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

A. S. Myalo*, N.Yu. Glukhov*

*a, b National Research University Higher School of Economics, Moscow, Russia

https://orcid.org/0000-0001-5647-5054; b https://orcid.org/0000-0002-4423-340X

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

For citation: Myalo A. S., Glukhov N.Yu. Factors of success of Initial Coin Offering. The empirical evidence from 2016–2019. Finance: Theory and Practice. 2019;23(5):30-49. DOI: 10.26794/2587-5671-2019-23-5-30-49
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%). The project-specific coins (tokens) are issued by a smart contract on the platform blockchain. Smart contracts[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 into 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 main 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[5]. 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

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[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 07.05.2019).
[4] This is a Swiss company focused on the pharmaceutical logistics industry. URL: https://icodrops.com/modum (accessed on 07.05.2019).
[5] Neon Meta Exchange. Payment service. URL: https://bitgid.com/ico-nex/ (accessed on 07.05.2019).
### 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.
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, 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

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6 Platform for demetalized 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), crowdsourcing 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 (2015) [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 tokens 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. Montaz (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 ($10 000) 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 rating15. 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

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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. \[ Inraised_i = c + \sum \beta_i \text{Market Characteristics}_i + \sum \gamma_i \text{control variables}_i + \theta \text{team_size} + \epsilon_i \]

2. \[ \text{dummy_ss_ratio}_i = c + \sum \beta_i \text{Market Characteristics}_i + \sum \gamma_i \text{control variables}_i + \theta \text{team_size} + \epsilon_i \]

3. \[ r \text{_benchy}_i = c + \sum \beta_i \text{Market Characteristics}_i + \sum \gamma_i \text{control variables}_i + \epsilon_i \]

**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.
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** |                                                                                                                                                                                                             |
| duration_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                                                                                                                                                        |
| 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_size                        | The number of participants in the team at the beginning                                                                                    |
| Num_adv                          | Number of advisors                                                                                                                        |
| 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)                                                                               |
| 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.

End of Table 3
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 \( r_{\text{benchy}} \) and \( r_{\text{experts}} \) 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=инфопомощь&npa=79295, (accessed on 17.08.2019).

\(^{17}\) KYC Center (2018). URL: https://forklog.com/sha-kak-yurisdiktsiya-dlya-kriptovalyut-ico-i-blokchejn-startapov (accessed on 17.08.2019).
The exception is model 2.1 (with Bitcoin volatility).

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.
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 contract 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 contract 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 signs 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.

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                                     |
They are not restricted by any legal requests to issue any sort of legal documentation. There is no standard for an ICO whitepaper.

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.

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.

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.

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

| Characteristics of deal | 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).
ICO Crowdfunding

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

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.

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

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                | Crowdfunding        | 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 $ 1065. China is the leader in the market ($ 7477 million), the USA is on the 2nd place ($ 1041 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 $ 583.6 billion as the transaction volume in 2018 with the average value of the project in 2018 equaled $ 14629. In this segment China is still the leader with 91% market share ($ 347.9 billion) [30].
Appendix 4. Empirical results. Tables

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                              | 1392| 15.096 | 1.950    | 5.631 | 26.938|
| dummy_ss_r~o                         | 1392| 0.552  | 0.497    | 0     | 1     |
| r_benchy                              | 1392| 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  | 1394.00|
| 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  |
| 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 |
### Table 2

**Results of multivariate analysis. All specifications and models**

**Model for logarithm of total raised funds**

| 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***  |           |           |           |
| ind_vol_week                                  |           |           |           | 4.425***  |           |           |
| ind_vol_month                                 |           |           |           |           | 1.683**   |           |
| 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_crypto_currency                        | 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_exp                                       | 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     |

**Model for success ratio, marginal effects**

| Variable                                      | 1.1       | 1.2       | 2.1       | 2.2       | 3.1       | 3.2       |
|-----------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| eth_vol_week                                  |           |           |           |           |           |           |
| eth_vol_month                                 |           |           |           |           |           |           |
| bit_vol_week                                  |           |           |           |           |           |           |
| ind_vol_week                                  |           |           |           |           |           |           |
| ind_vol_month                                 |           |           |           |           |           |           |
| duration_ico                                  |           |           |           |           |           |           |
| bonus                                         |           |           |           |           |           |           |
| wp_KYC                                        |           |           |           |           |           |           |
| sector_finance                                |           |           |           |           |           |           |
| sector_platform                               |           |           |           |           |           |           |
| sector_crypto_currency                        |           |           |           |           |           |           |
| location_singapore                            |           |           |           |           |           |           |
| location_uk                                   |           |           |           |           |           |           |
| BTC                                           |           |           |           |           |           |           |
| num_adv                                       |           |           |           |           |           |           |
| num_exp                                       |           |           |           |           |           |           |
| var_r_team                                     |           |           |           |           |           |           |

**Legend:**

- *p<0.1
- **p<0.05
- ***p<0.01

N: 646
lroc: 71.90% 72.65% 72.04% 72.75% 71.65% 72.11%
### Model for rating from ICObench, odds ratio

| Variable                  | 1.1          | 1.2          | 2.1          | 2.2          | 3.1          | 3.2          |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| eth_vol_week              | 0.0013549**  |              |              |              |              |              |
| eth_vol_month             |              |              |              |              |              |              |
| bit_vol_week              | 0.953***     | 0.952***     |              |              |              |              |
| bit_vol_month             | 1.322        | 1.339        |              |              |              |              |
| ind_vol_week              | 2.537***     | 2.303***     |              |              |              |              |
| ind_vol_month             | 1.565***     | 1.507***     |              |              |              |              |
| duration_ico              |              |              |              |              |              |              |
| num_cur                   | 3.893***     | 3.888***     |              |              |              |              |
| Fiat                      | 0.789        | 0.764        |              |              |              |              |
| ETH                       | 0.819        | 0.806        |              |              |              |              |
| bonus                     |              |              |              |              |              |              |
| wp_KYC                    | 0.534***     | 0.524***     |              |              |              |              |
| sector_finance            |              |              |              |              |              |              |
| sector_platform           |              |              |              |              |              |              |
| location_singapore        |              |              |              |              |              |              |
| location_rus              |              |              |              |              |              |              |
| platform_eth              |              |              |              |              |              |              |
| team_size                 |              |              |              |              |              |              |
| num_adv                   |              |              |              |              |              |              |
| num_expert                |              |              |              |              |              |              |
| var_r_team                |              |              |              |              |              |              |
| var_r_vision              |              |              |              |              |              |              |
| N                         | 638          | 638          | 638          | 638          | 638          | 638          |
| cut1_cons                 | 0.005***     | 0.003***     |              |              |              |              |
| cut2_cons                 | 0.010***     | 0.005***     |              |              |              |              |
| cut3_cons                 | 0.020***     | 0.010***     |              |              |              |              |
| cut4_cons                 | 0.036***     | 0.018***     |              |              |              |              |
| cut5_cons                 | 0.079***     | 0.039***     |              |              |              |              |
| cut6_cons                 | 0.106**      | 0.053***     |              |              |              |              |
| cut7_cons                 | 0.175**      | 0.088***     |              |              |              |              |
| cut8_cons                 | 0.275**      | 0.138***     |              |              |              |              |
| cut9_cons                 | 0.378**      | 0.191***     |              |              |              |              |
| cut10_cons                | 0.581        | 0.294**      |              |              |              |              |
| cut11_cons                | 0.961        | 0.486        |              |              |              |              |
| cut12_cons                | 1.430        | 0.722        |              |              |              |              |
| cut13_cons                | 2.336*       | 1.178        |              |              |              |              |
| cut14_cons                | 3.003**      | 1.516        |              |              |              |              |
| cut15_cons                | 4.229**      | 2.143        |              |              |              |              |
| cut16_cons                | 5.681***     | 2.889*       |              |              |              |              |
| cut17_cons                | 8.619***     | 4.402***     |              |              |              |              |
| cut18_cons                | 11.637***    | 5.965***     |              |              |              |              |
| cut19_cons                | 21.270***    | 10.977***    |              |              |              |              |
| cut20_cons                | 37.689***    | 19.511***    |              |              |              |              |
| cut21_cons                | 48.328***    | 25.040***    |              |              |              |              |
| cut22_cons                | 75.850***    | 39.382***    |              |              |              |              |
| cut23_cons                | 108.968***   | 56.676***    |              |              |              |              |
| cut24_cons                | 187.854***   | 97.799***    |              |              |              |              |
| cut25_cons                | 362.221***   | 188.574***   |              |              |              |              |
| cut26_cons                | 2801.928***  | 1460.476***  |              |              |              |              |
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ИНФОРМАЦИЯ ОБ АВТОРАХ / ABOUT THE AUTHORS

Alina S. Myalo — HSE Postgraduate Student, Curator of the Bachelor’s Program, ICEF NRU HSE, National Research University Higher School of Economics, Moscow, Russia

Алина Сергеевна Мяло — аспирант НИУ ВШЭ, куратор бакалаврской программы МИЭФ НИУ ВШЭ, Национальный исследовательский университет «Высшая школа экономики», Москва, Россия

emyalo@yandex.ru, amyalo@hse.ru

Nikita Yu. Glukhov — student, ICEF NRU HSE, National Research University Higher School of Economics, Moscow, Russia

Никита Юрьевич Глухов — студент МИЭФ НИУ ВШЭ, Национальный исследовательский университет «Высшая школа экономики», Москва, Россия

nickglukhov@yandex.ru

The article was submitted on 15.08.2019; revised on 29.08.2019 and accepted for publication on 30.08.2019. The authors read and approved the final version of the manuscript.

Статья поступила в редакцию: 15.08.2019; после рецензирования: 29.08.2019; принята к публикации 30.08.2019. Авторы прочитали и одобрили окончательный вариант рукописи.