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A Look at Initial Coin Offerings[1]

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Overview

Initial Coin Offerings (ICOs) have seen a rise in popularity in 2017, with US$2.0 billion raised this year through August 2017. Participants in an ICO receive digital "tokens" in exchange for funds, which are usually provided in the form of bitcoins (BTC) or ether (ETH).[2] The funds raised are meant to support the development of a blockchain project, such as a cloud storage service or a cryptocurrency exchange. In theory, the holders of the ICO tokens have the opportunity to access the developed products or services at some future date. As a method of raising capital, ICOs fall somewhere in between rewards-based crowdfunding platforms and conventional IPOs.

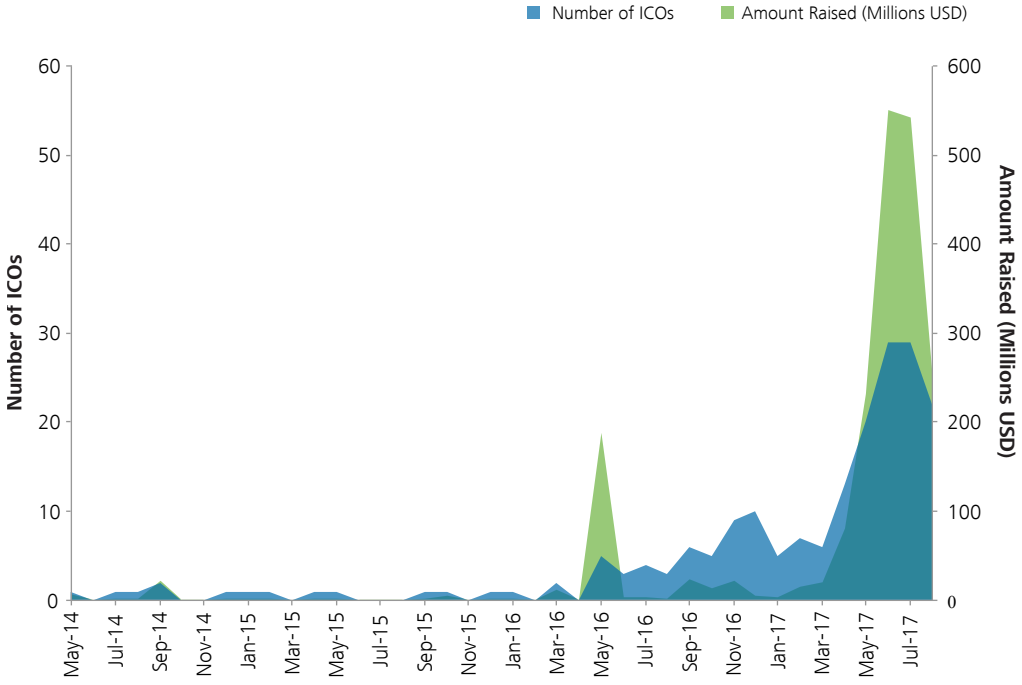
In practice, ICOs tend to occur before the underlying services are created. Developers use webpages, white papers, and internet forums to communicate with potential investors. ICO white papers have been said to exaggerate benefits, gloss over risks, and create unsubstantiated hype in order to promote the underlying project. While ICOs are an interesting alternative to IPOs, it remains to be seen whether they will provide value to investors.

ICOs to Date

We created a comprehensive list of completed ICOs and their associated characteristics in 2017, as of August 2017. There is no single source for this information. Several websites provide lists of past ICOs along with reported token sale ending dates and total funds raised. We retrieved the majority of our data from the CoinSchedule[3] and CoinDesk[4] websites. In addition, the dates and amounts were updated and/or validated through project websites and research websites, such as Smith + Crown[5] and TokenMarket.[6]

We identified 131 ICOs completed from 1 January 2017 through 31 August 2017, a marked acceleration from the rate of ICO activity in 2016, when 48 ICOs were completed over the full year. The largest ICO to date is Tezos, a ledger with smart contracts similar to Ethereum. In July 2017, Tezos raised an estimated US$232 million in BTC and ETH.[7]

Figure 1. **Initial Coin Offerings by Month**



Notes and Sources: Data are from CoinSchedule and CoinDesk websites with supplementation from project and research websites, such as Smith + Crown and TokenMarket.

ICOs After Issuance

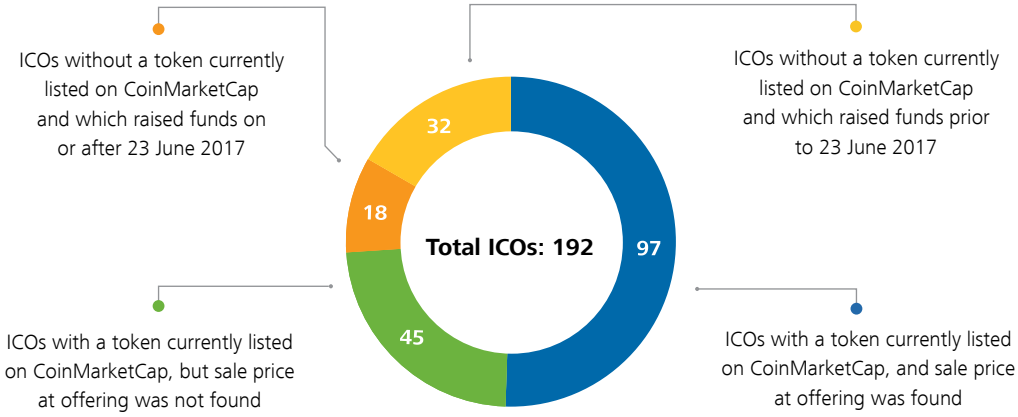
Investing in an ICO is inherently risky. In addition to the usual risk that comes with funding a new venture, there appears to be no legal requirement that the funds be used for the stated project that motivated the ICO. There does not appear to even be a requirement that the project must be pursued at all. Despite these risks, some ICOs have been quite successful.

We have collected data on the trading prices of each ICO token and compared these prices to the ICO price at offering. For example, one token from the Incent ICO was offered at 0.00016667 BTC on 30 November 2016. As of 24 October 2017, it was worth 0.00002627 BTC, a loss of 84%. For 97 of the 192 ICOs that we identified, we were able to find token prices both as of the offering and as of 24 October 2017. The absence of post-offering price data for an ICO suggests that its token may be worthless or at least highly illiquid.

Based on our review of ICOs with missing price data, we assume tokens issued before 23 June 2017 that are still missing prices have failed and are worthless. On one level, this is just an assumption meant to facilitate the below calculations, but it is likely that at least some of the ICOs without token prices will never result in a tradable asset.

For the below analyses, we drop tokens for ICOs issued on or after 23 June 2017, as we assume it is too early to know whether the token is valuable. We also drop from our analyses those tokens for which we have current token prices but are unable to ascertain the issuance price.

Figure 2. **ICO Classifications**



Using our data on token prices, we have computed the returns to investing in each of the 97 ICOs using the token price at issuance and the token price as of 24 October 2017. Also included in the analyses below are the 32 ICOs for which the token appears to be worthless.

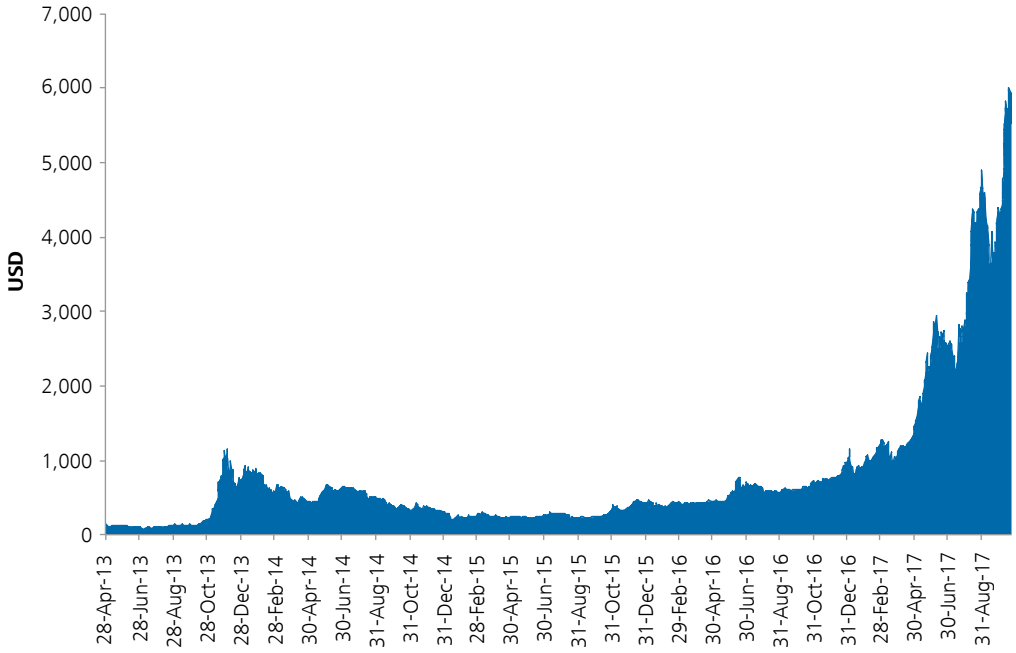
Figure 3. **Return on Investment Based on Token's BTC Price at Offering Through 24 October 2017**

Notes and Sources: Data are from CoinMarketCap website, project websites, and research websites. The token sale price represents the base price offered during the ICO, without discounts or bonuses. All token sale prices that are not in BTC are converted to BTC as of the ICO end date.

More than 80% of ICOs in our data set lost value relative to BTC, with many experiencing large declines. However, there are some ICOs that have performed very well: 12 have returns between 100% and 1,000%, and three have returns of more than 1,000%.

We have also performed these computations showing the return as expressed in US dollars as opposed to BTC. BTC has appreciated against the dollar in 2016 and 2017, and so returns from investments in ICOs will appear substantially better if expressed in dollars as opposed to BTC.

Figure 4. **BTC to US Dollar Exchange Rate 2013–2017**



Notes and Sources: Data are from CoinMarketCap.

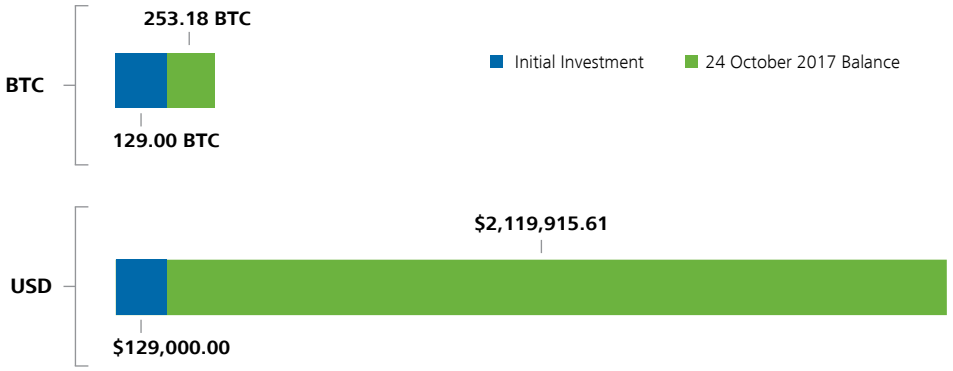
Figure 5. **Return on Investment Based on Token's USD Price at Offering Through 24 October 2017**

Notes and Sources: Data are from CoinMarketCap website, project websites, and reasearch websites. The token sale price represents the base price offered during the ICO, without discounts or bonuses. All token sale prices that are not in BTC are converted to BTC as of the ICO end date. All prices are converted to USD as of the ICO end date and 24 October 2017.

Although more than 57% of ICOs in our data lost value in US dollar terms, a substantial number of the ICOs performed very well, with 23 enjoying returns between 100% and 1,000%, 10 seeing returns between 1,000% and 10,000%, and four with returns of more than 10,000%. This is in large part due to the appreciation of BTC versus the US dollar.

To provide some context for the outsized gains experienced by some ICOs, we have computed the returns to investing 1 BTC in each of the 129 ICOs depicted in the charts above. We have also performed this computation assuming that one invests US$1,000 in each ICO. These results are shown below.

Figure 6. **Gains Based on Investing 1 BTC and $129,000 in Each of the 129 ICOs**



Notes and Sources: Data are from CoinMarketCap website, project websites, and reasearch websites. The token sale price represents the base price offered during the ICO, without discounts or bonuses. All token sale prices that are not in BTC are converted to BTC as of the ICO end date. All prices are converted to USD as of the ICO end date and 24 October 2017.

As can be seen, the ICOs with large gains bring the total return to investing in ICOs to nearly double the initial BTC investment. When expressed in US dollars, investing in these ICOs would have resulted in a much larger gain (more than 1,500%), much like investing in BTC itself during this period would have done. Note that these results are only illustrative and do not take into account important factors such as market liquidity.

Increasing Regulation and Potential Litigation

An incident involving the DAO ICO[8] in June 2016 prompted a report from the US Securities and Exchange Commission (SEC), in which the SEC issued the following warning: "[O]ffers and sales of digital assets by 'virtual organizations' are subject to the requirements of the federal securities laws … Whether a particular investment transaction involves the offer or sale of a security—regardless of the terminology or technology used—will depend on the facts and circumstances, including the economic realities of the transaction."[9]

If ICOs are treated as securities, there would be significant implications for ICOs in the US. These offerings may be subject to the same regulations as equity IPOs, and the trading of ICOs on exchanges would be subject to greater regulation as well.[10]

Conclusion

The frequency of ICOs has grown dramatically since 2015, and the amount of cryptocurrency (and sometimes fiat currency) being invested in ICOs is increasingly significant. The typical ICO token has had negative returns over this period, while the mean performance is supported by a few tokens with very high returns. Further, the legal future of ICOs is unclear, especially given the uncertainty regarding the regulation of ICOs as securities.

Notes

[1] The authors would like to thank Benjamin Maletta, Alice Huang, and Wen Jin for their research. We also thank Dr. Andrew Carron and Raphael Starr for their helpful comments and suggestions.

[2] For an introduction to cryptocurrencies such as bitcoin, see Tyler Lacoma, "Cryptocurrency Explainer: Everything You Need to Know," *Digital Trends,* 16 April 2017, available at https://www.digitaltrends.com/computing/everything-you-need-to-know-cryptocurrency-bitcoin, or Andreas M. Antonopoulos, *Mastering Bitcoin: Unlocking Digital Cryptocurrencies*, 1st ed., O'Reilly Media, 2014.

[3] https://www.coinschedule.com.

[4] https://www.coindesk.com/ico-tracker.

[5] https://www.smithandcrown.com.

[6] https://tokenmarket.net.

[7] Size is calculated using the BTC/USD and ETH/USD exchange rates as of the date of ICO completion.

[8] The DAO is an Ethereum-based decentralized venture fund. In April 2016, the DAO token sale raised more than US$150 million. In June 2016, a person or persons exploited a flaw in the DAO code and used it to extract approximately US$55 million from the DAO. See Matthew Leising, "The Ether Thief," ***Bloomberg***, 13 June 2017, available at https://www.bloomberg.com/features/2017-the-ether-thief.

[9] US Securities and Exchange Commission, "SEC Issues Investigative Report Concluding DAO Tokens, a Digital Asset, Were Securities," 25 July 2017, available at https://www.sec.gov/news/press-release/2017-131.

[10] For further discussion of these issues, see Davis Polk & Wardwell LLP, "SEC Confirms That Some Initial Coin Offerings Are Illegal Unregistered Securities Offerings," 27 July 2017, available at https://www.davispolk.com/files/2017-07-27_sec_confirms_that_some_initial_coin_offerings_are_illegal_unregistered_securities_offerings.pdf.

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