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Abstract

Initial coin offerings (ICOs) have emerged as an alternative way of raising funds for entrepreneurial ventures to develop a new project or product. In this study, a comprehensive analysis is conducted on the determinants of ICO success and aftermarket performance of ICOs. Our evidence suggests that ICOs with higher ratings, shorter planned token sale duration, smaller share for token sale, larger number of experts and more members in the developing team have a greater likelihood of success and raising more funds. We also show that offer price and market sentiment play a major role in explaining longer term post-ICO performance. Yet, key to a successful ICO and post-ICO performance differ between boom vs bust periods in the cryptocurrency markets.

Keywords: Fundraising Success, Initial Coin Offerings, Post-ICO Performance, Underpricing.

JEL Classification: G24, L26, M13

Non-Technical Summary

The world of finance is currently undergoing a striking transformation, motivated by rapid advances in digital technology. Blockchain based distributed ledger technology is the backbone of the digital revolution which was the underlying technology behind the cryptocurrency Bitcoin introduced in 2009. It was the first widespread use of Blockchain technology. Since then, the trend towards digitalization has gained momentum bringing about the promotion of new types of financial products as well as new process and platforms. Initial coin offerings are one of the most common implementations of Blockchain for finance, allowing entrepreneurial ventures an alternative way of raising funds to develop a new project or product.

In this paper, we study the cryptocurrency market for initial coin offerings (ICO). Using hand-compiled data, the determinants of the amount raised in ICOs and aftermarket performance of ICOs are analyzed. We find that higher ratings, larger number of experts and more members in the developing team have a positive impact on ICO success. In addition, having shorter planned token sale duration, retaining larger fraction of tokens, not offering bonus for early investors and not setting higher hardcap levels have positively correlated with the success of the campaign. Besides, two common phenomena for initial public offerings (i.e. underpricing and post-IPO performance) are evaluated in the ICO context. Empirical analysis shows that offer price, market sentiment, raised and ICO duration are significant drivers of underpricing. Moreover, we observe a significant relationship between market sentiment measured with CCI30 index, the offer price, the end-to-open return, the first listing day return and longer-term post-ICO performance. We also focus on the determinants of ICO success and aftermarket performance of ICOs during both the market boom and crash. The results suggest that the key success ICO factors and ICO returns differ between boom and bust periods.

1. Introduction

In recent years, initial coin offerings (ICOs) have emerged as a new form of crowdfunding in the world of cryptocurrencies with the potential of replacing conventional financing sources. ICOs combine crowdfunding or equity crowdfunding aspects with distributed ledger technology and they provide for entrepreneurial ventures an alternative route to raise external finance by issuing and selling tokens to a crowd of investors (Fisch, 2019). Tokens[1] are blockchain-powered digital assets for which all transaction records are secured through encryption techniques. In addition, no intermediation is needed to conduct an ICO thanks to innovative technology enabled using smart contract, suggesting low transaction fees.

As the name infers, an ICO is a close analogue to a corporate initial public offering (IPO) of equity shares. Instead of offering the company shares for the public to purchase, digital coins or tokens are distributed. Except for selling a different asset, these two funding methods through public offering have some other substantial differences: IPOs are pursued by already established business whereas ICOs has been favored by new business ventures. In the context of an IPO, underwriters, serving as an intermediary between investors and issuing companies, determine IPO prices. Unlike IPOs, underwriters do not set companies' offer prices in ICOs. Prior to raising funds via IPOs, companies face regulatory hurdles or disclosure obligations. ICOs, by contrast, have gained popularity owing to their unregulated nature and close to zero transaction cost. Therefore, ICOs are usually performed by young startups in the tech industry to work around the regulatory requirements and costly intermediaries (such as exchanges, brokerages, underwriters, etc.). Taken together, ICOs potentially have

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[1] There are three main categories of ICO tokens: cryptocurrency tokens, security tokens and utility tokens. Cryptocurrency tokens or coins, of which Bitcoin is the prime example, serve as a medium of exchange, store of value and unit of account. Security tokens grant to holders certain ownership rights of a company, while utility tokens represent future access to the services or products provided by the issuers. Neatly fitting digital tokens into one of the above types matters since tokens that are deemed securities should be issued in compliance with the SEC's rules and regulations. Utility tokens are typically exempted from federal laws. To figure out if a token is a security, the SEC uses the Howey test which is a test created by the Supreme Court for determining whether certain transaction involves an investment contracts. A crypto token that passes the Howey Test is considered as a security token (https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets).

different key success factors as well as different underpricing and post-offering performance pattern from IPOs.

Previous literature compares ICOs to conventional forms of corporate finance (Momtaz and Rennertseder, 2019; Ofir and Sadeh, 2019) and explores the determinants of ICO funding success (e.g. Adhami et al., 2018; Amsden and Schweizer, 2018; Fisch, 2019; Bourvea et al., 2018, Lee et al., 2021, De Jong et al., 2020), inter alia, the dynamics of ICO token returns in the short and long run (e.g. Benedetti and Kostovestky, 2021; Lyandres et al., 2019; Momtaz, 2020a; Momtaz, 2019; Felix and von Eije, 2019). We supplement the existing research by investigating the ICO success with a comprehensive set of variables. We then link our empirical results to the IPO and crowdfunding literatures and provide theoretical explanations for our findings in the ICO domain.

In line with literature, we find that higher expert rating, lower fraction of distributed tokens, shorter token sale duration, not having bonus scheme increase the chances of success. In addition, we go further beyond fundraising success and evaluate two common phenomena for initial public offerings (i.e. underpricing and post-IPO performance) in the ICO context. The results confirm previous research and demonstrate that there is underpricing in ICOs, with an average return of 261% from the ICO price to the first day's closing price. As expected, the average underpricing in ICOs is considerable higher in comparison to IPOs since ICO companies are at the very early stages of development and face uncertain future demand on their non-existent product. The regression analysis show that ICO offer price, market sentiment measured by the CCI30 cryptocurrency market index, funds raised and duration of ICO campaign are significant drivers of underpricing. Furthermore, we find that market sentiment, the offer price, the end-to-open return and the first listing day return are significant determinants of ICO returns at all horizons.

In our research, we also contribute to the literature by discovering the ICO market characteristics and determinants of ICO success during different phases of crypto market cycle. Although previous studies have examined many different aspects of ICOs such as the geography of ICOs (Huang et al.,2020), liquidity and trading volume in the ICO market (Howell et al., 2020), specific success factors resulting from asymmetric information such as CEO loyalty (Momtaz, 2020b) and emotions

(Momtaz, 2020c) as well as moral hazard (Momtaz, 2020d), investor sentiment on the ICO market (Drobetz et al., 2019) and contribute to theory (Cong et al., 2018; Sockin and Xiong, 2020; Li and Mann, 2018; Catalini and Gans, 2019; and Chod and Lyandres, 2020), they usually ignore to distinguish between bearish vs. bullish cryptocurrency market periods. One aim of this paper is to fill this gap in the current literature. Therefore, we review and synthesize past research to identify critical variables that may potentially explain fundraising success and returns to investing in ICOs attempting between April 2015 and January 2020. This period offers additional insight because it encompasses three distinct subperiods: bullish for both cryptocurrency and ICO markets, bullish for ICO market but bearish subperiods for cryptocurrency market, and bearish subperiods for both cryptocurrency and ICO markets. As such, we divide our sample into three subsamples to account for differences induced by the process of development undergone by cryptocurrency and ICO market.

We address the following areas to afford a new insight into the ICOs regarding different market trends: potential determinants of the ICO success and post-listing returns and longer-term returns for ICO tokens. The empirical results suggest that investors make their decisions whether or not to invest in ICO according to "rating" in bullish periods of ICO market. However, they substitute it by "number of experts" during the bearish periods. In addition, we find evidence that market sentiment and first day return remain significant drivers of short and long-term ICO returns over subperiods, while the impact of campaign or company characteristics tend to vary across different market trends.

The remainder of this paper is organized as follows. Section 2 provides literature review, Section 3 introduces the sample data, Section 4 presents empirical results and discusses their implications, and Section 5 concludes.

2. Literature Review

There has been a vast amount of studies that examine the cryptocurrencies with regards to their market properties (Yaya et al., 2020; Quang et al. 2020; Yaya et al., 2020; and Zhang and Li, 2021), however studies on ICOs remain relatively limited.

On the theoretical side, several papers are concerned with identifying how ICOs could be beneficial for entrepreneurs. Cong et al. (2018) develop dynamic asset valuation model of cryptocurrencies and tokens on blockchain-based platforms and show the roles of the tokens in accelerating user adoption. Sockin and Xiong (2020) model a cryptocurrency as membership to a digital platform developed to facilitate decentralized transactions of certain goods or services among users, whereas Li and Mann (2018) present a model to explain how tokens and ICOs create value in the presence of a network effect, by solving coordination failure during platform building. Catalini and Gans (2019) show that ICO allows an entrepreneur to extract information about consumers' willingness to pay, providing ventures with higher returns compared to equity finance. Similarly, Chod and Lyandres (2020) present an agency theory and elaborate the reasons for why ICOs can have an advantage over traditional venture capital financing.

On the empirical side, initial works explore success factors behind ICOs. Adhami et al. (2018) examine 253 ICO campaigns and find that probability of an ICO's success in terms of amount raised depends on various factors such as the publicly available code source of the ICO, the presale of tokens, and the right to access a specific service or share profits. Amsden & Schweizer (2018) consider coin tradability as the primary ICO success measure, and stated that venture uncertainty (shorter whitepapers, not being on social media channels such as Github and Telegram, higher percentage of tokens distributed) has a negative influence, whereas venture quality (better connected CEOs and larger team size) has a positive influence, on ICO success. The importance of the existence of a white paper or disclosure of specific information for ICO success is confirmed by Howell et al. (2020), who document that liquidity and trading volume of exchange-traded tokens are higher when issuers disclose more information. According to the Fisch's (2019) signaling-related evidence, the amount raised in an ICO is determined by high quality source codes, technical white papers, higher token supply, and having an Ethereum-based token. The findings point out that signaling theory enables to explain the dynamics of the funding amount in token offerings. That is, ventures can reduce asymmetric information and attract higher amounts of funding by sending signals about their technological capabilities. Further, Momtaz (2020b) suggests that venture quality signals such as CEO loyalty is positively associated with ICO success measured by

7

gross proceeds and time-to-market. The underlying argument is that loyalty might reduce the agency problems arised from information asymmetry in the ICO market. In contrast with the work of Fisch (2019), Momtaz (2020d) argues that ICOs might be incentivized to moral hazard in quality signaling due to lack of institutions that punish biased signals. He finds evidence that exaggerating ventures raised more funds in a token offering by exploiting early investors.

De Jong et al. (2020) find evidence that higher rating by cryptocurrency experts, organizing a presale, offering bonus schemes, and having shorter token sale durations positively predict ICO success. In a similar vein, Lee et al. (2021) test the wisdom-of crowds hypothesis using the analyst rating as a proxy. The authors suggest that analysts' ratings serving as substitutes for traditional underwriters' intermediary roles have positively correlated with ICO success. The importance of ICO rating providers on reducing information asymmetry, and hence enhancing ICO success and post-ICO performance is also highlighted by Bourveau et al. (2018). Further, De Jong et al. (2020) highlight the positive influence of a larger project team on the amount raised, although Fisch (2019) finds that it has no effect. Lyandres et al. (2019) report that the success of an ICO is positively associated with the presence of whitelist or/and KYC requirements. However, this finding is challenged with Lee et al. (2021), who find KYC indicator to be insignificant and negative.

Following the research on the characteristics of successful fundraising campaigns, empirical literature proceeds by examining ICO returns in the short run and long run. Several studies analyze the determinants of ICO underpricing (Benedetti and Kostovestky, 2021; Momtaz, 2019; Lyandres et al., 2019; Felix and von Eije, 2019). While Momtaz (2019) shows on average positive returns on the first day of trading, Benedetti and Kostovetsky (2021) document positive returns to investing at listing and over two months after the listing date and relate the performance to Twitter followers and activity. In line with IPO underpricing literature, Felix and von Eije (2019) and Lyandres et al (2019) find the evidence of negative relation between issue size and underpricing of ICO, supporting the notion that larger issue reduces information asymmetry. Drobetz et al. (2019) identify investor sentiment and returns on the first day of trading as being influencing factors for long term ICO returns. Hu

et al. (2018) examine returns of over 200 cryptocurrencies and find that they are all highly correlated with Bitcoin returns.

3. Data and Variables

3.1. Data

The sample used in this research is compiled from different ICO aggregator websites, since there is no standard and universal data source for ICOs. First, the initial dataset is built on the icobench.com, which is the most comprehensive database of ICO data. From this database, we gather the following information for 5579 ICOs from April 2015 to January 2020 by building a scraper in the programming language Python: startup name, token ticker, country of registration, rating, number of experts, start and end dates of an ICO, soft and hard caps, capital raised, types of currencies accepted for an ICO, token price, the percent of tokens for sale, the industry categories the ICO addresses, whether the ICO offers bonus, whether the ICO conducts a presale, whether the project uses a KYC processor a whitelist, whether citizens from certain countries are excluded from the ICO[2]. Second, we supplement the data with information from icodrops.com, tokendata.io, icodata.io, icorating.com and icomarks.com by hand, if the data acquired from icobench.com is missing. Furthermore, upon manual checks, the consistency and accuracy of the data is verified with the information retrieved from abovementioned websites. Although icobench.com has the highest number of observations, it provides low quality data for certain variables. Therefore, in case of disagreement in variable values of icobench.com and other data sources used in this study, we use the latter. Due to the incomplete information on raised amount, start and end date, the final data set consists of 2318 ICOs. Third, we include the CCI30 index as obtained from cci30.com at the start of the ICO using the daily opening values. The CCI30 index tracks the top 30 cryptocurrencies by market capitalization, serving as a proxy for

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[2] Gross proceed, hard cap, soft cap and token price are mostly quoted in fiat currencies such us dollar and euro or cryptocurrencies such as ETH and BTC. We convert all entries to dollar as of last day of ICO campaign.

market sentiment. Lastly, 2318 ICOs is linked to daily cryptocurrency trading records on coinmarketcap.com, which is the leading source of cryptocurrency price and volume data used mostly in the academic literature. Matching on token name string, ticker symbols and official website URL yields 802 ICOs with secondary market price data.

Figure 1 illustrates the evolution of ICOs quarterly. The first ICO was held by Mastercoin (now called Omni) in July 2013. The project was able to raise around 5,000 Bitcoin, an amount worth around $500,000. Since then, the success of this fundraising campaign inspired other projects and thousands of companies leaped into and deployed the ICO model to fund their product development efforts. As depicted in Figure 1, the ICO mania exploded between mid-2017 and early 2018. Yet for all the growth around these token sales, the rise of failed projects and scams are the troubling results. Accordingly, China and South Korea both had banned initial coin offerings in the third quarter of 2017 due to concerns over the potential for financial scams. Greater regulatory scrutiny around the world led many issuing entities move to jurisdictions with lighter-touch regulation such as the Cayman Islands and the Virgin Islands. Token sale rally continued two years until the market sentiment started to alter in 2018. As investors became more prudent and regulators started to be more stringent, the bull market turns into a bear market in the third quarter of 2018.

[Insert Figure 1 about here.]

3.2. Variables

3.2.1. Dependent Variables

For this study, we have four different dependent variables:

-Gross Proceed

First dependent variable is the amount of funding raised in ICO campaigns. This is a broadly used dependent variable in entrepreneurial finance research as a measure of ICO success. Since the distribution of the variable is highly skewed, we use natural

logarithm of gross proceeds, in line with prior research. We further exploit this data with second dependent variable.

-Success/Fail

Our second dependent variable is a binary variable denoting ICO success that takes the value 1, if the ICO hits its softcap (if any) or the amount of money raised is more than $0.5 million in the absence of a soft cap and zero otherwise (with reference to the idea by Mironov and Campbell, 2018; Lee et al., 2021). To decide on the status, information about raised amount of ventures is needed. Unfortunately, we obtain data on raised amount only for 2318 of the ventures, 1706 of which complete the campaign successfully. We have information on amount raised only for 612 failed ICOs, since icobench.com deletes failed ICOs from their database, as do many other data aggregators.

-Underpricing

Underpricing is the phenomenon whereby the offer price is on average set below its real value. This phenomenon has been subject to many studies in the context of IPOs, suggesting many theories to explain possible reasons for IPO underpricing. Most of the research is based on the information asymmetry theory. Although there are important distinctions, the ICO process is somewhat similar to an IPO and hence it is useful to explore underpricing phenomenon surrounding ICOs by consulting the IPO literature. Underpricing equals $P_1/P_{ICO} - 1$, where P_1 and P_{ICO} are first listing day closing price and ICO offer price, respectively.

-Post-ICO Performance

First-day return is measured from the first trading day opening price to first trading day closing price. Similarly, *one-week, one-month, three-month, six-month, and one-year returns* are measured from the first trading day closing price to the 7th, 30th, 90th, 180th and 365th trading closing prices, respectively.

In our analysis, we test several characteristics of the ICO process that may influence its success and post-performance, and the details of these characteristics are provided below:

3.2.2. Independent Variables

-Softcap

Similar to the classic crowdfunding, a venture might decide on setting up a softcap, which is a minimum amount to be raised. If this amount is not hit, the project is not launched, and funds are usually returned to investors.

-Hardcap

The venture may also set a hardcap, which is the maximum amount that can be raised by the project. It is a rare that no hardcap is provided since it is important for potential investors to see the clear and concise fundraising goal of the startup. Therefore, the team should look at their roadmap and specify the maximum amount that they need for their product.

-Duration of offering

'Duration of offering' announced by the project team as an active period when the ICO is launched is adopted as a variable to determine the effects of the length of the campaign. The variable is defined in days between the ICO start and the end date.

-ERC20

Ethereum is the prominent platform for conducting ICOs. The Ethereum standard (ERC20) provides a set of rules for transfer tokens, as well as enables interacting applications such as wallets and crypto exchanges. Investors may recognize ICOs using Ethereum's infrastructure safer than other token exchange platform. Therefore, we include a dummy variable equal to 1 if ICOs build on ERC20 Blockchain and 0 if the project uses its own or other technology.

-Rating

Icobench.com provides experts' rating ranging business ventures from zero to five, zero being the lowest and five being the highest quality of ICO. There are four criteria employed in the ratings: profile, team, vision, and product. We use the weighted average rating of the experts, which may serve as a tool for mitigating asymmetric information problem during the process.

-Expert

In this paper, we explore how the "wisdom of crowds," the collective action of a group of individuals rather than advice from a single expert, helps mitigate information asymmetry associated with an ICO.

-Bonus

The variable Bonus is a dummy variable equal to 1 if a bonus is offered to early investors, 0 otherwise.

-KYC/Whitelist

Know your customer (KYC) policy makes the potential investors provide some information such as their addresses, citizenship, and photo IDs to verify their identity. Whitelist, on the other hand, requires registration for participation. Thanks to these procedures, illegal activities of investors most interested in the guise of anonymity can be prevented. However, it may also discourage potential investors who do not want to share their personal data due to cyber security threats. Empirical analysis revealed contradictory results on the effect of the implementation of a KYC process or a whitelist on the success and aftermarket performance of ICOs. Exploring combined effect, we include a dummy variable which has the value of 1 if the project implemented a KYC process and/or a whitelist during the ICO and 0 otherwise.

-Presale

The variable Presale is a dummy variable which equal to 1 if a presale is carried out before the main crowdsale and equal to 0 if otherwise.

- # Industry Category

Companies choose among 29 industry categories determined by icobench.com which shows the future sphere of activity. The number of categories the ICO falls into is a measure for diversification. High number of industries is an indicator of the broader areas of future usage of a company's products.

-Team Members

Another variable that was employed in the study is the number of team members. A large team creates trust in the investors believing that there will be enough people to carry out the project. As the number of contacts increase, there will be more contribution to the project's future endeavors.

-Distributed in ICO

The next variable that we use in the analysis is the ratio of the tokens offered in sales to the total supply of tokens. This ratio is indicative of how successful the ICO will be in terms of the trust it creates in the market. The more tokens a venture retains ownership share the more quality it signals.

-US Restriction

Since SEC started audit the freewheeling operations of ICOs, several ventures do not admit investors from US from participating in the token sale to escape the constraints of regulation. A dummy variable that equals to 1 if ICOs do not accept US based investors and 0 if otherwise.

-Accepted Fiat

A dummy variable that equals to 1 if investors could buy tokens with fiat currencies (Dollar, Euro, Yuan, and other government-issued currencies) and 0 if otherwise.

-Major cryptocurrencies

A dummy variable that equals to 1 if investors could buy tokens only with four major cryptocurrencies, i.e., Bitcoin, Ethereum, Litecoin and Ripple.

-CCI30 Index

The market cap weighted index of the 30 largest cryptocurrencies is used as a benchmark for cryptocurrencies and Blockchain sector to measure the overall market movements.

4. Empirical Results

4.1. Descriptive Statistics

Table 1 displays descriptive statistics for the subsample of ventures with amount raised data (N=2318) and the subsample of ventures with the price data (N=802). The first column sh2ows the variables included in the analysis. The second column shows the number of observation available for the ICO. The next three columns display the mean, median, and standard deviation. The last two columns show the minimum value and the maximum values of the variable.

The mean rating of the sample is 3.13, provided by icobench.com ranging from 0 (weak) to 5 (strong). The ERC-20 standard is used by 75% of the project in our sample, highlighting that it is dominant platform for ICOs. The average ICO duration is 52 days, varying between 1 and 760. The offer price varies from $0.0000204 to $7554.6 per token. Furthermore, the industry categories that a venture could select on icobench.com is between 1 and 29; the data shows that the minimum is 1 and the maximum 12 in this sample. 2318 ventures in our sample raised a total funding of $14.3 million. The average ICO team member is 10, which is in line related ICO studies (De Jong et al., 2020; Fisch and Momtaz, 2020). The proportion of tokens distributed to the public in an ICO is on average 51.3%. Less than half of all sample firms sets KYC process. Regarding promotional tools, less than half of the ICOs offers bonus and only one quarter of the ICO ventures conduct presale. The mean of CCI30 index (in thousand) at the start day of the ICOs in the sample is 6.2. However, it is noteworthy that the index ranged from 0.088 to 20.8, suggesting significant variation. The mean ICO underpricing during our sample period is 261%. These findings are reminiscent of those reported in related studies on underpricing of ICOs

(e.g., Lee et al. (2021), Lyandres et al. (2018), Benedetti and Kostovetsky (2021)). The mean (median) returns for 7, 30, 90, 180, and 365 days after the first listing day are on positive (negative), consistent with the evidence of long-return post-ICO performance (Lee et al. (2021) and Lyandres et al. (2018)). These results suggest that mean long-term returns are attributed to a small number of ICOs with extremely high returns.

[Insert Table 1 about here.]

4.2. Empirical Analysis

The empirical analysis starts with testing determinants of ICO success: hitting its softcap (if any) or the amount of money raised which is more than $0.5 million in the absence of a soft cap and raising more funds. We further focus on the subsamples of ICOs whether things become considerably different during various market conditions. Then, we test the existence of ICO underpricing with the proxies of IPO literature. We proceed by querying ICO returns at different horizons: first day of trading and longer-term returns. Finally, we analyze the returns to investors through ICO in different phases with same set of variables.

4.2.1. ICO Success

The first part of our analysis examines the relation between the attributes of ICO and success measures. Column 1 in Table 2 reports the results of logistic regressions, where the dependent variable is 'Success', a binary variable being 1 if the ICO campaign has been successful and being 0 if the conditions previously specified are not satisfied.

First column presents the logit coefficients and their standard errors with country and quarter fixed effects. To facilitate sensible interpretation of the models, in the second columns of all logistic regressions here, we report the marginal effects associated with each explanatory variable. We estimate the regression using the entire sample of

ICOs for which we have required data. Our results show that the probability of success is increasing in expert rating, which indicates that information intermediaries serve as a tool for mitigating asymmetric information, which is consistent with the Spence´s (1973) signaling theory. The number of experts providing ratings for an ICO also positively related to fundraising success, in line with the 'wisdom of the crowd' notion in which investors of the crypto market view the opinions of large groups of people credible in investment decision and due diligence process. From the company characters, having a larger project team shows positive signs for fundraising success, which acts as an indicator of team quality.

We also find evidence that ICO campaign characteristics have signaling roles on the fundraising success. The percentage of tokens distributed in ICO is positively associated to fundraising success, suggesting that investors favor ICOs in which smaller portions of the companies are sold. This result is also consistent with Leland and Pyle (1977) (in the context of IPOs) and Vismara (2016) (in the context of crowdfunding), suggesting that potential investors are less likely to invest in if the company offers more of its shares to the public. As long as the venture shows more ownership in the project by retaining its shares to itself, to put it in another way by having more skin in the game, there is a positive impact on both success and return of ICO.

The results show the evidence that having a shorter planned token sale duration leads to higher probability of ICO success. Being in line with the crowdfunding literature, the longer it takes to issue tokens the less probable it is for the venture to succeed. Drawing on reward-based crowdfunding literature, Mollick (2014) refers to duration of offerings as an important indicator for the realization of the fund-raising goals of the entrepreneurs. He argues that investors may not feel safe to invest in the ICO since a longer period signals lack of confidence on the part of venture. On the other hand, having a bonus scheme and the target amount for the hardcap decrease the success likelihood. A possible reason is that potential investors often refrain from investing in worthwhile initiatives for fear of falling foul of scams and fraudsters.

The softcap has significantly negative effect on the likelihood of a successful campaign. This is in line with the findings of Bourveau et al. (2018), who state that issuers with a minimum funding threshold may not reach their target. Moreover,

accepting fiat currencies can boost the marginal effects of ICO success. A potential explanation, as Momtaz (2020a) suggests, is that ICOs that accept fiat currencies allows for easier participation of investors.

Next, we perform the same analysis by using the log of the amount of money raised in the ICO as a dependent variable to reflect the degree of success. Column 2 in Table 2 reports the estimated coefficients with standard errors from cross-sectional regressions employing OLS. The regression results are largely consistent with those of logistic regression. However, the softcap level and accepting fiat currencies during ICO lose their significance in the regression using the log of the amount of money raised as the dependent variable. Furthermore, the amount of funding raised is positively associated with the hardcap and market sentiment measured by CCI30 index but negatively associated with the number of industry categories.

[Insert Table 2 about here.]

After examining the full sample of ICOs, we further focus on three subsamples of our dataset to explore whether there is a change in explanatory factors under different market trends. The subsample results are displayed in Table 3 and 4. Looking at each sub-periods (bullish as well as bearish), things become very different.

Second column in Table 3 depicts the results from the boom period for the cryptocurrency market. During this period, the coefficient for KYC/Whitelist is negative while the coefficients of CCI30 index and Accepted fiat are positive. These two factors do not have significant impact on fundraising in bust period of cryptocurrency market, as seen in regression 3 and 4. The results can be attributed to enthusiastic investors who jump into ICO projects in boom period. Therefore, higher market sentiment triggers investment towards such a novel area. Similarly, if investors can participate in ICO world in exchange for fiat currency and are not discouraged with the process of pre-ICO registration, the amount raised increases. Moreover, the results show that the impact of "rating" on fundraising is positively significant in the first and second sub-period, while the important criteria is replaced

18

with "number of experts" in the third subperiod. Besides, presale has a positive influence on the fundraising during the cold period since it is an indicator of the existence of sophisticated investors, which signal strong quality to potential investors during such a period.

[Insert Table 3 about here.]

On the other hand, as presented in model 2 of Table 4, presales negatively predict ICO success. The justification for this finding proposed by Amsden and Schweizer (2018) is that a campaign conducting presale may be viewed suspicious that there will be enough funds raised in the crowdsale hence disheartening investors from getting involved in ICO projects.

[Insert Table 4 about here.]

4.2.2. ICO Returns

Once the fundraising for blockchain-related venture through issuance of tokens is completed, aftermarket performance of such tokens needs to be assessed upon being listed in crypto exchanges and then being traded in the secondary market.

In the second part of the analysis, we examine the factors associated with ICO returns. Column (1) of Table 5 reports the results where the dependent variable of the model is underpricing as defined above. The first significant determinant of ICO return is the concurrent return of the CCI30. This result is in line with traditional IPO literature (Ljungqvist et al., 2006; Ljungqvist and Wilhelm, 2003; Loughran and Ritter, 2002), showing the importance of market sentiments on stock prices. Similarly, market sentiment around cryptocurrencies is significant driver of investors' decision to invest in growing industry. As long as the cryptocurrency market is hot, investors are more optimistic about freshly issued altcoins, which may result in

underpricing. Moreover, raised amount has a positive relationship with the level of underpricing, which can be attributed to the existence of considerably high demand for projects. The offer price has a negative influence on the level of underpricing. This result is consistent with the Grinblatt and Hwang (1989)'s theoretical model based on IPO underpricing, according to which the offer price serves as a signal for the true firm value. Similarly, in the ICO context, Benedetti and Kostovetsky (2021) find that the offer price is negatively correlated with underpricing and ICO returns. In the view of the authors, token prices move to a "normal" nominal price level when they are traded.

[Insert Table 5 about here.]

Specifically, when we check underpricing under different market conditions, insignificance of amount of raised in first sub-period swings to significance in second and third sub-periods, as displayed in Table 6. In addition, the presence of KYC/Whitelist policies could lead underpricing over the sub-period of bull market in cryptocurrency market. US Restriction shows significant positive sign in second sub-period, suggesting that lower risk of potential SEC regulatory intervention associated with higher underpricing in bullish ICO market but bearish cryptocurrency market. Related similar finding is Momtaz (2020a) who shows that the number of restricted countries is positively associated with ICO underpricing, suggesting that issuers that choose to reduce the set of potential investors need to offer higher incentives for the remaining.

The coefficients on the end-to-open return and on the first listing day return are significantly negative at all horizons. This result is consistent with fads hypothesis in IPOs, which argues that IPOs may be overpriced on the first day with the optimistic beliefs of investors about prospects of these firms. But in the long run, as the more information is disclosed to the public, the price of IPOs reaches its true value leading to an inverse relation between initial returns and long-term performance of IPOs. More likely to see the potential for such an impact in the case of ICOs as ICO

ventures are rather young, immature, and relatively informationally opaque in the absence of mandatory disclosure and hence are hard to quantify the true value. Moreover, first day return is negatively correlated to end-to-open return. These results suggest that the market corrects the overvaluation tokens once high initial returns are realized. Bourveau et al. (2018) offer another interpretation in the ICO sphere, according to which, significant effect of crypto-market sentiment and first day ICO returns are related with the pump-and-dump strategies by ICO entities in the unregulated crypto field.

[Insert Table 6 about here.]

From Table 7 to Table 12, we display the return behavior regarding bearish and bullish phases, running OLS model for each period on different horizons. Note that, regardless of market conditions, ICO returns are mainly driven by market sentiment and first day return than by characteristics of campaign or company. To check the robustness of these findings, we also analyze abnormal returns by deducting value-weighted market benchmark from raw returns measures. The market-value-weighted index is constructed based on all cryptocurrencies listed on coinmarketcap. We report the results in Tables from 13 to 18 that are largely consistent with our previous findings.

5. Conclusion

This study complements the growing academic literature on ICOs. We first go over extant literature to look at determinants of fundraising success as well as determinants of the return on Initial Coin Offerings (ICOs) already discovered. After collecting a comprehensive set of measures, we identify the bull and bear phases of the market to assess the sensitivity of our results to the different market conditions.

We connect ICO research to the theories related to IPOs. Empirical analysis shows that ICO success, ICO underpricing and longer-term post-ICO returns are explained with agency theory, signaling, and behavioral theories behind IPOs. However, some findings for ICOs stand in contrast with the respective IPO literature. It is plausible

due to substantial differences between the ICOs and IPOs regarding regulation, disclosure requirements, ownership, and uncertainty about consumer demand.

Our evidence suggests that ICOs with higher ratings, larger number of experts, more members in developing team and shorter planned token sale duration have a greater likelihood of success and raising more funds. However, retaining a smaller share, offering bonus for early investors, and setting higher hardcap levels have negative impact on the success of the campaign. We also show that underpricing can be explained by offer price, market sentiment, raised and ICO duration. Moreover, market sentiment, the offer price, the end-to-open return and the first listing day return have significant impact on aftermarket performance of the ICOs. We further add to the literature about whether the key factors to successful ICO factors and ICO returns differ between boom-and-bust periods. Our empirical findings suggest that market trend matters, and future research should account for that.

Our results have important practical implications, especially for investors who bear risks due to limited investor protection in an unregulated environment. To reduce investment risk, investors should take key considerations on several ICO characteristics such as expert ratings, team members behind the project, the length of the campaign, the proportion available for public sale into account before involving in an ICO. In addition, investors are well-advised to consider experts providing ratings which serve as information intermediaries in financing ICO ventures. It would also be wise for investors to focus on the importance of market sentiment on the success of an ICO and aftermarket performance. Our results further provide insights for ventures seeking to launch an ICO. Such ventures must focus on signaling ICO project quality to attract investors and hence increase the likelihood of the success of the campaign. Namely, ventures that disclose more information are more likely to convince investors to contribute to the project. Specifically, it is important for ventures to time the market, build a great team, develop technological capabilities, and keep ICO duration as short as possible. From the standpoint of policymakers, this research shows that policies that mitigate asymmetric information problem might be needed. Information plays an important role in this new landscape. Thus, policy makers can standardize white paper format describing platform-based business idea, road map, the developer team, the rights a token provides and the token sales. In addition,

imposing sanctions prohibits ventures from sending false signals which in turn engenders trust. Similarly, regulators might supervise the experts to ensure that they provide unbiased ratings on ICOs. As such, the value of tokens is more accurately evaluated.

Figure 1 displays time-series pattern of ICOs in our sample quarterly. Total funds raised by ICOs are plotted on the right axis, compared to the total number of ICOs with the number of successful and failed ICOs, plotted on the left axis.
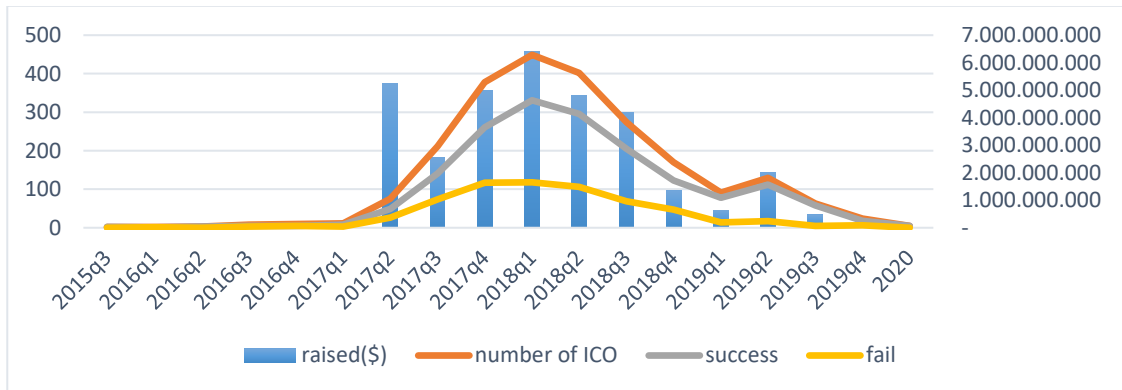
Figure 1: The evolution of ICOs

Table 1: Descriptive Statistics

Variable	Obs.	Mean	Median	Std. Dev.	Min.	Max.
Amount raised (mio)	2318	14.307	4.2	99.85	0	4197.9
Softcap (mio)	1863	21.3	1	315.208	0	10000
Hardcap (mio)	1817	121.071	20	1044.5	0	30000
ICO Duration	2308	52	31	54.552	1	760
ERC20	2318	0.752	1	0.432	0	1
Rating	2315	3.134	3.2	0.743	0.6	4.8
# Expert	2315	5	1	8.386	0	97
Bonus	2318	0.439	0	0.496	0	1
KYC&Whitelist	2318	0.445	0	0.497	0	1
Presale	2318	0.253	0	0.435	0	1
# Industry categories	2318	2.815	2	2.127	1	12
# Team member	2143	10	9	6.449	1	58
Distributed in ICO	1838	0.513	0.51	0.232	0	1
US investors restricted	2318	0.313	0	0.464	0	1
Accepted fiat	2318	0.128	0	0.334	0	1
Major cryptocurrencies	2318	0.607	1	0.489	0	1
CCI30(in 1000)	2309	6.207	4.991	3.787	0.088	20.801
Price in ICO	802	14.628	0.1	287.458	.000002	7554.6
Underpricing	802	2.610	-0.206	31.414	-0.999	709.937
End-to-open return	802	2.434	-0.257	30.434	-0.999	679
First day return	802	0.126	0.013	0.684	-0.913	15.925
First week return	801	0.103	-0.091	1.158	-0.966	17.928
1-month return	799	0.083	-0.295	1.399	-0.994	17.873
3-month return	773	0.251	-0.462	2.801	-0.998	46.945
6-month return	715	0.306	-0.729	3.804	-0.999	42.417
1-year return	599	0.187	-0.851	6.619	-0.999	114.169
First day abnormal return	777	0.071	-0.046	0.696	-0.976	15.863
First week abnormal return	777	0.502	-0.705	1.167	-1.556	17.322
1-month abnormal return	775	-1.840	-2.231	1.429	-2.909	15.952
3-month abnormal return	752	-9.186	-9.904	2.287	-10.433	37.523
6-month abnormal return	700	-9.789	-10.790	3.834	-11.068	34.172
1-year abnormal return	574	-21.479	-22.600	7.003	-22.742	92.448

Table 2: Determinants of ICO Success

This table reports the logit and OLS regression results for the determinants of ICO success. The dependent variable in Model (1) is a binary variable that equals 1 if the ICO hits its softcap or the amount of money raised is more than $0.5 million in the absence of a soft cap and, 0 otherwise. The dependent variable in Model (2) is Raised (log USD). The independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level. In Model (1), we also report the marginal effects of independent variables.

	(1) Success/Fail	Marg. Eff.	(2) Raised
Softcap	-0.0925***	-0.0108	-0.0144
	(0.0116)		(0.00882)
Hardcap	-0.101**	-0.0118	0.321***
	(0.0455)		(0.0476)
ICO Duration	-0.233***	-0.0272	-0.301***
	(0.0704)		(0.0464)
ERC20	0.0226	0.0026	-0.136
	(0.173)		(0.131)
Rating	0.238*	0.0279	0.222*
	(0.131)		(0.113)
# Expert	0.141*	0.0165	0.155**
	(0.0729)		(0.0598)
Bonus	-0.288**	-0.0339	-0.154*
	(0.137)		(0.0836)
KYC/Whitelist	0.0227	0.0026	-0.106
	(0.162)		(0.111)
Presale	-0.134	-0.0153	0.0201
	(0.141)		(0.108)
# Industry categories	-0.0156	-0.0018	-0.0462**
	(0.0291)		(0.0211)
# Team member	0.313**	0.0365	0.601***
	(0.135)		(0.08)
Distributed in ICO	-0.533*	-0.0624	-0.662**
	(0.312)		(0.314)
US investors restricted	-0.0499	-0.0058	0.138
	(0.143)		(0.121)
Accepted fiat	0.360*	0.0461	0.101
	(0.214)		(0.203)
Major cryptocurrencies	0.0607	0.0071	-0.2
	(0.157)		(0.143)
CCI30	0.0539	0.0063	0.0372*
	(0.0336)		(0.0197)
Constant			6.948***
			(0.998)
Obs.	1452		1459
Adj. R^2			0.164
Pseudo R^2	0.095		
Country/Quarter Fixed Effect	Yes		Yes

Table 3: Dependent Variable: Amount Raised

This table reports the coefficient estimates from OLS regression for the entire sample and sub-samples. In each model, the dependent variable is the amount of funding raised (Log USD). Model (1), Model (2), Model (3) and Model (4) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4, 2018Q1-2018Q2 and 2018Q3-2020M1, respectively. The dependent variable in Model (2) is Raised (log USD). The independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1) 2015Q3-2020M1	(2) 2015Q3-2017Q4	(3) 2018Q1-2018Q2	(4) 2018Q3-2020M1
Softcap	-0.0144	-0.0557**	-0.0236**	0.0211
	(0.00882)	(0.0238)	(0.00925)	(0.0161)
Hardcap	0.321***	0.0403	0.332***	0.386***
	(0.0476)	(0.0934)	(0.0686)	(0.0670)
ICO Duration	-0.301***	-0.377***	-0.317***	-0.223***
	(0.0464)	(0.120)	(0.0716)	(0.0730)
ERC20	-0.136	-0.359	-0.306	0.00709
	(0.131)	(0.301)	(0.191)	(0.198)
Rating	0.222*	0.805*	0.274**	-0.0523
	(0.113)	(0.438)	(0.122)	(0.186)
# Expert	0.155**	0.248	0.113	0.178**
	(0.0598)	(0.196)	(0.0856)	(0.0841)
Bonus	-0.154*	0.0704	-0.0574	-0.274**
	(0.0836)	(0.348)	(0.146)	(0.112)
KYC/Whitelist	-0.106	-1.518***	0.0295	-0.0743
	(0.111)	(0.501)	(0.129)	(0.164)
Presale	0.0201	-0.427	0.0381	0.312**
	(0.108)	(0.454)	(0.151)	(0.148)
# Industry categories	-0.0462**	0.0903	-0.0836*	-0.00853
	(0.0211)	(0.111)	(0.0425)	(0.0495)
# Team member	0.601***	0.645*	0.827***	0.305***
	(0.08)	(0.321)	(0.190)	(0.111)
Distributed in ICO	-0.662**	-0.941	-0.700	-0.661
	(0.314)	(0.792)	(0.448)	(0.413)
US investors restricted	0.138	0.334	0.0454	0.106
	(0.121)	(0.255)	(0.160)	(0.204)
Accepted fiat	0.101	0.868*	-0.126	0.152
	(0.203)	(0.463)	(0.254)	(0.358)
Major cryptocurrencies	-0.2	-0.453	-0.298**	-0.110
	(0.143)	(0.278)	(0.148)	(0.272)
CCI30	0.0372*	0.0981**	0.0308	-0.117
	(0.0197)	(0.0476)	(0.0269)	(0.0734)
Constant	6.948***	9.172***	8.590***	9.386***
	(0.998)	(2.598)	(1.117)	(1.803)
Obs.	1459	252	614	593
Adj. R^2	0.164	0.257	0.190	0.111
Country/Quarter fixed effect	Yes	Yes	Yes	Yes

Table 4: Dependent Variable: Status (Success/Fail)

This table reports the coefficient estimates from logit regression for the entire sample and sub-samples. In each model, the dependent variable is a binary variable that equals 1 if the ICO hits its softcap or the amount of money raised is more than $0.5 million in the absence of a soft cap and, 0 otherwise. Model (1), Model (2), Model (3) and Model (4) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4, 2018Q1-2018Q2 and 2018Q3-2020M1, respectively. The independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level. For each model, we also report the marginal effects of independent variables.

	(1) (2015Q1-2020M1)	Marg. Eff.(1)	(2) (2015Q1-2017Q4)	Marg. Eff.(2)	(3) (2018Q1-2018Q2)	Marg. Eff.(3)	(4) (2018Q3-2020M1)	Marg. Eff.(4)
Softcap	-0.0925*** (0.0116)	-0.0108	-0.110*** (0.0266)	-0.003	-0.118*** (0.0194)	-0.014	-0.0639*** (0.0186)	.0020
Hardcap	-0.101** (0.0455)	-0.0118	-0.0465 (-0.37)	0.005	-0.159** (0.0716)	-0.018	-0.0861 (0.0684)	-0.003
ICO Duration	-0.233*** (0.0704)	-0.0272	-0.299 (0.266)	-0.009	-0.363*** (0.120)	-0.042	-0.124 (0.0952)	-0.004
ERC20	0.0226 (0.173)	0.0026	0.643 (0.399)	0.0224	-0.0479 (0.282)	-0.006	-0.0605 (0.283)	-0.002
Rating	0.238* (0.131)	0.0279	0.666 (0.445)	0.0203	0.470** (0.220)	0.057	0.0204 (0.180)	0.001
# Expert	0.141* (0.0729)	0.0165	0.545* (0.303)	0.0166	0.0345 (0.114)	0.004	0.116 (0.108)	0.004
Bonus	-0.288** (0.137)	-0.0339	-0.103 (0.392)	-0.003	-0.384* (0.218)	-0.046	-0.238 (0.210)	-0.008
KYC/Whitelist	0.0227 (0.162)	0.0026	-1,345 -1,064	-0.075	0.141 (0.232)	0.016	0.147 (0.245)	0.005
Presale	-0.134 (0.141)	-0.0153	-1.169** (0.530)	-0.055	-0.133 (0.213)	-0.015	0.0526 (0.207)	0.002
# Industry categories	-0.0156 (0.0291)	-0.0018	0.176 (0.165)	0.005	-0.0654 (0.0459)	-0.007	0.0105 (0.0401)	0.001
# Team member	0.313** (0.135)	0.0365	0.680* (0.405)	0.021	0.740*** (0.225)	0.085	-0.0777 (0.196)	-0.002
Distributed in ICO	-0.533* (0.312)	-0.062	-0.471 (0.869)	-0.014	-0.213 (0.504)	-0.024	-0.769 (0.471)	-0.025
US investors restricted	-0.0499 (0.143)	-0.006	0.501 (0.917)	0.018	-0.175 (0.219)	-0.02	-0.0699 (0.203)	-0.002
Accepted fiat	0.360* (0.214)	0.046	0.473 -1,167	0.012	0.660* (0.338)	0.089	-0.00599 (0.299)	-0.001
Major cryptocurrencies	0.0607 (0.157)	0.007	-0.709 (0.470)	-0.019	0.351 (0.242)	0.039	-0.148 (0.246)	-0.005
CCI30	0.0539 (0.0336)	0.006	0.240** (0.120)	0.007	0.0312 (0.0397)	0.004	-0.0644 (0.129)	-0.002
Obs.	1452		260		614		592	
Adj. R^2	0.095		0.277		0.148		0.048	
Country/Quarter fixed effect	Yes		Yes		Yes		Yes	

28

Table 5: ICO Performance

This table provides the regression of determinants of aftermarket returns at different horizons: underpricing (end-to-close return), first day (open-to-end) return, 1-week, 1-month, 3-month, 6-month and 1-year returns. CCI30 returns are used for the corresponding return intervals as the dependent variables. All other independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1) Underpricing	(2) First day ret	(3) 1-week ret	(4) 1-month ret	(5) 3-month ret	(6) 6-month ret	(7) 1-year ret
ICO end-to-open return		-0.0174*	-0.0661***	-0.121***	-0.177***	-0.201***	-0.228***
		(0.00975)	(0.0163)	(0.0239)	(0.0279)	(0.0396)	(0.0480)
First day return			-0.400***	-0.644***	-0.767***	-0.865***	-1.090***
End-to-close CCI30 return	0.763***		(0.111)	(0.110)	(0.153)	(0.239)	(0.223)
	(0.118)						
1-day CCI30 return		0.519***					
		(0.185)					
1-week CCI30 return			0.117***				
			(0.0333)				
1-month CCI30 return				0.324***			
				(0.0612)			
3-month CCI30 return					0.532***		
					(0.0459)		
6-month CCI30 return						0.881***	
						(0.101)	
1-year CCI30 return							1.471***
							(0.295)
Raised	0.137***	-0.0217**	-0.0211	-0.0302	-0.00699	0.00617	0.0430
	(0.0503)	(0.00937)	(0.0174)	(0.0211)	(0.0300)	(0.0423)	(0.0572)
Price ICO	-0.724***	-0.0245*	-0.104***	-0.158**	-0.237***	-0.327***	-0.286***
	(0.266)	(0.0131)	(0.0365)	(0.0717)	(0.0730)	(0.0999)	(0.100)
ICO Duration	-0.169***	0.00639	0.00656	0.0115	-0.0110	-0.0410	-0.0802
	(0.0400)	(0.00861)	(0.0156)	(0.0245)	(0.0277)	(0.0455)	(0.0577)
ERC20	-0.0656	-0.0186	-0.0482	-0.111	-0.0535	-0.0330	-0.111
	(0.137)	(0.0154)	(0.0625)	(0.0865)	(0.0942)	(0.120)	(0.194)
Rating	0.0514	-0.0322	0.0461	-0.0143	0.0227	0.338***	0.441***
	(0.104)	(0.0218)	(0.0451)	(0.0531)	(0.0696)	(0.110)	(0.109)
# Expert	-0.0468	0.00490	-0.0721***	-0.0482	-0.0732	-0.151***	-0.144
	(0.0605)	(0.00780)	(0.0255)	(0.0385)	(0.0461)	(0.0451)	(0.0887)
Bonus	-0.170	-0.0261	-0.0540	-0.0339	-0.0440	-0.125	-0.0846
	(0.179)	(0.0183)	(0.0567)	(0.0976)	(0.114)	(0.141)	(0.196)
KYC&Whitelist	0.305	-0.00754	0.0737*	0.209***	0.244*	0.128	0.165
	(0.263)	(0.0325)	(0.0394)	(0.0645)	(0.124)	(0.218)	(0.287)
Presale	-0.106	0.0419	-0.0588	-0.0223	-0.0837	0.0832	0.134
	(0.191)	(0.0270)	(0.0457)	(0.0737)	(0.148)	(0.151)	(0.251)
# Industry categories	-0.0456*	0.00117	-0.0105	-0.0159	-0.0281	0.0126	-0.0409
	(0.0270)	(0.00653)	(0.00651)	(0.0112)	(0.0179)	(0.0340)	(0.0465)
# Team members	-0.00584	0.00187	-0.0651*	-0.0823*	-0.112	-0.254***	-0.195
	(0.0766)	(0.0136)	(0.0339)	(0.0427)	(0.0740)	(0.0846)	(0.122)
Distributed in ICO	-0.193	-0.0373	0.228**	0.0400	0.205	0.0743	0.228
	(0.219)	(0.0326)	(0.0990)	(0.118)	(0.161)	(0.206)	(0.257)
US investors restricted	-0.164	-0.0525***	0.0427	0.0195	0.220*	0.242*	0.349
	(0.120)	(0.0165)	(0.0513)	(0.0779)	(0.111)	(0.142)	(0.255)
Accepted fiat	0.204	0.0220	-0.0150	0.157	0.253	0.0357	-0.0167
	(0.198)	(0.0347)	(0.0766)	(0.144)	(0.183)	(0.206)	(0.268)
Major cryptocurrencies	0.0412	0.0425	0.0229	0.0560	-0.0439	-0.112	-0.164
	(0.115)	(0.0264)	(0.0391)	(0.0526)	(0.0902)	(0.118)	(0.189)
Constant	0.170	0.321*	0.628***	1.118***	1.634***	2.465***	3.001**
	(0.717)	(0.161)	(0.215)	(0.323)	(0.416)	(0.452)	(1.486)
Observations	672	672	672	671	654	615	526
Adjusted R^2	0.242	0.081	0.105	0.171	0.299	0.351	0.346
Country/Quarter Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6: Underpricing

This table provides the regression of determinants of underpricing (end-to-close return) for the entire sample and sub-samples. Model (1), Model (2), Model (3) and Model (4) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4, 2018Q1-2018Q2 and 2018Q3-2020M1, respectively. CCI30 return is used for the corresponding return interval as the dependent variable. All other independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1) 2015Q3-2020M1	(2) 2015Q3-2017Q4	(3) 2018Q1-2018Q2	(4) 2018Q3-2020M1
End-to-close CCI30 return	0.763***	0.528***	1.969***	1.418**
	(0.118)	(0.0995)	(0.315)	(0.539)
Raised	0.137***	0.0959	0.263**	0.103**
	(0.0503)	(0.0701)	(0.113)	(0.0491)
Price ICO	-0.724***	-0.611**	-1.384***	-0.148
	(0.266)	(0.238)	(0.369)	(0.697)
ICO Duration	-0.169***	-0.247***	-0.236***	0.0122
	(0.0400)	(0.0710)	(0.0646)	(0.132)
ERC20	-0.0656	-0.626***	-0.144	0.295
	(0.137)	(0.195)	(0.211)	(0.361)
Rating	0.0514	0.172	0.134	-0.167
	(0.104)	(0.143)	(0.254)	(0.296)
# Expert	-0.0468	0.104	-0.189	0.0413
	(0.0605)	(0.101)	(0.155)	(0.126)
Bonus	-0.170	-0.218	-0.0396	-0.0951
	(0.179)	(0.215)	(0.238)	(0.355)
KYC&Whitelist	0.305	0.784***	0.0121	0.308
	(0.263)	(0.278)	(0.280)	(0.409)
Presale	-0.106	0.325	-0.0474	-0.194
	(0.191)	(0.579)	(0.244)	(0.498)
# Industry categories	-0.0456*	0.00112	-0.0249	-0.138**
	(0.0270)	(0.0608)	(0.0475)	(0.0572)
# Team members	-0.00584	-0.265**	0.482**	-0.383
	(0.0766)	(0.108)	(0.226)	(0.262)
Distributed in ICO	-0.193	0.173	-0.455	-0.558
	(0.219)	(0.311)	(0.440)	(0.935)
US investors restricted	-0.164	-0.236	0.306*	-0.465
	(0.120)	(0.363)	(0.182)	(0.636)
Accepted fiat	0.204	0.880***	-0.479	0.247
	(0.198)	(0.314)	(0.320)	(0.659)
Major cryptocurrencies	0.0412	0.149	-0.236	0.319
	(0.115)	(0.120)	(0.226)	(0.361)
Constant	0.170	0.646	-4.475**	-0.274
	(0.717)	(1.011)	(2.204)	(1.071)
Observations	672	271	258	143
Adjusted R^2	0.242	0.324	0.367	0.095
Country/Quarter fixed effect	Yes	Yes	Yes	Yes

Table 7: First day Return

This table provides the regression of determinants of first day (open-to-end) return for the entire sample and sub-samples. Model (1), Model (2), Model (3) and Model (4) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4, 2018Q1-2018Q2 and 2018Q3-2020M1, respectively. CCI30 return is used for the corresponding return interval as the dependent variable. All other independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1) 2015Q3-2020M1	(2) 2015Q3-2017Q4	(3) 2018Q1-2018Q2	(4) 2018Q3-2020M1
ICO end-to-open return	-0.0174*	-0.0124	0.000174	-0.0204
	(0.00975)	(0.0107)	(0.00991)	(0.0133)
1-day CCI30 return	0.519***	0.415**	0.230	1.122**
	(0.185)	(0.192)	(0.233)	(0.441)
Raised	-0.0217**	-0.0215**	-0.0205**	-0.0476
	(0.00937)	(0.00891)	(0.00956)	(0.0300)
Price ICO	-0.0245*	-0.0208	-0.000384	-0.0523***
	(0.0131)	(0.0148)	(0.0204)	(0.0191)
ICO Duration	0.00639	0.00277	0.00917	-0.00135
	(0.00861)	(0.0104)	(0.0140)	(0.00873)
ERC20	-0.0186	-0.0304*	0.0174	-0.105***
	(0.0154)	(0.0155)	(0.0268)	(0.0389)
Rating	-0.0322	-0.0528*	0.0154	-0.106**
	(0.0218)	(0.0286)	(0.0410)	(0.0470)
# Expert	0.00490	0.0116	0.0115	-0.00303
	(0.00780)	(0.0116)	(0.0302)	(0.0250)
Bonus	-0.0261	-0.0163	-0.0888***	0.0487
	(0.0183)	(0.0189)	(0.0275)	(0.0391)
KYC&Whitelist	-0.00754	-0.0201	0.0423	-0.0359
	(0.0325)	(0.0460)	(0.133)	(0.0511)
Presale	0.0419	0.0473	0.0448	0.0480
	(0.0270)	(0.0353)	(0.0871)	(0.0458)
# Industry categories	0.00117	-0.00245	-0.00834	-0.00437
	(0.00653)	(0.0107)	(0.0125)	(0.0121)
# Team members	0.00187	0.00372	-0.00316	0.00683
	(0.0136)	(0.0145)	(0.0318)	(0.0159)
Distributed in ICO	-0.0373	-0.0556	-0.0637	-0.0154
	(0.0326)	(0.0368)	(0.0505)	(0.0654)
US investors restricted	-0.0525***	-0.0590***	-0.118**	-0.0131
	(0.0165)	(0.0217)	(0.0536)	(0.0326)
Accepted fiat	0.0220	0.0101	0.0713	-0.0782
	(0.0347)	(0.0467)	(0.0682)	(0.0657)
Major cryptocurrencies	0.0425	0.0423	0.0721	-0.00914
	(0.0264)	(0.0321)	(0.0447)	(0.0468)
Constant	0.321*	0.372*	0.166	1.331**
	(0.161)	(0.196)	(0.181)	(0.564)
Observations	672	529	271	258
Adjusted R^2	0.081	0.074	0.074	0.142
Country/Quarter fixed effect	Yes	Yes	Yes	Yes

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 8: First week Return

This table provides the regression of determinants of 1-week return for the entire sample and sub-samples. Model (1), Model (2), Model (3) and Model (4) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4, 2018Q1-2018Q2 and 2018Q3-2020M1, respectively. CCI30 return is used for the corresponding return interval as the dependent variable. All other independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1) 2015Q3-2020M1	(2) 2015Q3-2017Q4	(3) 2018Q1-2018Q2	(4) 2018Q3-2020M1
ICO end-to-open return	-0.0661***	-0.105***	-0.102**	0.0464*
	(0.0163)	(0.0293)	(0.0416)	(0.0268)
First day return	-0.400***	-0.637***	-0.226	0.190
	(0.111)	(0.128)	(0.247)	(0.149)
1-week CCI30 return	0.117***	0.164***	0.160*	-0.0648
	(0.0333)	(0.0358)	(0.0930)	(0.146)
Raised	-0.0211	-0.0352	0.0201	-0.00487
	(0.0174)	(0.0267)	(0.0274)	(0.0178)
Price ICO	-0.104***	-0.134**	-0.172**	0.433**
	(0.0365)	(0.0504)	(0.0823)	(0.199)
ICO Duration	0.00656	-0.0283	0.0526**	-0.0630
	(0.0156)	(0.0272)	(0.0240)	(0.0471)
ERC20	-0.0482	-0.0844	-0.0180	-0.134
	(0.0625)	(0.0937)	(0.0912)	(0.0872)
Rating	0.0461	0.121*	0.0129	0.142
	(0.0451)	(0.0700)	(0.0618)	(0.0938)
# Expert	-0.0721***	-0.0577	-0.0671**	-0.138**
	(0.0255)	(0.0444)	(0.0316)	(0.0557)
Bonus	-0.0540	-0.0652	0.00505	0.00611
	(0.0567)	(0.0981)	(0.0705)	(0.110)
KYC&Whitelist	0.0737*	-0.274	0.0972	0.209
	(0.0394)	(0.186)	(0.0586)	(0.135)
Presale	-0.0588	-0.244*	0.0535	-0.203**
	(0.0457)	(0.140)	(0.0439)	(0.0908)
# Industry categories	-0.0105	-0.0294	-0.0114	-0.0130
	(0.00651)	(0.0301)	(0.0153)	(0.0211)
# Team members	-0.0651*	-0.0642	-0.0555*	-0.0518
	(0.0339)	(0.0473)	(0.0303)	(0.0844)
Distributed in ICO	0.228**	0.189*	0.141*	0.286
	(0.0990)	(0.110)	(0.0797)	(0.197)
US investors restricted	0.0427	0.00468	0.0188	0.0108
	(0.0513)	(0.126)	(0.0815)	(0.159)
Accepted fiat	-0.0150	0.0166	0.0328	-0.0287
	(0.0766)	(0.188)	(0.0996)	(0.151)
Major cryptocurrencies	0.0229	0.101	0.0708	-0.136
	(0.0391)	(0.0751)	(0.0585)	(0.166)
Constant	0.628***	0.743**	-0.657	-0.0712
	(0.215)	(0.332)	(0.545)	(0.493)
Observations	672	271	258	143
Adjusted R^2	0.105	0.157	0.131	0.247
Country/Quarter fixed effect	Yes	Yes	Yes	Yes

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 9: First month Return

This table provides the regression of determinants of 1-month return for the entire sample and sub-samples. Model (1), Model (2), Model (3) and Model (4) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4, 2018Q1-2018Q2 and 2018Q3-2020M1, respectively. CCI30 return is used for the corresponding return interval as the dependent variable. All other independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1) 2015Q3-2020M1	(2) 2015Q3-2017Q4	(3) 2018Q1-2018Q2	(4) 2018Q3-2020M1
ICO end-to-open return	-0.121***	-0.174***	-0.168***	0.0251
	(0.0239)	(0.0620)	(0.0466)	(0.0434)
First day return	-0.644***	-1.089***	-0.317	-0.245
	(0.110)	(0.240)	(0.279)	(0.212)
1-month CCI30 return	0.324***	0.416***	0.328***	0.149
	(0.0612)	(0.0732)	(0.0891)	(0.344)
Raised	-0.0302	-0.0629**	0.0100	0.0222
	(0.0211)	(0.0273)	(0.0413)	(0.0344)
Price ICO	-0.158**	-0.186*	-0.191	0.352
	(0.0717)	(0.110)	(0.128)	(0.361)
ICO Duration	0.0115	-0.0744	0.0982**	-0.0897
	(0.0245)	(0.0609)	(0.0375)	(0.0688)
ERC20	-0.111	-0.201	-0.0508	-0.0974
	(0.0865)	(0.122)	(0.0928)	(0.159)
Rating	-0.0143	0.119	-0.00866	0.282***
	(0.0531)	(0.0874)	(0.0645)	(0.103)
# Expert	-0.0482	-0.0121	-0.0670	-0.236***
	(0.0385)	(0.0711)	(0.0462)	(0.0751)
Bonus	-0.0339	-0.0439	0.0319	0.234
	(0.0976)	(0.173)	(0.105)	(0.142)
KYC&Whitelist	0.209***	-0.197	0.235***	0.398*
	(0.0645)	(0.341)	(0.0862)	(0.217)
Presale	-0.0223	-0.199	0.0111	-0.175
	(0.0737)	(0.207)	(0.0882)	(0.205)
# Industry categories	-0.0159	-0.0767	0.00528	-0.0286
	(0.0112)	(0.0622)	(0.0301)	(0.0373)
# Team members	-0.0823*	-0.128	0.0191	-0.0850
	(0.0427)	(0.115)	(0.0700)	(0.148)
Distributed in ICO	0.0400	-0.310*	0.245**	0.551*
	(0.118)	(0.180)	(0.110)	(0.313)
US investors restricted	0.0195	-0.132	0.110	-0.232
	(0.0779)	(0.191)	(0.111)	(0.215)
Accepted fiat	0.157	0.253	0.0474	0.452**
	(0.144)	(0.391)	(0.146)	(0.178)
Major cryptocurrencies	0.0560	0.255***	0.0592	-0.189
	(0.0526)	(0.0740)	(0.0742)	(0.141)
Constant	1.118***	1.603***	-1.356*	-1.100
	(0.323)	(0.492)	(0.784)	(0.899)
Observations	671	271	258	142
Adjusted R^2	0.171	0.281	0.160	0.191
Country/Quarter fixed effect	Yes	Yes	Yes	Yes

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 10: 3-month Return

This table provides the regression of determinants of 3-month return for the entire sample and sub-samples. Model (1), Model (2), Model (3) and Model (4) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4, 2018Q1-2018Q2 and 2018Q3-2020M1, respectively. CCI30 return is used for the corresponding return interval as the dependent variable. All other independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1) 2015Q3-2020M1	(2) 2015Q3-2017Q4	(3) 2018Q1-2018Q2	(4) 2018Q3-2020M1
ICO end-to-open return	-0.177***	-0.250***	-0.194***	-0.0133
	(0.0279)	(0.0592)	(0.0414)	(0.0527)
First day return	-0.767***	-0.925***	-0.733***	-0.782**
	(0.153)	(0.268)	(0.166)	(0.293)
3-month CCI30 return	0.532***	0.575***	0.377***	0.448
	(0.0459)	(0.0529)	(0.121)	(0.503)
Raised	-0.00699	-0.0614	0.0994	0.0789
	(0.0300)	(0.0366)	(0.0696)	(0.0501)
Price ICO	-0.237***	-0.304***	-0.253	-0.206
	(0.0730)	(0.100)	(0.162)	(0.430)
ICO Duration	-0.0110	-0.108*	0.0590	-0.0353
	(0.0277)	(0.0583)	(0.0353)	(0.0545)
ERC20	-0.0535	-0.113	-0.315**	0.178
	(0.0942)	(0.133)	(0.147)	(0.192)
Rating	0.0227	0.298**	-0.00938	0.124
	(0.0696)	(0.124)	(0.0847)	(0.169)
# Expert	-0.0732	-0.0909	-0.0945	-0.387***
	(0.0461)	(0.111)	(0.0614)	(0.0960)
Bonus	-0.0440	0.0166	-0.0916	0.281
	(0.114)	(0.179)	(0.146)	(0.195)
KYC&Whitelist	0.244*	0.146	0.0134	0.916***
	(0.124)	(0.446)	(0.200)	(0.210)
Presale	-0.0837	-0.375	0.0785	-0.195
	(0.148)	(0.307)	(0.223)	(0.322)
# Industry categories	-0.0281	-0.0917	0.0180	-0.0753**
	(0.0179)	(0.0772)	(0.0504)	(0.0329)
# Team members	-0.112	-0.0862	-0.0457	0.0418
	(0.0740)	(0.128)	(0.126)	(0.231)
Distributed in ICO	0.205	-0.0507	0.714***	0.439
	(0.161)	(0.152)	(0.233)	(0.380)
US investors restricted	0.220*	-0.173	0.409***	0.167
	(0.111)	(0.204)	(0.140)	(0.180)
Accepted fiat	0.253	0.0260	0.310*	0.100
	(0.183)	(0.445)	(0.155)	(0.301)
Major cryptocurrencies	-0.0439	0.135	0.0702	-0.462*
	(0.0902)	(0.164)	(0.101)	(0.232)
Constant	1.634***	2.018***	-2.766*	-2.679**
	(0.416)	(0.485)	(1.407)	(1.101)
Observations	654	269	256	129
Adjusted R^2	0.299	0.355	0.161	0.301
Country/Quarter fixed effect	Yes	Yes	Yes	Yes

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 11: 6-month Return

This table provides the regression of determinants of 6-month return for the entire sample and sub-samples. Model (1), Model (2), Model (3) and Model (4) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4, 2018Q1-2018Q2 and 2018Q3-2020M1, respectively. CCI30 return is used for the corresponding return interval as the dependent variable. All other independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1) 2015Q3-2020M1	(2) 2015Q3-2017Q4	(3) 2018Q1-2018Q2	(4) 2018Q3-2020M1
ICO end-to-open return	-0.201***	-0.242***	-0.0680	-0.173**
	(0.0396)	(0.0581)	(0.0508)	(0.0642)
First day return	-0.865***	-1.187***	-0.750***	-1.251**
	(0.239)	(0.359)	(0.256)	(0.475)
6-month CCI30 return	0.881***	0.921***	-0.112	1.873
	(0.101)	(0.0975)	(0.354)	(1.164)
Raised	0.00617	0.00287	0.104	0.0134
	(0.0423)	(0.0456)	(0.0755)	(0.0878)
Price ICO	-0.327***	-0.427***	0.0217	0.155
	(0.0999)	(0.159)	(0.129)	(1.073)
ICO Duration	-0.0410	-0.128*	0.0471	-0.0464
	(0.0455)	(0.0693)	(0.0503)	(0.106)
ERC20	-0.0330	-0.0152	-0.390*	-0.263
	(0.120)	(0.168)	(0.210)	(0.540)
Rating	0.338***	0.665**	0.141	0.764**
	(0.110)	(0.252)	(0.0875)	(0.343)
# Expert	-0.151***	-0.317***	-0.146**	-0.317
	(0.0451)	(0.108)	(0.0601)	(0.217)
Bonus	-0.125	-0.101	-0.0608	0.0340
	(0.141)	(0.237)	(0.205)	(0.355)
KYC&Whitelist	0.128	-0.385	-0.130	0.640**
	(0.218)	(0.358)	(0.272)	(0.302)
Presale	0.0832	-0.478	0.216	-0.199
	(0.151)	(0.371)	(0.234)	(0.324)
# Industry categories	0.0126	-0.0135	0.0384	-0.0578
	(0.0340)	(0.0745)	(0.0652)	(0.0540)
# Team members	-0.254***	-0.272	-0.153	-0.201
	(0.0846)	(0.195)	(0.144)	(0.275)
Distributed in ICO	0.0743	-0.317	0.928**	0.880
	(0.206)	(0.230)	(0.424)	(0.845)
US investors restricted	0.242*	-0.340	0.748***	-0.220
	(0.142)	(0.336)	(0.165)	(0.385)
Accepted fiat	0.0357	0.0258	0.165	-0.980*
	(0.206)	(0.446)	(0.213)	(0.508)
Major cryptocurrencies	-0.112	0.297*	-0.0819	-1.067**
	(0.118)	(0.170)	(0.137)	(0.447)
Constant	2.465***	2.225**	-3.629**	-2.352
	(0.452)	(1.046)	(1.663)	(2.526)
Observations	615	268	249	98
Adjusted R^2	0.351	0.420	0.142	0.171
Country/Quarter fixed effect	Yes	Yes	Yes	Yes

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 12: 1-year Return

This table provides the regression of determinants of 1-year return for the entire sample and sub-samples. Model (1), Model (2) and Model (3) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4 and 2018Q1-2018Q2, respectively. Since the number of observations for the period 2018Q3-2020M1 is too low, we don't run the regression for this period. CCI30 return is used for the corresponding return interval as the dependent variable. All other independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1) 2015Q3-2020M1	(2) 2015Q3-2017Q4	(3) 2018Q1-2018Q2
ICO end-to-open return	-0.228***	-0.262***	-0.0721
	(0.0480)	(0.0706)	(0.0873)
First day return	-1.090***	-1.254***	-1.153***
	(0.223)	(0.333)	(0.315)
1-year CCI30 return	1.471***	1.343***	2.003**
	(0.295)	(0.343)	(0.803)
Raised	0.0430	0.0278	0.0513
	(0.0572)	(0.0513)	(0.107)
Price ICO	-0.286***	-0.287**	-0.101
	(0.100)	(0.130)	(0.162)
ICO Duration	-0.0802	-0.0786	-0.00231
	(0.0577)	(0.0956)	(0.0772)
ERC20	-0.111	-0.0773	-0.192
	(0.194)	(0.176)	(0.325)
Rating	0.441***	0.711***	0.422*
	(0.109)	(0.170)	(0.217)
# Expert	-0.144	-0.179	-0.268*
	(0.0887)	(0.161)	(0.140)
Bonus	-0.0846	-0.177	0.0804
	(0.196)	(0.231)	(0.295)
KYC&Whitelist	0.165	0.228	-0.234
	(0.287)	(0.374)	(0.425)
Presale	0.134	-0.136	0.281
	(0.251)	(0.466)	(0.350)
# Industry categories	-0.0409	-0.100	0.0118
	(0.0465)	(0.0827)	(0.0789)
# Team members	-0.195	-0.193	-0.210
	(0.122)	(0.224)	(0.238)
Distributed in ICO	0.228	-0.206	1.050*
	(0.257)	(0.236)	(0.578)
US investors restricted	0.349	-0.567	0.912***
	(0.255)	(0.387)	(0.277)
Accepted fiat	-0.0167	0.134	-0.254
	(0.268)	(0.517)	(0.420)
Major cryptocurrencies	-0.164	0.181	-0.362
	(0.189)	(0.216)	(0.293)
Constant	3.001**	2.422	-3.560*
	(1.486)	(1.700)	(2.104)
Observations	526	267	234
Adjusted R^2	0.346	0.471	0.141
Country/Quarter fixed effect	Yes	Yes	Yes

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 13: First day Abnormal Return

This table provides the regression of determinants of abnormal return on its first trading day, computed by adjusting the first day raw return by the market capitalization-weighted benchmark. Model (1), Model (2), Model (3) and Model (4) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4, 2018Q1-2018Q2 and 2018Q3-2020M1, respectively. CCI30 return is used for the corresponding return interval as the dependent variable. All other independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1)	(2)	(3)	(4)
	2015Q3-2020M1	2015Q3-2017Q4	2018Q1-2018Q2	2018Q3-2020M1
1-day CCI30 return	0.736**	0.217	2.135**	1.613
	(0.361)	(0.332)	(1.051)	(1.511)
Raised	-0.0410**	-0.0303**	-0.114	-0.0306
	(0.0174)	(0.0128)	(0.0714)	(0.0309)
Price ICO	-0.0278*	-0.000824	-0.0202	0.00290
	(0.0148)	(0.0219)	(0.0221)	(0.0734)
ICO Duration	0.0194	-0.00477	0.0183	0.0386
	(0.0161)	(0.0197)	(0.0140)	(0.0398)
ERC20	-0.0288	-0.0188	-0.130**	-0.0237
	(0.0343)	(0.0600)	(0.0642)	(0.0878)
Rating	-0.0268	0.0622	-0.129**	0.0822
	(0.0391)	(0.0550)	(0.0526)	(0.0610)
# Expert	-0.00162	0.0210	-0.0446	-0.0139
	(0.0110)	(0.0300)	(0.0403)	(0.0126)
Bonus	-0.0553*	-0.133***	0.0608	-0.0975
	(0.0314)	(0.0377)	(0.0524)	(0.113)
KYC&Whitelist	-0.0458	0.165	-0.0885	-0.00844
	(0.0779)	(0.247)	(0.131)	(0.0708)
Presale	0.0660	0.0100	0.121	-0.00597
	(0.0594)	(0.122)	(0.103)	(0.0460)
# Industry categories	0.0104	-0.0116	0.0126	-0.00323
	(0.0162)	(0.0177)	(0.0275)	(0.00695)
# Team members	-0.00444	-0.0279	-0.00448	0.0281
	(0.0233)	(0.0437)	(0.0200)	(0.0613)
Distributed in ICO	-0.0704	-0.0981	-0.0338	0.113
	(0.0541)	(0.0806)	(0.124)	(0.136)
US investors restricted	-0.0789***	-0.197**	-0.0105	0.0111
	(0.0239)	(0.0839)	(0.0504)	(0.0526)
Accepted fiat	0.000817	0.182	-0.215	-0.00269
	(0.0624)	(0.122)	(0.169)	(0.0660)
Major cryptocurrencies	0.0422	0.111**	-0.0770	0.0796
	(0.0462)	(0.0495)	(0.116)	(0.0858)
Constant	0.460*	0.231	2.584*	-0.0325
	(0.263)	(0.281)	(1.359)	(0.323)
Observations	655	261	255	139
Adjusted R^2	0.037	0.020	0.157	0.058
Country/Quarter fixed effect	Yes	Yes	Yes	Yes

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 14: First week Abnormal Return

This table provides the regression of determinants of buy-and-hold returns for holding tokens for 1-week after the first day of trading corrected by the market capitalization-weighted benchmark. Model (1), Model (2), Model (3) and Model (4) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4, 2018Q1-2018Q2 and 2018Q3-2020M1, respectively. CCI30 return is used for the corresponding return interval as the dependent variable. All other independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1) 2015Q3-2020M1	(2) 2015Q3-2017Q4	(3) 2018Q1-2018Q2	(4) 2018Q3-2020M1
First day AR	-0.293**	-0.998***	0.0459	0.161
	(0.142)	(0.297)	(0.218)	(0.273)
1-week CCI30 return	0.198*	0.308**	0.0566	0.0836
	(0.105)	(0.136)	(0.105)	(0.279)
Raised	-0.122*	-0.223**	-0.0688	0.0145
	(0.0638)	(0.109)	(0.0797)	(0.0510)
Price ICO	-0.0951***	-0.0870*	-0.0861	0.311
	(0.0348)	(0.0471)	(0.0789)	(0.228)
ICO Duration	0.0186	-0.0355	0.0572**	-0.0983
	(0.0300)	(0.0642)	(0.0250)	(0.127)
ERC20	-0.0480	-0.160	0.0346	-0.0525
	(0.120)	(0.165)	(0.109)	(0.214)
Rating	0.235	0.547	0.00754	0.225
	(0.144)	(0.347)	(0.104)	(0.286)
# Expert	-0.190**	-0.183	-0.113	-0.254**
	(0.0866)	(0.167)	(0.0983)	(0.123)
Bonus	-0.101	-0.196	-0.00944	-0.0176
	(0.0801)	(0.181)	(0.0782)	(0.220)
KYC&Whitelist	-0.00308	-0.0210	-0.0874	0.467
	(0.0929)	(0.295)	(0.162)	(0.317)
Presale	-0.0330	-1.394	0.246*	-0.199
	(0.0978)	(0.930)	(0.130)	(0.189)
# Industry categories	-0.0150	-0.0827*	-0.0119	-0.0395
	(0.0114)	(0.0472)	(0.0188)	(0.0309)
# Team members	-0.113	-0.0803	-0.175	-0.289
	(0.0704)	(0.0857)	(0.113)	(0.230)
Distributed in ICO	0.617**	0.397	0.365*	1.167*
	(0.243)	(0.404)	(0.192)	(0.677)
US investors restricted	-0.0133	-0.136	-0.0198	-0.361
	(0.0893)	(0.255)	(0.0543)	(0.389)
Accepted fiat	-0.128	0.187	0.0473	-0.451
	(0.101)	(0.245)	(0.107)	(0.312)
Major cryptocurrencies	-0.0768	0.0131	0.100	-0.360
	(0.0986)	(0.184)	(0.0765)	(0.292)
Constant	1.089	1.966*	0.720	-0.583
	(0.671)	(1.128)	(1.568)	(1.431)
Observations	655	261	255	139
Adjusted R^2	0.086	0.125	0.044	0.150
Country/Quarter fixed effect	Yes	Yes	Yes	Yes

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 15: First month Abnormal Return

This table provides the regression of determinants of buy-and-hold returns for holding tokens for 1-month after the first day of trading corrected by the market capitalization-weighted benchmark. Model (1), Model (2), Model (3) and Model (4) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4, 2018Q1-2018Q2 and 2018Q3-2020M1, respectively. CCI30 return is used for the corresponding return interval as the dependent variable. All other independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1) 2015Q3-2020M1	(2) 2015Q3-2017Q4	(3) 2018Q1-2018Q2	(4) 2018Q3-2020M1
First day AR	-0.326**	-0.982***	-0.0236	-0.0673
	(0.155)	(0.360)	(0.191)	(0.151)
1-month CCI30 return	0.483***	0.639***	0.300**	0.0305
	(0.0859)	(0.112)	(0.120)	(0.273)
Raised	-0.142*	-0.240	-0.136*	-0.00731
	(0.0748)	(0.143)	(0.0754)	(0.0369)
Price ICO	-0.103**	-0.148*	0.0583	-0.0590
	(0.0464)	(0.0825)	(0.121)	(0.299)
ICO Duration	0.0600**	-0.0483	0.125***	-0.0397
	(0.0300)	(0.0637)	(0.0368)	(0.0838)
ERC20	-0.0228	-0.0448	-0.0705	0.109
	(0.144)	(0.276)	(0.136)	(0.163)
Rating	0.157*	0.364*	0.0763	0.177
	(0.0798)	(0.204)	(0.140)	(0.163)
# Expert	-0.130***	-0.104	-0.101	-0.219***
	(0.0462)	(0.0726)	(0.0899)	(0.0780)
Bonus	0.181	0.313	0.220	0.521**
	(0.138)	(0.404)	(0.163)	(0.207)
KYC&Whitelist	0.109	0.0515	-0.0242	0.727**
	(0.0957)	(0.428)	(0.161)	(0.310)
Presale	0.0306	-0.783**	0.135	0.0733
	(0.111)	(0.364)	(0.156)	(0.265)
# Industry categories	-0.0213	-0.195**	0.0212	-0.0398
	(0.0190)	(0.0907)	(0.0326)	(0.0265)
# Team members	-0.112	-0.0260	-0.111	-0.417
	(0.0760)	(0.247)	(0.129)	(0.275)
Distributed in ICO	0.244	-0.548	0.309*	1.217**
	(0.303)	(0.445)	(0.166)	(0.464)
US investors restricted	-0.102	-0.270	0.0310	-0.607*
	(0.0893)	(0.401)	(0.0932)	(0.302)
Accepted fiat	0.274	1.117	-0.0851	0.370*
	(0.241)	(0.869)	(0.165)	(0.210)
Major cryptocurrencies	0.0422	0.303	0.0869	-0.388*
	(0.0817)	(0.193)	(0.0901)	(0.220)
Constant	0.101	1.281	-0.518	-1.795
	(0.863)	(1.708)	(1.391)	(1.266)
Observations	654	261	255	138
Adjusted R^2	0.116	0.162	0.050	0.281
Country/Quarter fixed effect	Yes	Yes	Yes	Yes

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 16: 3-month Abnormal Return

This table provides the regression of determinants of buy-and-hold returns for holding tokens for 3-month after the first day of trading corrected by the market capitalization-weighted benchmark. Model (1), Model (2), Model (3) and Model (4) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4, 2018Q1-2018Q2 and 2018Q3-2020M1, respectively. CCI30 return is used for the corresponding return interval as the dependent variable. All other independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1) 2015Q3-2020M1	(2) 2015Q3-2017Q4	(3) 2018Q1-2018Q2	(4) 2018Q3-2020M1
First day AR	-0.797*	-1.989	-0.227*	-0.161
	(0.410)	(1.238)	(0.128)	(0.0996)
3-month CCI30 return	1.018***	1.362***	0.147	0.260
	(0.110)	(0.196)	(0.218)	(0.489)
Raised	-0.336	-0.715	-0.00892	-0.0235
	(0.244)	(0.449)	(0.0723)	(0.0342)
Price ICO	-0.155	-0.261	0.176	-0.0793
	(0.115)	(0.199)	(0.218)	(0.231)
ICO Duration	0.0534	-0.259	0.0411	0.0616
	(0.0623)	(0.186)	(0.0835)	(0.0651)
ERC20	0.0965	0.0102	-0.194	0.443*
	(0.199)	(0.375)	(0.215)	(0.256)
Rating	0.518**	1.173**	0.0928	-0.0775
	(0.212)	(0.436)	(0.154)	(0.206)
# Expert	-0.191**	-0.207	-0.0284	-0.188**
	(0.0934)	(0.208)	(0.0807)	(0.0778)
Bonus	0.0842	0.200	0.0250	0.346
	(0.261)	(0.742)	(0.261)	(0.219)
KYC&Whitelist	0.177	1.164	0.0599	0.633***
	(0.168)	(1.032)	(0.169)	(0.194)
Presale	0.163	-0.525	0.292	0.122
	(0.242)	(0.459)	(0.432)	(0.295)
# Industry categories	-0.0934**	-0.465**	-0.0454	-0.0467**
	(0.0389)	(0.210)	(0.0570)	(0.0201)
# Team members	-0.0816	0.252	-0.120	-0.317
	(0.159)	(0.439)	(0.180)	(0.310)
Distributed in ICO	0.495	0.360	0.447***	0.377
	(0.699)	(1.298)	(0.126)	(0.467)
US investors restricted	0.0488	-0.454	0.202**	-0.245
	(0.242)	(1.021)	(0.0886)	(0.179)
Accepted fiat	0.285	2.008	-0.0757	-0.205
	(0.372)	(1.436)	(0.221)	(0.422)
Major cryptocurrencies	0.0414	0.104	0.117	-0.586
	(0.232)	(0.524)	(0.135)	(0.389)
Constant	-4.802	0.0366	-9.835***	-8.684***
	(2.902)	(5.466)	(1.341)	(1.380)
Observations	640	259	253	128
Adjusted R^2	0.156	0.161	-0.002	0.285
Country/Quarter fixed effect	Yes	Yes	Yes	Yes

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 17: 6-month Abnormal Return

This table provides the regression of determinants of buy-and-hold returns for holding tokens for 6-month after the first day of trading corrected by the market capitalization-weighted benchmark. Model (1), Model (2), Model (3) and Model (4) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4, 2018Q1-2018Q2 and 2018Q3-2020M1, respectively. CCI30 return is used for the corresponding return interval as the dependent variable. All other independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1) 2015Q3-2020M1	(2) 2015Q3-2017Q4	(3) 2018Q1-2018Q2	(4) 2018Q3-2020M1
First day AR	-0.780**	-2.366***	-0.167**	0.852**
	(0.350)	(0.679)	(0.0650)	(0.395)
6-month CCI30 return	2.545***	2.848***	-0.259	8.191
	(0.644)	(0.647)	(0.187)	(5.268)
Raised	-0.219*	-0.531***	-0.0336	0.291**
	(0.111)	(0.158)	(0.0372)	(0.113)
Price ICO	-0.389***	-0.551**	0.176	-0.497
	(0.133)	(0.263)	(0.160)	(0.986)
ICO Duration	0.128	0.0540	0.0498*	-0.0352
	(0.138)	(0.286)	(0.0275)	(0.196)
ERC20	0.280	0.317	-0.229	0.180
	(0.266)	(0.559)	(0.138)	(0.919)
Rating	0.850***	2.253***	0.134	-0.340
	(0.252)	(0.458)	(0.115)	(0.445)
# Expert	-0.293**	-0.439	-0.0761**	-0.244
	(0.124)	(0.313)	(0.0287)	(0.323)
Bonus	-0.0693	0.229	-0.0994	-0.0688
	(0.202)	(0.356)	(0.152)	(0.590)
KYC&Whitelist	0.236	1.099	-0.100	1.162
	(0.238)	(0.857)	(0.111)	(0.769)
Presale	0.160	-1.493	0.277	0.349
	(0.210)	(1.060)	(0.257)	(0.627)
# Industry categories	-0.100***	-0.452***	-0.0189	-0.0564
	(0.0351)	(0.140)	(0.0330)	(0.115)
# Team members	-0.323	-0.244	-0.130	-1.220*
	(0.251)	(0.631)	(0.102)	(0.631)
Distributed in ICO	-0.503	-1.358**	0.235	-1.748
	(0.318)	(0.668)	(0.200)	(1.753)
US investors restricted	-0.107	-0.885	0.409***	-1.209
	(0.241)	(0.790)	(0.102)	(1.010)
Accepted fiat	0.147	2.906	-0.206	-0.745
	(0.883)	(3.097)	(0.142)	(0.986)
Major cryptocurrencies	-0.562***	-0.919**	-0.0466	-0.275
	(0.188)	(0.454)	(0.0981)	(0.896)
Constant	-4.687***	-2.890	-10.24***	-7.802**
	(1.516)	(2.572)	(0.834)	(3.653)
Observations	603	259	246	98
Adjusted R^2	0.398	0.435	0.087	0.100
Country/Quarter fixed effect	Yes	Yes	Yes	Yes

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 18: 1-year Abnormal Return

This table provides the regression of determinants of buy-and-hold returns for holding tokens for 1-year after the first day of trading corrected by the market capitalization-weighted benchmark. Model (1), Model (2) and Model (3) comprise the periods 2015Q3-2020M1, 2015Q3-2017Q4 and 2018Q1-2018Q2, respectively. Since the number of observations for the period 2018Q3-2020M1 is too low, we don't run the regression for this period. CCI30 return is used for the corresponding return interval as the dependent variable. All other independent variables are explained in detail in Section 3.2.2. Coefficient estimates are reported with their standard errors adjusted for heteroskedasticity and clustered by at the quarter level.

	(1) 2015Q3-2020M1	(2) 2015Q3-2017Q4	(3) 2018Q1-2018Q2
First day AR	1.262	1.850	-0.113
	(1.781)	(2.611)	(0.657)
1-year CCI30 return	5.588**	7.934**	1.912
	(2.678)	(3.794)	(1.458)
Raised	0.119	-0.0553	0.398
	(0.185)	(0.177)	(0.429)
Price ICO	-0.523**	-0.553	-0.0868
	(0.236)	(0.420)	(0.540)
ICO Duration	0.207	0.242	0.244
	(0.143)	(0.237)	(0.229)
ERC20	0.0342	-1.012	1.436
	(0.668)	(1.002)	(1.305)
Rating	1.355***	1.586*	0.778
	(0.436)	(0.910)	(0.514)
# Expert	-0.157	0.451	-0.460
	(0.303)	(0.577)	(0.403)
Bonus	0.675	0.354	1.648
	(1.015)	(0.478)	(2.350)
KYC&Whitelist	0.0864	2.089***	-0.155
	(0.327)	(0.610)	(0.486)
Presale	-0.749	-2.428*	-0.0925
	(0.936)	(1.250)	(1.250)
# Industry categories	-0.400	-0.395	-0.591
	(0.271)	(0.267)	(0.399)
# Team members	0.770*	0.581	0.773
	(0.442)	(0.767)	(1.028)
Distributed in ICO	1.273*	0.793	2.571*
	(0.724)	(0.954)	(1.368)
US investors restricted	1.603	-1.001	3.196*
	(1.101)	(0.717)	(1.858)
Accepted fiat	-1.913*	-0.656	-3.648
	(0.962)	(1.909)	(2.410)
Major cryptocurrencies	-1.795	-0.979	-3.980
	(1.445)	(0.808)	(3.057)
Constant	1.530	4.735	-31.96***
	(3.781)	(4.007)	(8.337)
Observations	505	254	228
Adjusted R^2	0.219	0.432	0.017
Country/Quarter fixed effect	Yes	Yes	Yes

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

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