



# The economics of digital token cross-listings

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# Motivation

Market value  
(US \$ 250 billion)

Over 5,000 tokens  
have been listed

Daily trading volume  
(US \$ 15 billion)

Over 200 token  
marketplaces  
(crypto-exchanges)

Binance's trading  
revenue equals ICE  
and 5x Nasdaq

Essentially unregulated  
environment  
“Wild West”

- This “wild west” of rules and practices provides an exceptional setting for research, not available in traditional financial markets.

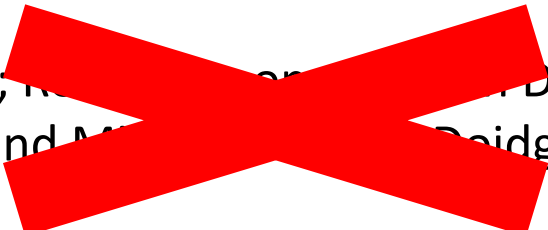
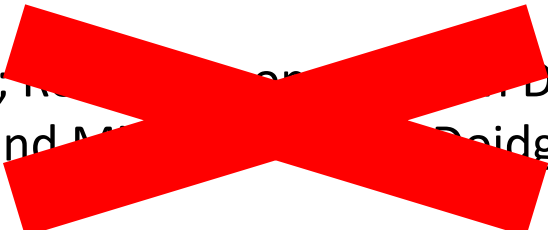
# Research question

- How well do token-pricing and asset-pricing theories explain the return and trading behavior of tokens?
  - How do token returns and trading volume evolve around the date of its first cross-listing?
  - How are returns and trading volume affected by the characteristics of tokens and the marketplaces where they are traded?

# Main results

- 16% crypto-index adjusted cumulative return (50% raw cumulative return).
- Trading volume at initial marketplace triples.
- Joint (initial + new marketplace) trading volume increases 50-fold.
  
- Results are consistent with value creation through cross-listings, specifically:
  - Network externalities.
  - Reduction of market segmentation.
  - Quality signaling.
  
- For tokens issued on the Ethereum blockchain:
  - Significant increase on blockchain transactions (250%), blockchain transaction volume (600%) and network growth rate (8% daily growth rate )

# Related literature on cross-listings

- **Market segmentation :**
  - Foerster and Karolyi (JF 1999); Miller (JFE 1999); Kadlec and McConnell (JF 1994); Domowitz, Glen and Madhavan (JF 1998); Merton (JF 1987); Amihud and Mendelson (JFE 1986).
- **Quality signaling:**
  - Foerster and Karolyi (JF 1999); Miller (JFE 1999); Kadlec and McConnell (JF 1994); Domowitz, Glen and Madhavan (JF 1998); Merton (JF 1987); Amihud and Mendelson (JFE 1986).
- **Managerial “Bonding”:**
  - Hail and Leuz (JFE 2009);  Dijk (JBF 2009); Fernandez and Ferreira (JFE 2008); Lel and  Doidge (JFE 2004); Doidge, Karolyi and Stulz (JFE 2004).

# Related literature on the crypto-token ecosystem

- Theories of token valuation and network externalities:  
Bakos and Halaburda (2018); Catalini and Gans (2018); Cong, Li and Wang (2018); Li and Mann (2018); Gandal and Halaburda (2016); Gans and Halaburda (2015).
  - I provide evidence consistent with network externalities in the token ecosystem.
- Empirical research on token valuation:  
Risk, returns and co-movement: Liu and Tsyvinski (2018); Shams (2018).  
Impact of regulation: Makarov and Schoar (2018); Pieters and Vivanco (2017).
  - I provide evidence of positive role of governmental and self regulation on the broader token ecosystem.

# Data description

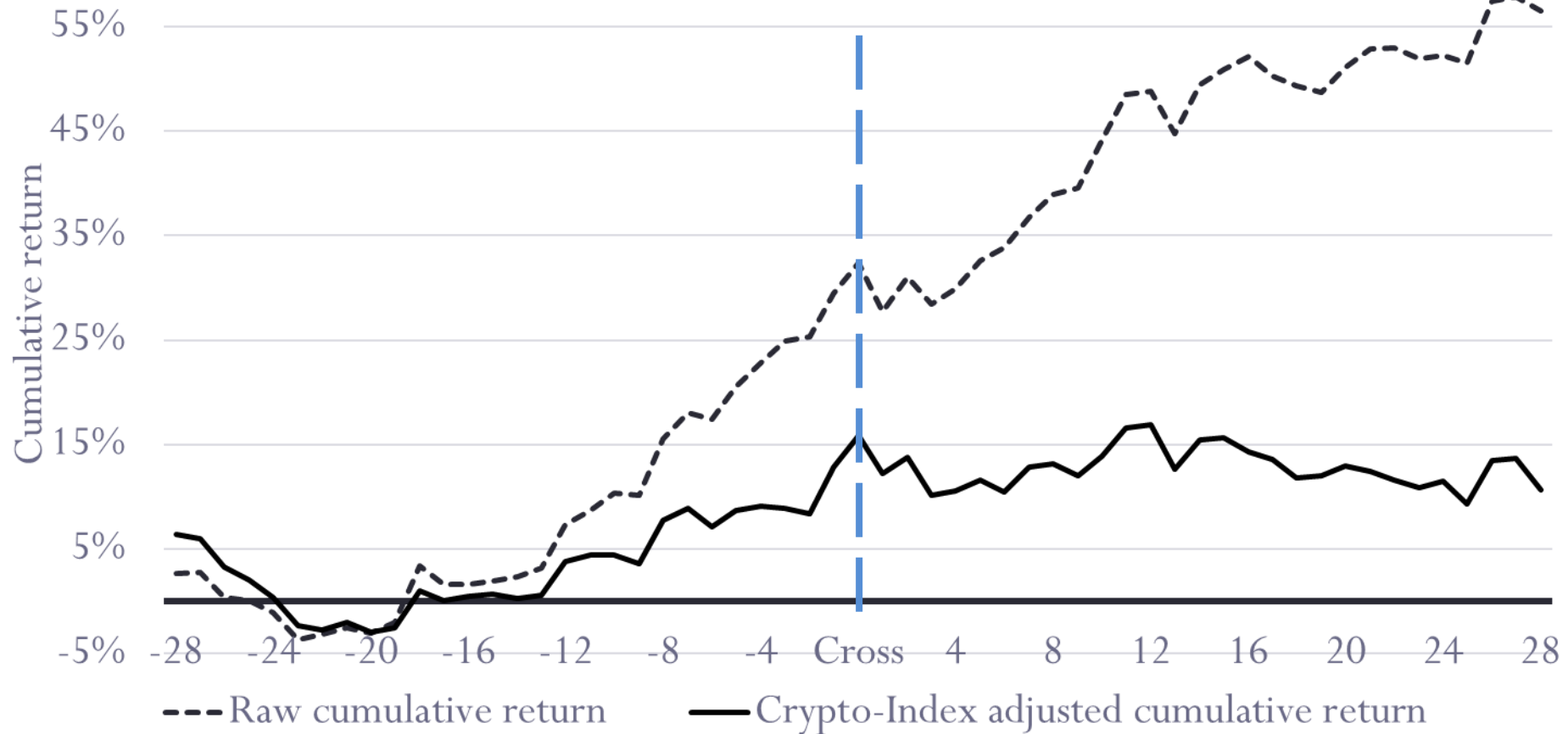
- Token data collected using API from [cryptocompare.com](https://cryptocompare.com)
- 108 marketplaces, 3,625 tokens and 1,654 listed in more than one marketplace.
- 6/6/14 to 6/6/2018.
- **Hand collected information** on token issuers and marketplaces.
  
- Sample of first cross-listings:
- Tokens cross-listed at least 28 days after initial listing.
- Average traded volume greater than \$100 before event study window.
- 375 tokens, 40 marketplaces.

# Research question

- How well do token-pricing and asset-pricing theories explain the return and trading behavior of tokens?
  - **How do token returns and trading volume evolve around the date of its first cross-listing?**
  - How are returns and trading volume affected by the characteristics of tokens and the marketplaces where they are traded?



# Tokens earn a crypto-index adjusted return of 16% in the 2 weeks around the first cross-listing



# Why do we observe information leakage?

- Technologic infrastructure:
  - Blockchain infrastructure allows tracking of all “account” movements, hence the preparation for a cross-listing could be observed by sophisticated investors.
  - For tokens issued on the Ethereum blockchain, there **is a significant increase in on-chain transaction volume** on the week before cross-listing.
- Inadequate regulation:
  - Current regulations do not specifically restrict insider trading.
  - If regulations did exist, they would still be unenforceable (or difficult to enforce) in many marketplaces.

# Research question

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- Cross-sectional regression:

$$Dep_i = \alpha + \beta(\text{Token characteristics})_i + \gamma (\text{Crosslisting characteristics})_i + \varepsilon_i$$

- Dependent variables:

- Index adjusted cumulative return from t-14 to t+14.
- Abnormal volume at the initial marketplace at t+14.
- Abnormal volume (initial + cross-listing marketplace volume) at t+14.

- Independent variables measured at t-14:

- Variables are assigned to specific cross-listing theories.

# Set of characteristics

- Token:

- Controls: Determinants of token cross-listing
- Type of token: Platform, Utility, Currency, Security, Asset

**Network  
Externalities**

- Marketplaces:

- Controls: trading volume and number of tokens
- Pricing denominations
- Types of services
- Language and geographical restriction

**Segmentation**

- Jurisdiction: Jurisdiction with crypto-regulation, Country of jurisdiction
- Potentially regulated practices
- Token selection process

**Quality signal**

# Evidence consistent with network externalities

- Network externalities: the value of a service provided by a network and therefore the potential value of the network itself, is driven by increases in the size and diversity of its user base.
- Positive returns for tokens that serve as means of payment in networks:
  - **Platform and utility tokens**, which represent a prepaid card for services provided by a specific network.
- **No significant effect for tokens that represent assets, securities, or crypto-currencies.**

# Results consistent with traditional equity cross-listing theories:

- Higher returns around cross-listings that **reduce market segmentation**:
  - Additional pricing denominations.
  - Services specific to sophisticated investors.
  - Returns are not driven by cross-listing to larger marketplaces, but to marketplaces that serve different user segments.
- Higher returns around cross-listings that **provide signals of token quality**:
  - Have “Know Your Customer” (KYC) identification requirements.
  - Use fiat currencies.
  - Under the jurisdiction of countries with crypto-regulation (friendly or not).
  - Perform pre-listing evaluation.
  - Charge listing fees.

# Conclusion

- Large increase in returns, trading volume and network growth around the date of cross-listing.
  - Informational leakage that could be explained by **blockchain infrastructure or by lack of regulation.**
- Results are consistent with the existence of **network effects, market fragmentation and quality signaling by cross-listing.**
- In contrast with the popular view, “Wild West” of **scarce regulation and perceived anonymity does not attract investors.**
  - Regulatory certainty, more strict internal policies and KYC identification lead to higher returns and higher volume.





**Thank you**

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