

Discussion

'Entrepreneurial Incentives and the Role of ICOs'

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-The JEDC Economics of Digital Currencies Workshop -

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This is a very interesting paper !

Main comment: The paper does too much.

- ▶ 2 interesting questions in one paper
- ▶ Authors need to make a choice. Each choice wins

For financing and launching a platform how do financing instruments compare with regard to efficiency?

Deep Pocket \Leftrightarrow Debt \Leftrightarrow Venture Capital \Leftrightarrow ICO

Initial Coin Offerings: What are incentives involved for both platform entrepreneurs and investors?

- ▶ Given the platform launch: When does the entrepreneur not accept other media of exchange besides tokens?
- ▶ When to investors sell their tokens to retailers (utility token) instead of holding them as investment object?
- ▶ Impact of the token exchange rate?

Platform Set-Up

Discrete, infinite time.

4 agent types:

- ▶ Entrepreneur: **3 choices** to finance, build, launch platform
- ▶ Investors: help financing platform
- ▶ Retail customers: buy platform product, exog. valuation \mathbf{p}
- ▶ Retailers: sell product at exog. price \mathbf{p}_s

Uncertainty

- ▶ Random demand for platform product \mathbf{s} , $s \sim F$
(pinned down forever)
- ▶ Uncertain success when putting effort \mathbf{e} into platform \rightarrow
Platform expenses $\mathbf{c}(\mathbf{e})$ random

\Rightarrow Platform margin to entrepreneur per period: $s(p - p_s - c(e))$
uncertain

Platform Set-Up II: Timing

Given: p, p_s

- ▶ $t = 0$: Facing uncertain demand and costs (s, c) , entrepreneur **chooses to invest** I_0 ,
- ▶ $t = 1$: quantity s is revealed. Entrepreneur **chooses effort** $e(s) \in \{0, \bar{e}\}$ to impact costs
- ▶ $t = 2$: Costs are revealed to be high or low $c \in \{c_H, c_L\}$, revealing platform margin $s(p - p_s - c)$.

Platform launch?

Traditional

- ▶ Debt:
 - ▶ Fixed interest payment in $t = 2$
 - ▶ Debt overhang problem: Put effort inefficiently often
 - ▶ Venture Capital:
 - ▶ Infinite stream of dividends (or its NPV)
 - ▶ Again: Some returns to exerting effort go to VC investors, put effort inefficiently often
 - ▶ **ICO**
 - ▶ Investors receive tokens ϕM
 - ▶ Return on tokens depends on token exchange rate at timing of token sales (opp. costs)
- ⇒ Exchange rate + Timing of exit crucially matter

Comments on Results

- ▶ Result: Under a dispersion condition, ICO investors sell tokens early in $t = 2$ (no speculation in the token market)

But: By assumption, total sales on the platform is fixed, thus the exchange rate is fixed as soon as all tokens are sold.

$$S_t = \frac{sp}{W_t}, \quad W_t \text{ tokens is circulation at } t$$

⇒ Once you allow for fluctuations in sales (e.g. due to changed product valuation), exchange rate can vary too
⇒ Dispersion of investors may not be sufficient to make investors exit early if increase in exchange rate is expected

Vice versa

- ▶ **Assumption: Total product demand s is inelastic in token-exchange rate (customers have no budget constraint)**

But: As the exchange rate increases (e.g. due to holding back tokens), tokens and thus platform products become more expensive

⇒ If retail customers have constrained budgets denominated in native currency, one would expect the demand $s(S_t)$ to drop when X-rate S_t rises.

Comments on Results III

- ▶ Claim: Return on tokens only depend on the exchange rate, i.e. platform sales, and not on the costs of operating the platform.

Hidden Assumption: Effort (platform costs) does not impact the exchange rate.

In real world: If the platform does not function well due to technical issues (missing effort), demand for platform product may drop, lowering the exchange rate. If exchange rate depends on effort, also sales sharing via ICO can lead to inefficient effort levels by entrepreneurs.

Example: There is a competitor offering the same product but at a better functioning platform.