Tokenomics: when tokens beat equity

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The ICO controversy

- Boom in 2017 and 2018.
- $31bn raised between January 2016 and August 2019.
- Many ICOs provide very limited guarantees and information (Howell, Niessner and Yermack, 2020).
- Uncharted regulatory environment.

⇒ Some skepticism even within the crypto community:
"A lot of projects are raising more money than what they would be able to in the normal VC market, and sometimes there is no match between the necessity and usefulness of the project and its ability to raise money."

Vitalik Buterin in September 2019

The ICO controversy

On the other hand:

- Successes, e.g., Ethereum (Ether $\sim$ \$40bn market cap)
- VC investments (Sequoia, Andreessen Horovitz)

Do ICOs have an **economic** value?

Potential Benefits?

- Liquidity
- Adoption: Cong, Li, Wang (2018), Sockin and Xiong (2018)
- Decentralization (governance)
- **Agency frictions: This paper**, Garratt and van Oordt (2019)

The No-Agency Case

ICOs generate lower firm value than equity financing:

- Firm is a **monopoly**
- Considered ICO schemes distort pricing strategy:
  - Revenue sharing: Entrepreneur internalizes fraction of revenue but all the costs $\Rightarrow$ Underproduction (relative to monopoly).
  - Presale: Entrepreneur does not internalize price impact of quantity on pre-sold products $\Rightarrow$ Overproduction

The No-Agency Case

Potential benefit of ICOs in this framework even absent agency?

1. Use presale to price-discriminate
2. Use presale to commit to low price: boost adoption (introduce set-up cost for consumer)

The Agency Case

Mechanism

1. Entrepreneur's effort increases likelihood of high demand
2. Presale ⇒ entrepreneur is demand's "residual claimant."

⇒ Boosts incentives.

⇒ Economic value of ICOs

What is different about ICOs?

- Pre-sales (Royal Albert Hall) and Revenue Sharing Agreements (Royalties) predate ICOs
- One thing ICOs provide: **liquidity**.
- Impact on Agency problem?
  - \- Entrepreneur early exit (vesting scheme?)
  - \+ Informative signal (forward looking) $\rightarrow$ Holmström and Tirole (1993)

What is different about ICOs?

- Often, tokens do not give access to a product otherwise sold by the firm
- ICOs typically fund blockchain-based platform models:
  - Tokens used as mean of payment/compensation to other participants in the platform
  - In particular, used to reward agents who operate, maintain or develop the platform (miners under PoW),
  - Could even provide direct control rights (PoS).

$\Rightarrow$ Suggests dual incentive role for tokens:

  - ex-ante MH problem by entrepreneur (before implementation): **this paper.**
  - ex-post governance problem (after implementation).

Interesting interaction there?

Conclusion

- Important question for future of blockchain-based economy.
- Moral hazard angle is part of more complex governance problem $\Rightarrow$ useful first step.
- Looking forward to seeing more!