The Wisdom of Crowds and Information Cascades in FinTech: Evidence from Initial Coin Offerings

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Motivation

- Initial coin offerings (ICOs) have become a popular way to fund blockchain-related startups.
    - An entrepreneur creates and sells a virtual currency or "token" to raise capital.
    - Tokens can be traded in the secondary market.

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  ▶ Tokens can be traded in the secondary market.

▶ Information asymmetry between an entrepreneur and outside investors can hinder successful fundraising (Akerlof, 1970; Leland and Pyle, 1977).

  ▶ Traditional IPOs are delegated to financial intermediaries.
  ▶ In ICOs, finacial intermediation is absent by design thanks to decentralized bookkeeping enabled by blockchain technology.

▶ ICOs tend to rely heavily on the "wisdom of crowds" – the collective action of a large group – to overcome information asymmetry.

What does an ICO look like?

Main results

- ICO fundraising is more likely to succeed (reaching a minimum fundraising target) if
    - independent analysts issue favorable ratings,
    - insiders retain more tokens (consistent with Leland and Pyle (1977)),
    - it does not feature high bonuses or a "Know Your Customer" policy,
    - or it features multi-language whitepapers/websites or accepting multiple currencies.

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- Successful token sales attract more than 2,000 backers, compared to 39 supporters in failed ICOs.
  - Investor subscriptions in initial periods strongly predict subsequent token sales and eventual fundraising success, exhibiting an information cascade (Cong and Xiao, 2018; Welch, 1992).

- Average/median first-day underpricing is 160%/24%, and newly issued tokens do not underperform in the long run.

Data sources

- ▶ Our sample includes 1,549 ICOs announced between January 1, 2016 and March 31, 2018, collected by ICObench.com.

- ▶ Main variables include:
  - ▶ Start and end dates, soft and hard caps, gross proceeds, bonus/discount terms, token price, the number and percent of tokens for sale, etc.
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- ▶ Unique *primary market subscription data* from Etherscan.io:
  - ▶ Nearly 80% of our sample ICOs are based on the Ethereum platform.
  - ▶ We identify 952 ICOs with primary market transaction data.
  - ▶ Obtain subscriber ID, transation time, quantity of tokens bought, and dollar amount.

- ▶ Secondary market prices and volumes are from CoinMarketCap.com.

ICO starts and fundraising success
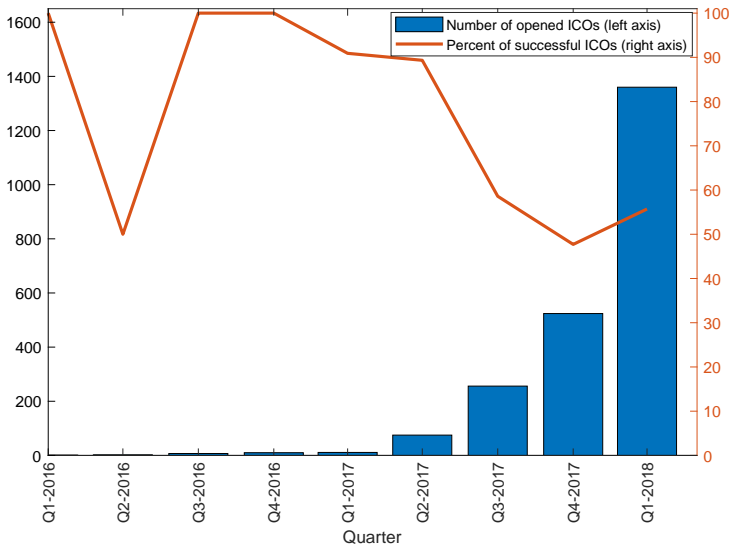
Determinants of fundraising success

	Probit model			Linear prob. model	
	Coefficient	*t*-stat.	Marg. Prob.	Coefficient	*t*-stat.
ICO characteristics	(1a)	(1b)	(1c)	(2a)	(2b)
Analyst rating	0.564***	5.17	22.2%	0.164***	4.75
No. of analysts	0.035***	5.16	1.4%	0.012***	8.22
Fraction of tokens for sale	-0.735***	-4.26	-29.0%	-0.160***	-3.24
Presale	0.385***	7.03	15.2%	0.119***	7.95
High bonus	-0.279***	-3.42	-10.9%	-0.083***	-3.12
Know Your Customer	-0.147***	-3.29	-5.7%	-0.057**	-2.27
Multiple languages	0.253*	1.88	10.0%	0.095**	2.35
Multiple currency	0.022	0.46	0.9%	0.015	1.20
Quarterly dummies		Yes		Yes	
Country fixed effects		No		Yes	
Observations		1,461		1,461	
Pseudo R-squared		0.26			
Adj. R-squared				0.32	
% (Dep variable = 1)		45.2%		45.2%	

Gross proceeds

| Dependent variable	Gross proceeds ($ millions)		Gross proceeds/Hard cap	
	Coefficient	t-stat.	Coefficient	t-stat.
ICO characteristics	(1a)	(1b)	(2a)	(2b)
Analyst rating	4.680**	1.98	0.055***	3.23
No. of analysts	0.068	0.41	0.006***	3.25
Fraction of tokens for sale	-17.569***	-2.87	-0.238*	-1.79
Presale	-5.618*	-1.82	-0.023	-0.50
High bonus	-4.747**	-2.13	-0.108**	-2.18
Know Your Customer	-3.260	-1.14	-0.260***	-5.85
Multiple languages	5.450	1.04	-0.014	-0.92
Multiple currencies	0.830	0.46	-0.012	-0.62
Quarterly dummies	Yes		Yes	
Country fixed effects	Yes		Yes	
Observations	727		543	
Adj. R-squared	0.03		0.14	

Daily token sales (successful vs. failed fundraising)
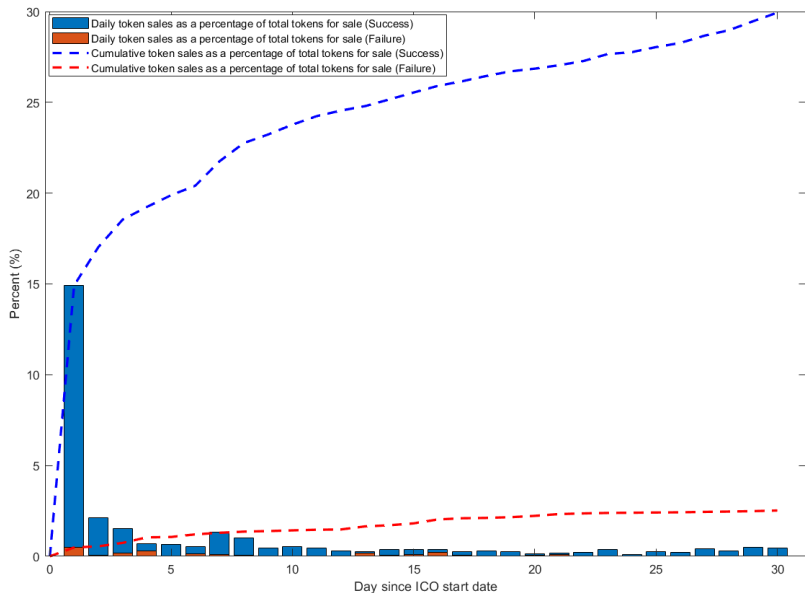
Hourly token sales on the 1st day of ICO
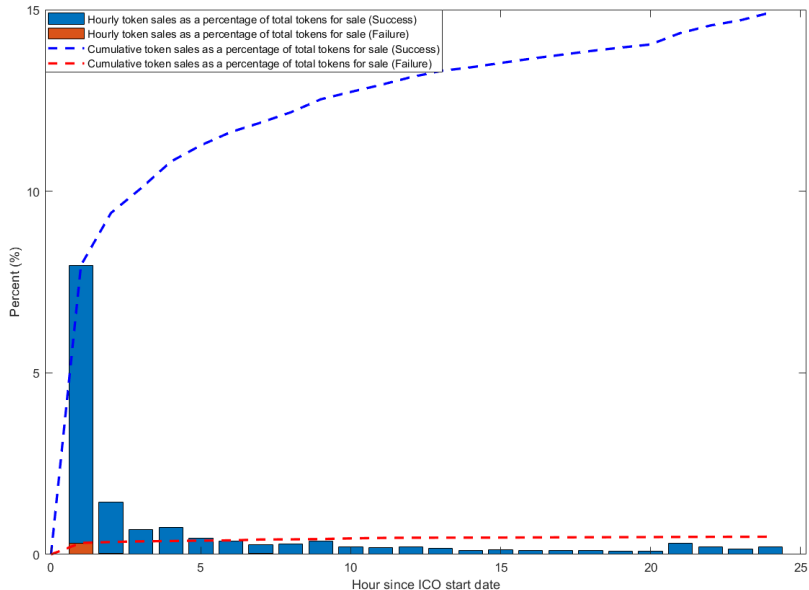
Sales during the 1st hour of ICO
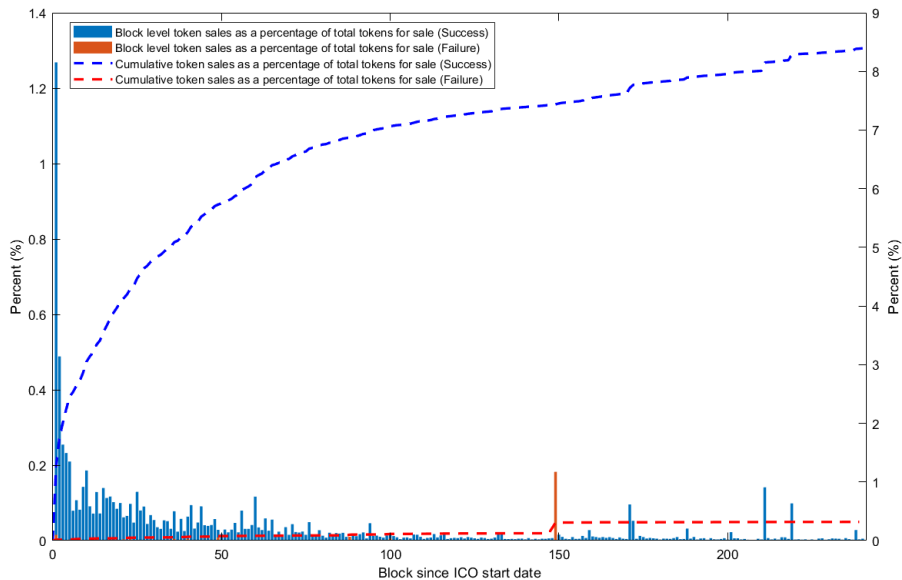
Informed early investors

Holding-period returns for individual investors

Holding horizon	1 day	1 month	3 months	6 months
Time of subscription	-0.826***	-0.385***	-0.826***	-0.449***
since ICO start	(0.088)	(0.063)	(0.088)	(0.106)
ICO FEs	Yes	Yes	Yes	Yes
Observations	487,977	438,229	381,992	226.554
Adj. R-squared	0.936	0.707	0.581	0.703

Token returns and turnover

Variable	N	Average	p-value from t-test	Median	Wilcoxon p-value
	(1)	(2)	(3)	(4)	(5)
First-day return	432	**158.2%**	0.00	24.4%	0.00
One-week return	433	16.7%	0.00	-14.1%	0.00
One-month return	430	63.3%	0.00	-24.5%	0.00
Three-month return	364	**111.1%**	0.00	-14.9%	0.02
Market-adjusted first-day return	432	143.1%	0.00	24.1%	0.00
Market-adjusted one-week return	433	14.6%	0.03	-12.9%	0.00
Market-adjusted one-month return	430	45.7%	0.03	-28.9%	0.00
Market-adjusted three-month return	364	46.1%	0.03	-37.0%	0.00
Gross proceeds ($ million)	410	21.44	0.00	11.14	0.00
Money left on the table ($ million)	410	42.20	0.00	1.26	0.00
First-day turnover	405	**6.7%**	0.00	1.3%	0.00
Days from ICO completion to listing	432	18.46	0.00	14.00	0.00

Conclusion

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