

# Futarchy for blockchain governance

Solving our biggest crisis

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# NYSE-owner ICE to form new company for digital assets

ICE plans to form a company and trading platform for digital assets, such as bitcoin, as well as a physically delivered bitcoin futures contract.

# The dream of decentralization

Crypto is broken

# Why is it broken?

Crisis of incentives

Free-rider problem

- Profit from core devs work

Tragedy of the commons

- No reason to improve existing protocols

# Why is it this way?

Do not have sustainable funding models for open source work

- even with ICOs

Most crypto projects disproportionately reward early adopters

- At the expense of future users

Together,  
we can fix it

How to fix it?



# Inflation funding

Can distribute coins *de novo* for projects that improve the protocol

# Challenges of inflation funding

## Economic challenges

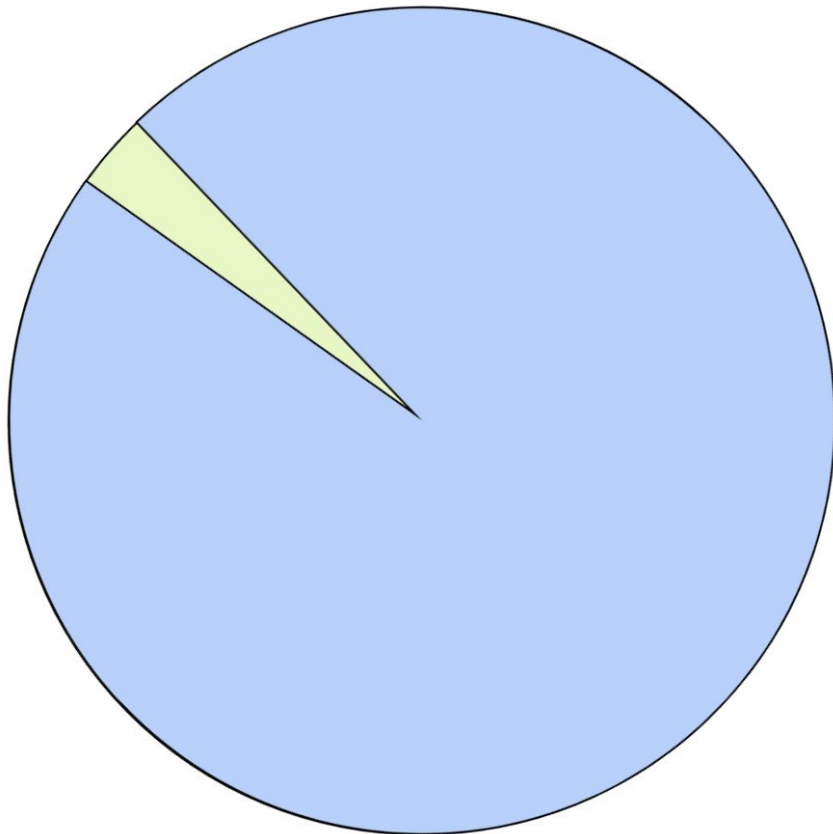
- How much to inflate and at what times?

## Established norms around monetary policy

- HODLer mindset



**vs.**



# Inflation funding's biggest challenge

How to do in a decentralized way?

- Can't have a centralized authority inflating the coin supply

Use the blockchain as a coordination technology??

# On-chain governance

# On-chain governance

We have been doing decentralized governance for *about 10 years*

We have no idea what we are doing ;)

What do we *know* to work\*: **markets**

\* ... mostly, most of the time.

# Futarchy

**“Vote values, but bet beliefs”** -- Robin Hanson, originator

1. Start with a metric: “how well are we doing?”
2. Gather proposals: “doing X will increase the metric by Y within Z time”
3. Use prediction markets to figure out what is expected to work
4. Reward those who are correct by penalizing those who are wrong

# Futarchy example

Organization: US government

Metric: GDP

Proposal:

“Clear crypto regulation (in exhibit A) will increase GDP by 1% by 2020”



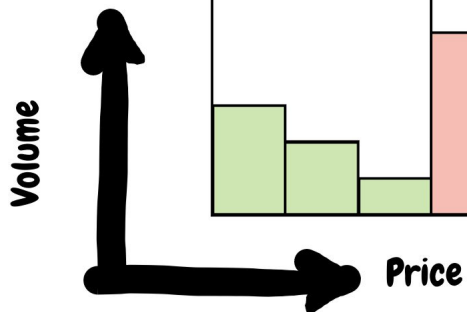
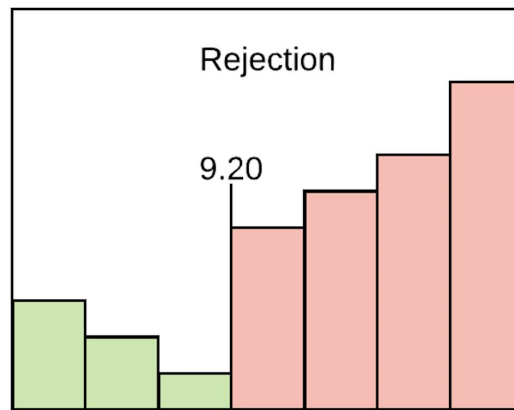
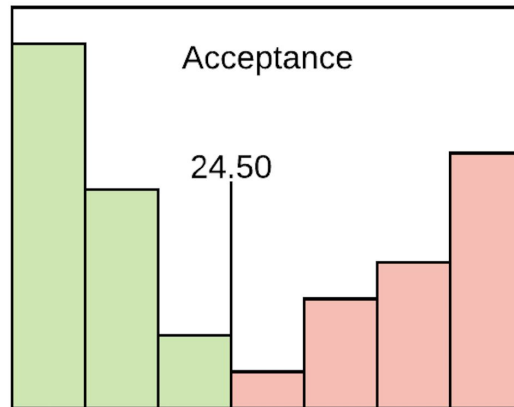
# Futarchy example

Estimated Q2 2018 GDP: \$20.4 trillion

Proposal claims GDP will increase to \$20.6 trillion by 2020.

To the markets!

# Futarchy example



# Futarchy example

Measure GDP in 2020 and.... it worked!

Use funds from those who speculated against the claim to reward those who correctly predicted the outcome

How does this work on the  
blockchain?

# Futarchy for protocol governance

Easier to implement in domains that are easily described by numbers

Do not rely on direct subjective measurements of centralized parties

Begin by using system for protocol governance

- Self-contained, avoid challenges of decentralized oracles

Later, expand to other chains, fiat governance, corporate governance, ...

# On the chain?

1. Define metric for protocol utility
  - a. Tricky!
    - i. Avoid “paperclip maximizer”
2. Construct censorship-resistant proposal process
  - a. Otherwise, futarchy is useless
3. Prediction market structure
  - a. What is most resistant to manipulation attacks?
    - i. e.g. whale comes in to short a proposal against their interest

# Futarchy metric

Metric approximates protocol utility

Who has a vested interest in protocol utility?

- Validators in a proof-of-stake network

Take the view that the protocol sells fixed number of bonds per unit time to fund its security

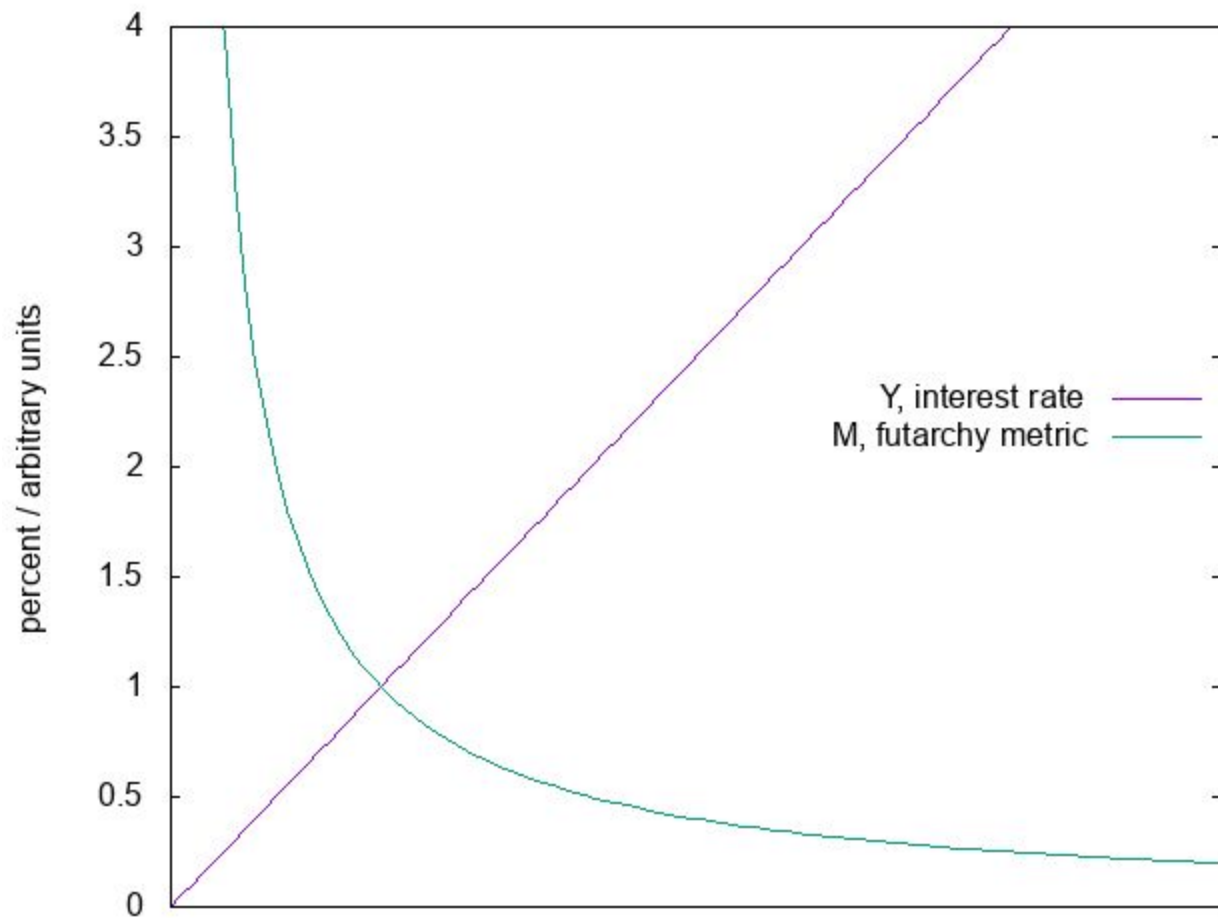
- Can tie metric to bond market!

$$M = 1/Y$$

The Metric

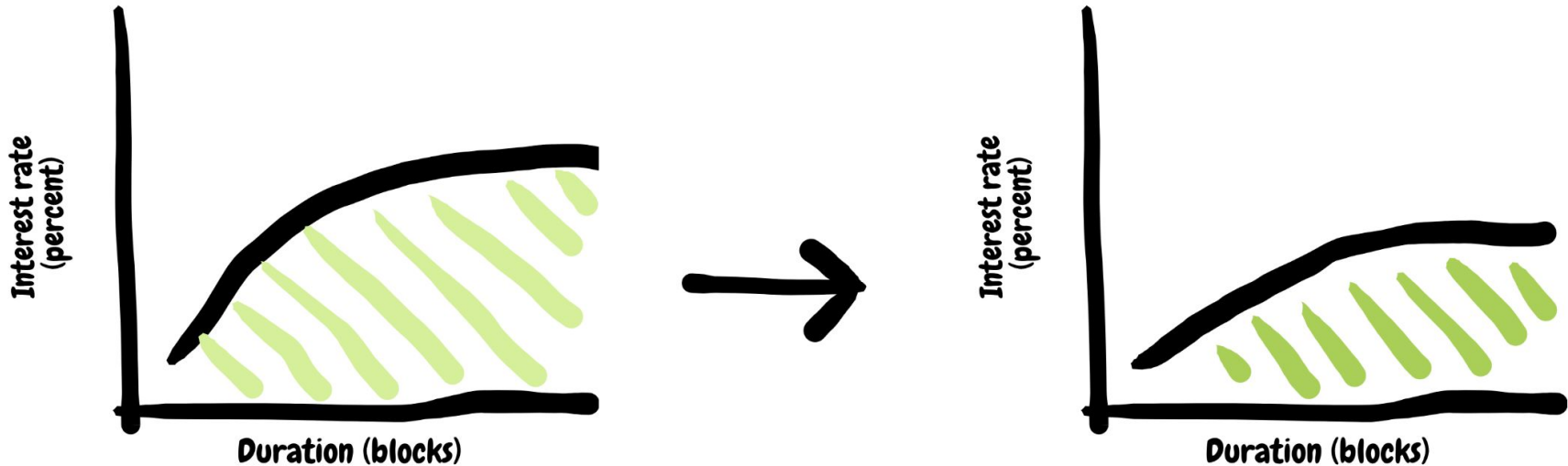
Inverse stake-weighted interest rate





# Futarchy metric

Lower aggregate demand for validator yield => greater confidence in future!



# Futarchy metric: $M = 1 / Y$

Nice balance between:

- objective in-protocol data (e.g. block time)
- subjective extra-protocol data (e.g. token price)

Staked capital is locked so that it cannot be used in market manipulation attacks

- “Checks and balances”

# Proposal pipeline

Ongoing research into token curated registries (TCR)

Have to make sure to layer the incentives so this doesn't become an attack vector on the protocol's governance

# Market structure

Most common critique of futarchy: market failure

Market manipulation happens, how can we limit it?

- Facilitate arbitrage opportunities for traders

# Examples where futarchy could have helped

1. Bitcoin block size debate
  - a. Should we deploy SegWit?
2. Ethereum DAO hard fork
  - a. Should we rollback the Dark DAO?
3. Parity funds freeze
  - a. Unfreeze them?
4. Lower the Ethereum mining reward giving direction towards Casper/sharding?
5. EOS account freeze arbitration
6. ... many others!

=> can construct cross-chain swaps so that users on other chains can use the futarchy infrastructure

Other examples of  
governance?

# Other examples of governance

## Ad-hoc governance

- a small, centralized group of {developers, miners, ...} make decisions
- favors early adopters

## Supermajority coin vote

- “plutocracy”, those with the most coins dictate outcomes
- voter turnout is a well-documented problem

## Liquid democracy

- Vote buying, spontaneous cartelization



# How does it compare?

Futarchy improves upon other models by providing concrete incentives to:

1. Participate
  - a. Profits from market speculation
  
2. While limiting risk of centralizing factors
  - a. Downside to joining the wrong group
    - i. “Skin in the game”

We are all here  
for a shared dream

Together,  
we can achieve it

# Want to help grow the pie?

Polaris Network

- <https://www.getpolaris.io>
- [https://t.me/polaris\\_network](https://t.me/polaris_network)

Come chat after the talk!

## Questions??