	Company wants to raise additional capital from investors in order to continue the company operations and growth
When	At the begging of the project	Not the first round of investment

End of Table 1

	ICO	IPO
Funding stage	All stages	Later stage
Regulatory	They are not restricted by any legal requests to issue any sort of legal documentation. There is no standard for an ICO whitepaper. Low regulation	There is a legal document called prospectus; it is a part of the obligatory requirement to chronicle with the regulatory authority. It signifies a legal statement with an objective to issue its share to the public. High regulation
Duration of offerings	The whole ICO procedure is much shorter in duration. The length of the period depends on the timeline and the nature of the project itself. Popular ICOs can frequently be much quicker	Customary IPO issuance can be a time-consuming process, because of mandatory legal and compliance procedures. It approximately takes 4 to 6 months
Access to offerings	Anyone can take a part in ICO. One is only required a base currency of either Ether or Bitcoin that can be transformed into the ICO token	Allowed only to institutional investors such as funds, mutual funds and investment banks. Often, only a small number is assigned to retail investors. Shares can simply be bought as soon as they are traded on exchanges
Characteristics of deal	Investment amounts >$ 100k, low transaction cost	Investment amounts >$ 10m, high transaction cost

Source: compiled by the author.

In the Cambridge English Dictionary, crowdfunding is defined as 'the practice of getting a large number of people to each give small amounts of money in order to provide the finance for a business project, typically using the internet'[1]. According to Ordanini (2011), the concept of crowdfunding is a collective effort of various individuals, who come together to pool the funds, to support new potential projects, organizations and businesses. The main purpose of crowdfunds is to either gather enough investors to make a product launch successful or to gather working capital to produce these things after a product has been launched.

Either the main purpose of crowdfunds is to gather enough investors to make a product launch successful or to gather working capital to produce these things after a product has been launched. We aggregate the comparison of ICO and crowdfunding at the *table 2 of Appendix 2*.

Table 2

Comparison of ICO and crowdfunding[2]

	ICO	Crowdfunding
Accessibility	Anyone could take part, as accessibility for them falls on a wider range	Most crowdfunding projects are restricted to a certain region or a certain country, native to the people behind the project (there exist the biggest ones which are global, e.g. KickStarter)

[1] URL: https://dictionary.cambridge.org/dictionary/english/crowdfunding (accessed on 01.06.2019).
[2] URL: https://tokenguru.net/articles/ico-vs-crowdfunding-what-is-the-difference (accessed on 01.06.2019).

End of Table 2

	ICO	Crowdfunding
Product	Tends to revolve around the blockchain technology, e.g. eSports gaming (Unikorn Gold), banking (Bancor, BABB and Centra), platforms (Stratis), social media (Social), etc.	Products may vary from textile, technology, software, hardware or even food. Sometimes they even span niche markets such as intellectual property and other services that offer similar trades
Return on Investment	ICO is an investment	Offer an already working platform or product and participants are merely paying for early access to be able to use these products or get discounts for next purchases
Legitimacy and Regulations	They are not restricted by any legal requests to issue any sort of legal documentation. There is no standard for an ICO whitepaper. Low regulation	Crowdfunds are most likely legitimate especially if the company trying to raise money would tie their products up to whatever business they are. These may involve patents, intellectual rights and would require forms to be filled out and submitted to the government. Also, these products may undergo testing first to make sure that it is safe for use or consumption by the public. Even then, not everyone would be able to participate in the projects, since with the problem of accessibility, they are limited by the region
Risks	Both of these have risks involved. However, ICO risks are considerably higher as most people who invest in them have profit in mind. The losses that might be suffered by an investor for an ICO would be different from someone who participated in a crowdfunding project and are not expecting for a return of investment, but just an early access to a technology or a product	

According to Boreiko (2018) [26], we can contribute our tables 1 and 2 by the following characteristics:

Characteristics	IPO	VC	Crowdinvesting	ICO
Marketing channel	Underwriters	Private negotiations	Online platforms	Social media
Intermediation	Syndicates	VC	Online platforms	–
Asymmetric information	Average	low	Above average	Highest
Monitoring ex-post	Governance mechanisms	VC	–	–
Liquidity	low		–	High

Appendix 3. Market overview of crowdfunding

The classical or commodity (premium) crowdfunding allows the investor to get the result (product) of the project. The transaction volume in 2018 was $ 9.4 billion, while the average value of the project in 2018 equaled $ 1 065. China is the leader in the market ($ 7 477 million), the USA is on the 2nd place ($ 1 041 million) and three other big countries are the UK, Japan and France $ 156 million, $ 94 million, $ 93 million, respectively).

The business segment of crowdfunding (crowdlending) reaches $ 383.6 billion as the transaction volume in 2018 with the average value of the project in 2018 equaled $ 14 629. In this segment China is still the leader with 91% market share ($ 347.9 billion) [30].

Appendix 4. Empirical results. Tables

Table 1

Summary statistics and correlation matrix

This table gives descriptive statistics (mean, standard deviation, min and max) for the dependent variables and the Pearson correlation coefficient.

Variable	Obs	Mean	Std. dev	Min	Max
Dependent variables					
lnraised	1 392	15.096	1.950	5.631	26.938
dummy_ss_r~o	1 392	0.552	0.497	0	1
r_benchy	1 392	3.304	0.658	1.3	5.0
Financial details and exchange					
duration_ico	1392	54.66	52.27	−72.00	389.00
duration_listing	200	419.98	203.00	3.00	1 394.00
lnvol24h	200	12.04	2.92	2.40	20.31
distributed	1147	0.54	0.21	0.01	1
num_cur	1392	2.19	3.21	0	100
Fiat	1392	0.17	0.38	0	1
ETH	1392	0.91	0.29	0	1
BTC	1392	0.48	0.50	0	1
OTHER	162	0.07	0.25	0	1
bonus	1392	0.52	0.50	0	1
traded	1392	0.28	0.45	0	1
open_pr_usd	200	0.39	1.01	0.00	11.47
close_pr_usd	200	0.45	1.09	0.00	11.50
close_pr_usd_5d	198	0.45	1.47	0.00	18.68
close_pr_usd_10d	197	0.49	2.03	0.00	26.88
close_pr_usd_30d	192	0.54	2.21	0.00	27.66
close_pr_usd_60d	186	0.50	1.83	0.00	19.73
close_pr_usd_90d	180	0.68	2.79	0.00	32.83
close_pr_usd_180d	171	0.72	4.65	0.00	55.64
close_pr_usd_365d	132	0.23	0.87	0.00	6.73
leg_code	1379	2.04	0.90	1.00	4.00
wp_KYC	1392	0.66	0.47	0	1
sector_finance	1392	0.12	0.32	0	1
sector_platform	1392	0.20	0.40	0	1
sector_cryptocurrency	1392	0.17	0.38	0	1
sector_business	1392	0.12	0.33	0	1
location_us	1392	0.10	0.31	0	1
location_singapore	1392	0.13	0.33	0	1
location_uk	1392	0.09	0.29	0	1
location_rus	1392	0.06	0.24	0	1
location_europe	1392	0.31	0.46	0	1
utility_token	1376	0.95	0.21	0	1
platform_eth	1391	0.90	0.30	0	1
Team characteristics					
team_size	1356	9.33	6.08	0	50
num_adv	1392	4.89	4.79	0	32
Market characteristics					
eth_return	1392	−0.001	0.06	−0.23	0.25
eth_vol_week	1392	0.05	0.02	0.00	0.16
eth_vol_month	1392	0.05	0.02	0.02	0.10

End of Table 1

Variable	Obs	Mean	Std. dev	Min	Max
bit_return	1392	0.00	0.05	−0.19	0.25
bit_vol_week	1392	0.04	0.02	0.00	0.13
bit_vol_month	1392	0.04	0.02	0.01	0.09
ind_return	1392	0.00	0.06	−0.23	0.19
ind_vol_week	1392	0.05	0.02	0.00	0.13
ind_vol_month	1392	0.05	0.02	0.00	0.09
Rating characteristics					
r_team	704	3.84	1.09	1.0	5.0
r_vision	704	3.78	1.15	1.0	5.0
r_product	704	3.56	1.12	1.0	5.0
r_experts	1010	3.39	0.66	1.1	4.8
num_expert	704	16.71	24.00	1	236
var_r_team	647	0.59	0.68	0.00	4.50
var_r_vision	647	0.68	0.69	0.00	4.50
var_r_product	647	0.72	0.71	0.00	5.33

	Inraised	dummy_ss_ratio	r_benchy	duration_ico	duration_listing	Invol24h	distributed	num_cur	Fiat	ETH	BTC	OTHER	bonus	traded	leg_code	wp_KYC	sector_finance	sector_platform	sector_cryptocurrency	sector_business	location_us	location_singapore
Inraised	100,00%																					
dummy_ss_ratio	23,20%	100,00%																				
r_benchy	9,75%	-6,32%	100,00%																			
duration_ico	-10,59%	-9,67%	11,44%	100,00%																		
duration_listing	16,67%	2,34%	-5,51%	1,36%	100,00%																	
Invol24h	24,19%	30,48%	8,10%	-27,43%	7,27%	100,00%																
distributed	-10,10%	-3,12%	-8,45%	11,27%	-0,79%	-28,70%	100,00%															
num_cur	2,14%	-7,90%	6,41%	8,84%	-9,74%	-26,31%	8,72%	100,00%														
Fiat	1,74%	-6,24%	11,50%	13,31%	-6,29%	-19,21%	-3,82%	30,42%	100,00%													
ETH	3,90%	-6,30%	19,21%	8,20%	-4,68%	-9,84%	10,13%	17,15%	9,32%	100,00%												
BTC	5,17%	-11,99%	12,94%	16,32%	-12,27%	-16,10%	6,04%	40,56%	35,68%	18,56%	100,00%											
OTHER	0,50%	9,73%	-67,20%	-20,17%	74,18%	-4,05%	-14,58%	-21,55%	-14,94%	-100,00%	-30,18%	100,00%										
bonus	-5,36%	-9,51%	23,77%	15,02%	-11,76%	-10,10%	6,98%	10,20%	7,06%	13,81%	10,96%	-11,34%	100,00%									
traded	23,68%	14,55%	-1,84%	-20,03%	34,25%	15,32%	-2,34%	-8,42%	-12,90%	-3,94%	-12,82%	7,76%	-11,22%	100,00%								
leg_code	1,00%	9,00%	-8,82%	-8,13%	5,47%	13,59%	-12,33%	-8,33%	-7,82%	-7,20%	-12,50%	15,11%	-8,13%	6,68%	100,00%							
wp_KYC	-14,34%	-9,07%	35,76%	19,90%	-49,19%	-8,11%	-5,27%	10,18%	12,02%	11,33%	11,52%	-7,70%	19,80%	-31,77%	-10,67%	100,00%						
sector_finance	5,21%	-4,93%	1,93%	1,14%	-3,35%	5,74%	1,99%	1,36%	7,72%	3,45%	6,25%	-9,24%	3,69%	-2,64%	0,90%	4,56%	100,00%					
sector_platform	7,32%	3,99%	-7,61%	-5,22%	5,82%	6,65%	-0,60%	2,02%	-1,10%	-0,46%	1,62%	2,56%	-2,12%	8,24%	6,37%	-21,93%	-18,36%	100,00%				
sector_cryptocurrency	-0,82%	5,47%	-4,68%	-0,71%	-4,31%	-3,06%	5,95%	-1,37%	-0,09%	4,78%	1,76%	-10,13%	-5,39%	1,03%	-5,26%	3,24%	-16,61%	-22,68%	100,00%			
sector_business	-5,11%	-4,51%	4,77%	6,41%	6,85%	4,76%	5,07%	-1,84%	-0,77%	-4,00%	-3,05%	8,85%	5,43%	-0,45%	-3,33%	6,26%	-13,54%	-18,49%	-16,73%	100,00%		
location_us	4,11%	4,45%	-9,28%	-0,32%	8,72%	9,71%	-7,44%	-5,89%	-4,22%	-9,04%	-8,85%	-5,29%	-8,84%	11,47%	36,45%	-16,71%	-3,12%	2,77%	-3,03%	-0,37%	100,00%	
location_singapore	4,72%	2,75%	6,90%	-10,59%	-2,91%	15,43%	-16,51%	-4,54%	-2,30%	3,44%	-7,63%	1,57%	-4,29%	0,62%	40,64%	9,01%	0,68%	-2,95%	2,79%	-2,15%	-13,07%	100,00%
location_uk	0,85%	2,34%	-0,99%	12,10%	11,20%	-8,85%	1,99%	2,85%	2,49%	1,96%	6,56%	1,74%	2,44%	-5,91%	-2,44%	2,20%	5,69%	-2,62%	2,42%	0,21%	-11,03%	-12,30%
location_rus	-10,07%	0,06%	-6,78%	0,76%	3,85%	-9,26%	16,45%	1,95%	-3,53%	-1,03%	2,60%	-3,02%	-3,09%	6,09%	27,15%	-16,05%	-4,71%	3,72%	-1,17%	-1,11%	-8,73%	-9,73%
location_europe	-4,11%	-8,39%	8,44%	3,88%	-8,03%	-11,71%	11,87%	7,63%	12,65%	5,71%	4,92%	-16,20%	8,73%	0,47%	-47,39%	3,68%	-3,04%	-3,41%	-2,36%	3,85%	-23,00%	-25,65%
utility_token	1,86%	1,26%	-4,62%	-8,23%	-1,54%	-13,32%	-6,64%	0,55%	-7,67%	0,11%	-2,03%	6,55%	-5,02%	-0,08%	3,82%	-4,59%	-0,58%	4,83%	-6,74%	-0,43%	-7,13%	8,36%
platform_eth	2,27%	7,05%	-2,21%	0,92%	12,27%	-8,49%	6,97%	-14,26%	-6,91%	20,06%	-16,62%	-45,00%	-2,31%	4,03%	1,09%	-2,14%	0,93%	2,04%	-4,91%	1,07%	-2,15%	2,49%
team_size	14,26%	-1,35%	16,19%	4,40%	0,36%	12,38%	-2,14%	-1,27%	7,77%	2,15%	0,69%	-9,62%	6,39%	3,49%	-3,77%	1,88%	-0,18%	3,43%	-5,56%	2,67%	-7,91%	4,29%
num_adv	15,20%	-5,88%	31,33%	-6,09%	-13,41%	8,78%	-5,10%	7,42%	6,68%	8,39%	8,55%	-0,11%	9,72%	1,21%	1,55%	11,57%	3,83%	1,74%	-6,59%	-0,20%	-0,22%	5,53%
eth_vol_week	11,59%	8,54%	-9,74%	-7,97%	12,67%	10,60%	7,64%	-5,55%	-5,67%	-3,89%	-5,82%	5,11%	-0,83%	10,59%	-4,13%	-16,32%	2,05%	3,31%	-1,67%	-2,00%	0,08%	-6,35%
eth_vol_month	11,90%	11,23%	-14,59%	-9,32%	26,25%	-1,14%	6,60%	-4,60%	-5,56%	-8,15%	-5,19%	5,37%	-5,50%	15,12%	-0,18%	-17,54%	-0,40%	-0,57%	-1,59%	-4,89%	6,34%	-3,87%
bit_vol_week	11,10%	11,26%	-16,88%	-11,09%	5,01%	9,76%	9,40%	-5,02%	-6,59%	-3,98%	-7,78%	10,88%	-8,21%	14,64%	2,58%	-28,26%	0,71%	6,38%	-4,18%	-8,50%	8,17%	-6,19%
bit_vol_month	14,18%	15,08%	-24,91%	-13,42%	16,19%	13,61%	10,17%	-4,20%	-8,21%	-4,10%	-5,32%	12,63%	-9,19%	21,19%	3,62%	-31,77%	-0,97%	5,84%	-4,52%	-7,94%	12,13%	-7,76%
ind_vol_week	8,76%	9,23%	-10,73%	-2,32%	2,57%	4,71%	10,70%	-2,98%	-2,48%	0,49%	-4,75%	-5,84%	0,77%	5,48%	-1,51%	-5,93%	2,29%	1,04%	-1,93%	-4,14%	-1,24%	-3,88%
ind_vol_month	10,33%	10,32%	-14,96%	-3,18%	11,24%	1,67%	10,66%	-1,66%	-4,01%	1,19%	-2,83%	-1,87%	-1,29%	11,66%	-0,08%	-4,98%	0,67%	-2,11%	-0,94%	-4,64%	4,42%	-3,08%
r_team	10,74%	-3,30%	22,85%	2,66%	-9,60%	19,12%	-3,02%	-3,92%	-5,80%	-2,56%	-1,65%	5,27%	-4,07%	0,15%	2,00%	7,93%	6,93%	-6,00%	-3,26%	6,71%	2,34%	9,11%
r_vision	9,53%	2,54%	10,19%	0,17%	0,90%	29,69%	-2,94%	0,83%	-2,61%	-2,53%	-2,75%	3,60%	-5,89%	2,17%	2,70%	2,14%	2,07%	1,34%	-6,15%	5,85%	2,43%	4,18%
r_product	6,84%	-2,46%	19,80%	2,93%	-10,06%	25,41%	-0,11%	-2,00%	-5,92%	-3,09%	-0,57%	-6,95%	-1,14%	-1,39%	4,10%	10,40%	5,63%	-5,23%	-6,59%	8,37%	1,46%	9,12%
r_experts	15,84%	-0,69%	81,79%	4,26%	-0,65%	21,96%	-11,81%	6,74%	10,32%	13,45%	10,20%	-18,50%	18,97%	0,54%	6,35%	28,10%	0,74%	-4,48%	-5,56%	5,54%	-3,01%	6,00%
num_expert	5,15%	6,43%	12,57%	-2,84%	-11,89%	9,25%	7,21%	12,34%	-1,75%	9,81%	6,36%	-5,77%	7,24%	8,14%	-9,96%	6,41%	-6,93%	6,98%	-9,16%	-1,70%	-6,01%	-7,64%
var_r_team	7,76%	2,91%	-0,62%	1,61%	-0,04%	-0,03%	1,83%	6,49%	3,98%	4,74%	7,48%	15,30%	3,02%	2,37%	-6,06%	5,58%	4,55%	0,82%	-6,91%	-5,72%	-7,20%	1,07%
var_r_vision	5,15%	0,42%	5,82%	11,18%	-0,16%	-11,07%	1,00%	4,72%	0,71%	2,47%	5,84%	9,92%	4,43%	-1,33%	-4,33%	5,29%	2,84%	-0,35%	-3,93%	-0,78%	-6,96%	5,88%
var_r_product	5,26%	-1,00%	2,75%	6,80%	-1,83%	10,52%	2,47%	5,03%	6,62%	4,41%	7,61%	-5,45%	3,30%	-0,29%	-7,18%	4,63%	4,27%	-2,08%	-1,94%	-3,61%	-4,50%	1,22%

	location_uk	location_rus	location_europe	utility_token	platform_eth	team_size	num_adv	eth_vol_week	eth_vol_month	bit_vol_week	bit_vol_month	ind_vol_week	ind_vol_month	r_team	r_vision	r_product	r_experts	num_expert	var_r_team	var_r_vision	var_r_product
Inraised																					
dummy_ss_ratio																					
r_benchy																					
duration_ico																					
duration_listing																					
Invol24h																					
distributed																					
num_cur																					
Fiat																					
ETH																					
BTC																					
OTHER																					
bonus																					
traded																					
leg_code																					
wp_KYC																					
sector_finance																					
sector_platform																					
sector_cryptocurrency																					
sector_business																					
location_us																					
location_singapore																					
location_uk	100,00%																				
location_rus	-8,22%	100,00%																			
location_europe	-21,66%	-17,14%	100,00%																		
utility_token	-0,11%	4,09%	-1,05%	100,00%																	
platform_eth	1,57%	-1,64%	2,94%	5,56%	100,00%																
team_size	-5,18%	-0,51%	6,32%	3,56%	-0,70%	100,00%															
num_adv	-2,89%	-2,45%	0,77%	-0,36%	2,02%	5,44%	100,00%														
eth_vol_week	1,13%	0,51%	1,81%	2,09%	4,47%	-4,19%	-2,32%	100,00%													
eth_vol_month	2,48%	-3,85%	-2,18%	4,15%	4,57%	-6,67%	-4,09%	58,91%	100,00%												
bit_vol_week	-1,45%	3,50%	0,49%	0,33%	2,40%	-7,23%	2,18%	63,13%	48,01%	100,00%											
bit_vol_month	2,17%	4,72%	-4,08%	5,61%	2,67%	-8,25%	-0,79%	41,46%	70,11%	73,10%	100,00%										
ind_vol_week	2,36%	0,36%	2,69%	1,97%	6,12%	-5,87%	0,75%	80,84%	55,55%	71,09%	51,54%	100,00%									
ind_vol_month	3,08%	-3,40%	-0,65%	4,00%	6,80%	-6,59%	1,68%	45,94%	81,85%	49,16%	75,11%	67,08%	100,00%								
r_team	6,01%	-7,19%	-2,14%	5,10%	0,33%	15,34%	22,64%	3,18%	1,43%	2,53%	-0,83%	1,69%	0,07%	100,00%							
r_vision	7,06%	-0,40%	-2,82%	0,11%	-1,09%	5,18%	13,36%	6,23%	6,64%	6,13%	7,09%	2,81%	4,03%	66,44%	100,00%						
r_product	8,21%	-5,07%	-6,96%	3,95%	1,80%	7,02%	13,44%	0,82%	-0,56%	-1,76%	-2,13%	-1,47%	-0,93%	72,58%	73,45%	100,00%					
r_experts	1,35%	-6,24%	4,23%	-2,84%	-0,63%	17,87%	36,15%	-4,80%	-8,44%	-9,23%	-12,46%	-5,43%	-7,89%	57,90%	48,77%	56,02%	100,00%				
num_expert	1,56%	2,40%	1,01%	6,72%	5,34%	0,50%	17,10%	2,18%	4,91%	2,97%	8,69%	3,96%	11,61%	13,82%	10,91%	10,94%	21,79%	100,00%			
var_r_team	0,85%	-3,16%	-0,34%	-9,49%	-2,04%	-4,51%	-2,64%	-2,30%	0,42%	-2,45%	-1,45%	-0,15%	2,48%	-14,14%	-8,03%	-9,34%	-10,44%	6,86%	100,00%		
var_r_vision	1,01%	-3,92%	1,28%	-7,15%	1,00%	-1,36%	2,77%	4,03%	2,14%	3,35%	2,21%	5,24%	4,73%	-9,80%	-18,67%	-11,71%	-9,52%	4,77%	61,18%	100,00%	
var_r_product	1,73%	-4,62%	4,30%	-11,78%	-2,55%	1,69%	2,87%	-0,71%	1,97%	1,53%	0,68%	4,02%	4,33%	-11,01%	-13,04%	-18,17%	-9,10%	5,65%	66,21%	64,80%	100,00%

Table 2

Results of multivariance analysis. All specifications and models
Model for logarithm of total raised funds

	Inraised																	
Variable	1.1.1	1.1.2	1.1.3	1.2.1	1.2.2	1.2.3	2.1.1	2.1.2	2.1.3	2.2.1	2.2.2	2.2.3	3.1.1	3.1.2	3.1.3	3.2.1	3.2.2	3.2.3
eth_vol_week	10.676***	10.109***	10.410***															
eth_vol_month				8.389**	8.005*	8.102*												
bit_vol_week							5.661*	5.083	5.298*									
bit_vol_month										5.898	5.297	5.592						
ind_vol_week													7.625***	7.205**	7.354***			
ind_vol_month																6.719*	6.459*	6.600*
duration_ico	-0.003***	-0.003***	-0.003***	-0.004***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
Fiat	0.264*	0.284**	0.263*	0.241*	0.263*	0.242*	0.239*	0.259*	0.239*	0.242*	0.262*	0.242*	0.248*	0.268*	0.248*	0.249*	0.270*	0.249*
bonus	-0.382***	-0.381***	-0.381***	-0.349***	-0.350***	-0.349***	-0.364***	-0.365***	-0.364***	-0.357***	-0.359***	-0.357***	-0.376***	-0.376***	-0.375***	-0.358***	-0.358***	-0.357***
wp_KYC	-0.733***	-0.723***	-0.719***	-0.773***	-0.762***	-0.759***	-0.738***	-0.732***	-0.728***	-0.737***	-0.731***	-0.726***	-0.781***	-0.769***	-0.768***	-0.792***	-0.779***	-0.778***
sector_finance	0.105	0.129	0.127	0.128	0.149	0.149	0.123	0.146	0.144	0.133	0.155	0.154	0.128	0.150	0.149	0.137	0.158	0.157
sector_platform	0.212	0.229	0.233	0.235	0.251	0.255	0.223	0.239	0.243	0.225	0.241	0.245	0.231	0.246	0.249	0.233	0.248	0.252
location_us	0.293	0.271	0.256	0.273	0.256	0.238	0.259	0.244	0.226	0.267	0.251	0.233	0.281	0.262	0.245	0.261	0.245	0.227
location_rus	-1.301***	-1.311***	-1.313***	-10.304***	-10.311***	-10.316***	-10.345***	-10.351***	-10.356***	-10.337***	-10.344***	-10.348***	-10.339***	-10.347***	-10.351***	-10.325***	-10.332***	-10.336***
location_europe	-.412***	-0.424***	-0.430***	-0.416***	-0.429***	-0.435***	-0.408***	-0.420***	-0.426***	-0.408***	-0.419***	-0.426***	-0.424***	-0.435***	-0.441***	-0.422***	-0.433***	-0.439***
utility_token	-0.087	-0.136	-0.106	-0.079	-0.120	-0.098	-0.045	-0.089	-0.066	-0.075	-0.115	-0.093	-0.086	-0.129	-0.107	-0.086	-0.127	-0.105
team_size	0.049***	0.048***	0.048***	0.049***	0.048***	0.047***	0.049***	0.048***	0.047***	0.049***	0.048***	0.047***	0.049***	0.049***	0.048***	0.049***	0.048***	0.048***
num_adv	0.017	0.015	0.015	0.017	0.015	0.015	0.014	0.013	0.013	0.016	0.014	0.014	0.015	0.014	0.014	0.016	0.014	0.014
num_expert	0.005**	0.005**	0.005**	0.005**	0.005**	0.005**	0.005**	0.005**	0.005**	0.005**	0.005**	0.005**	0.005**	0.005**	0.005**	0.004**	0.005**	0.005**
var_r_team	0.294***			0.282***			0.284***			0.281***			0.283***			0.277***		
var_r_vision		0.191**			0.201**			0.197**			0.198**			0.191**			0.196**	
var_r_product			0.177**			0.170**			0.170**			0.170**			0.164*			0.165**
_cons	15.060***	15.200***	15.164***	15.178***	15.290***	15.280***	15.377***	15.500***	15.489***	15.359***	15.482***	15.461***	15.317***	15.433***	15.421***	15.341***	15.442***	15.431***
N	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630
r2	20,79%	20,06%	19,99%	19,19%	18,64%	18,46%	19,06%	18,47%	18,31%	18,89%	18,33%	18,17%	19,70%	19,08%	18,93%	19,10%	18,57%	18,39%
r2_a	18,85%	18,11%	18,04%	17,22%	16,65%	16,47%	17,08%	16,47%	16,31%	16,91%	16,34%	16,17%	17,74%	17,10%	16,95%	17,13%	16,58%	16,40%
legend:	*p<0.1	**p<0.05	***p<0.01															

Model for success ratio, marginal effects

	dummy_ss_ratio (margin effects)					
Variable	1.1	1.2	2.1	2.2	3.1	3.2
eth_vol_week	1.915**					
eth_vol_month		4.335***				
bit_vol_week			2.348***			
bit_vol_month				4.425***		
ind_vol_week					1.683**	
ind_vol_month						2.928***
duration_ico	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
bonus	-0.052	-0.039	-0.048	-0.039	-0.051	-0.044
wp_KYC	-0.074*	-0.071*	-0.058	-0.034	-0.082**	-0.080**
sector_finance	0.011	0.014	0.009	0.015	0.015	0.018
sector_platform	0.109**	0.117**	0.108**	0.109**	0.112**	0.115**
sector_cryptocurrency	0.070	0.076	0.067	0.074	0.069	0.073
location_singapore	-0.007	0.002	-0.007	0.007	-0.008	0.002
location_uk	0.098*	0.096*	0.103*	0.097*	0.099*	0.099*
BTC	-0.089**	-0.088**	-0.097***	-0.098***	-0.094***	-0.094***
num_adv	-0.007**	-0.007**	-0.008**	-0.008**	-0.008**	-0.008**
num_expert	0.002*	0.002*	0.002*	0.001*	0.002*	0.001*
var_r_team	0.035	0.033	0.034	0.033	0.034	0.032
N	646	646	646	646	646	646
lroc	71,90%	72,65%	72,04%	72,75%	71,65%	72,11%
legend:	*p<0.1	**p<0.05	***p<0.01			

Model for rating from ICObench, odds ratio

	r_benchy					
Variable	1.1	1.2	2.1	2.2	3.1	3.2
eth_vol_week	0.0013549**					
eth_vol_month		1.113e-07***				
bit_vol_week			5.574e-08***			
bit_vol_month				4.405e-16***		
ind_vol_week					1.137e-06***	
ind_vol_month						9.468e-12***
duration_ico	1.001	1.001	1.001	1.000	1.001	1.001
num_cur	0.953***	0.952***	0.950***	0.949***	0.951***	0.950***
Fiat	1.322	1.339	1.341	1.305	1.344	1.323
ETH	2.537***	2.303***	2.747***	2.597***	2.671***	2.394***
bonus	1.565***	1.507***	1.527***	1.452**	1.559***	1.499***
wp_KYC	3.893***	3.888***	3.401***	2.938***	4.004***	4.112***
sector_finance	0.789	0.764	0.779	0.737	0.766	0.732
sector_platform	0.819	0.806	0.835	0.839	0.829	0.815
sector_cryptocurrency	0.534***	0.524***	0.517***	0.483***	0.521***	0.507***
location_singapore	1.449	1.430	1.456	1.343	1.483	1.391
location_rus	0.849	0.824	0.871	0.832	0.858	0.798
platform_eth	0.669	0.697	0.612**	0.696	0.682	0.743
team_size	1.038***	1.034***	1.032**	1.025**	1.034***	1.029**
num_adv	1.044***	1.042**	1.050***	1.047***	1.046***	1.044***
num_expert	1.007**	1.007**	1.007**	1.009**	1.007**	1.008**
var_r_team	0.936	0.939	0.897	0.854	0.909	0.915
var_r_vision	1.216	1.203	1.285	1.327*	1.269	1.266
N	638	638	638	638	638	638
cut1_cons	0,005***	0,003***	0,003***	0,001***	0,004***	0,002***
cut2_cons	0,010***	0,005***	0,006***	0,002***	0,008***	0,004***
cut3_cons	0,020***	0,010***	0,013***	0,004***	0,016***	0,008***
cut4_cons	0,036***	0,018***	0,022***	0,007***	0,028***	0,013***
cut5_cons	0,079***	0,039***	0,049***	0,015***	0,061***	0,028***
cut6_cons	0,106***	0,053***	0,066***	0,019***	0,082***	0,038***
cut7_cons	0,175***	0,088***	0,109***	0,033***	0,136***	0,063***
cut8_cons	0,275***	0,138***	0,171***	0,052***	0,213***	0,099***
cut9_cons	0,378**	0,191***	0,235***	0,072***	0,294***	0,137***
cut10_cons	0,581	0,294**	0,359**	0,112***	0,45*	0,211***
cut11_cons	0,961	0,486	0,593	0,186***	0,743	0,35**
cut12_cons	1,430	0,722	0,887	0,279***	1,106	0,523
cut13_cons	2,336*	1,178	1,457	0,462	1,819	0,859
cut14_cons	3,003**	1,516	1,883	0,599	2,351*	1,112
cut15_cons	4,229***	2,143	2,673**	0,864	3,328***	1,586
cut16_cons	5,681***	2,889*	3,615***	1,185	4,487***	2,155
cut17_cons	8,619***	4,402***	5,555***	1,862	6,864***	3,334**
cut18_cons	11,637***	5,965***	7,584***	2,591**	9,334***	4,579***
cut19_cons	21,270***	10,977***	14,175***	5,016***	17,301***	8,654***
cut20_cons	37,689***	19,511***	25,474***	9,244***	30,977***	15,704***
cut21_cons	48,328***	25,040***	32,790***	11,993***	39,865***	20,302***
cut22_cons	75,850***	39,382***	51,742***	19,139***	62,894***	32,305***
cut23_cons	108,968***	56,676***	74,569***	27,778***	90,673***	46,883***
cut24_cons	187,854***	97,799***	129,083***	48,288***	157,088***	81,793***
cut25_cons	362,221***	188,574***	249,811***	93,510***	303,872***	158,82***
cut26_cons	2801,928***	1460,476***	1939,949***	729,534***	2352,921***	1232,154***

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