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A Deep Dive Into Crypto

**Investigating Cryptocurrency Trends & Sentiments
Using Natural Language Processing (NLP)**

MOTIVATION & APPLICATIONS

Why crypto?

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DATA

Reddit & price data

02

Analysis Strategy

NLP tools used

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Potential project improvements

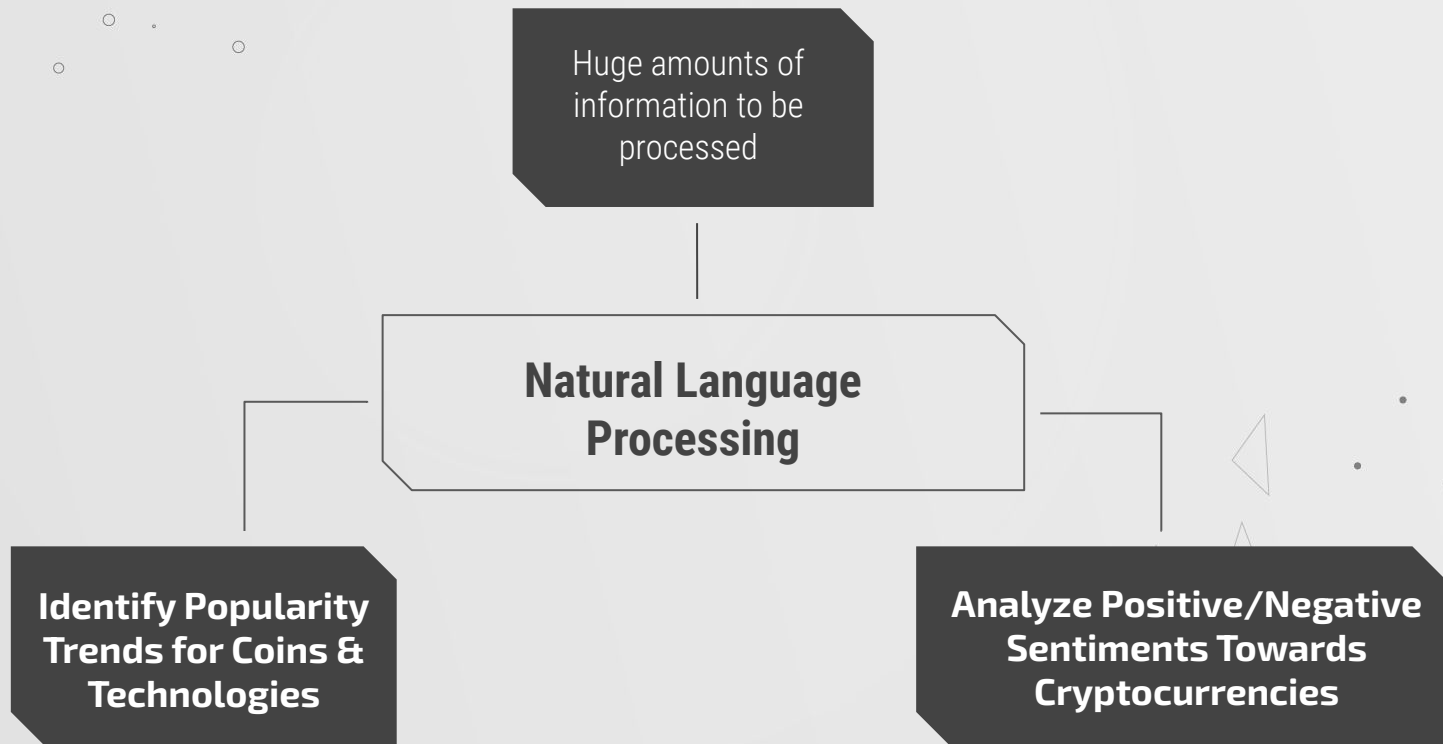
The Future is Crypto

The crypto market is growing at an extremely fast rate with a lot of different cryptocurrencies on the market. Many people are asking themselves the questions:

- How should I invest?
- Where should I invest?



Applications for Any Investor to Increase Profits





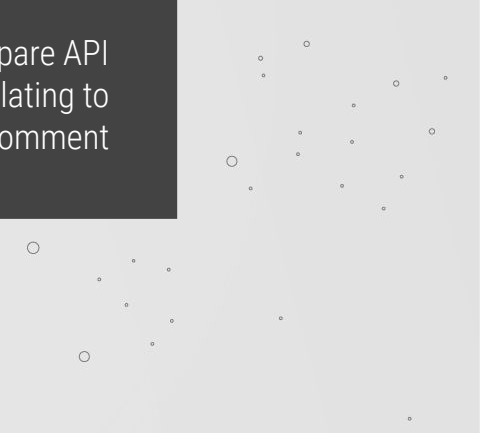
DATA

REDDIT COMMENTS FROM r/Cryptocurrency

- Over 17 thousand comments from over 900 of the most popular posts of all time
- 2017 to 2021
- Used PRAW API

CRYPTOCURRENCY PRICES FOR BTC, ETH, XRP, DOGE, & NANO

Used Cryptocompare API to find price correlating to timestamp of comment



ANALYSIS STRATEGIES



EDA

- Identify some overall trends

TOPIC MODELING

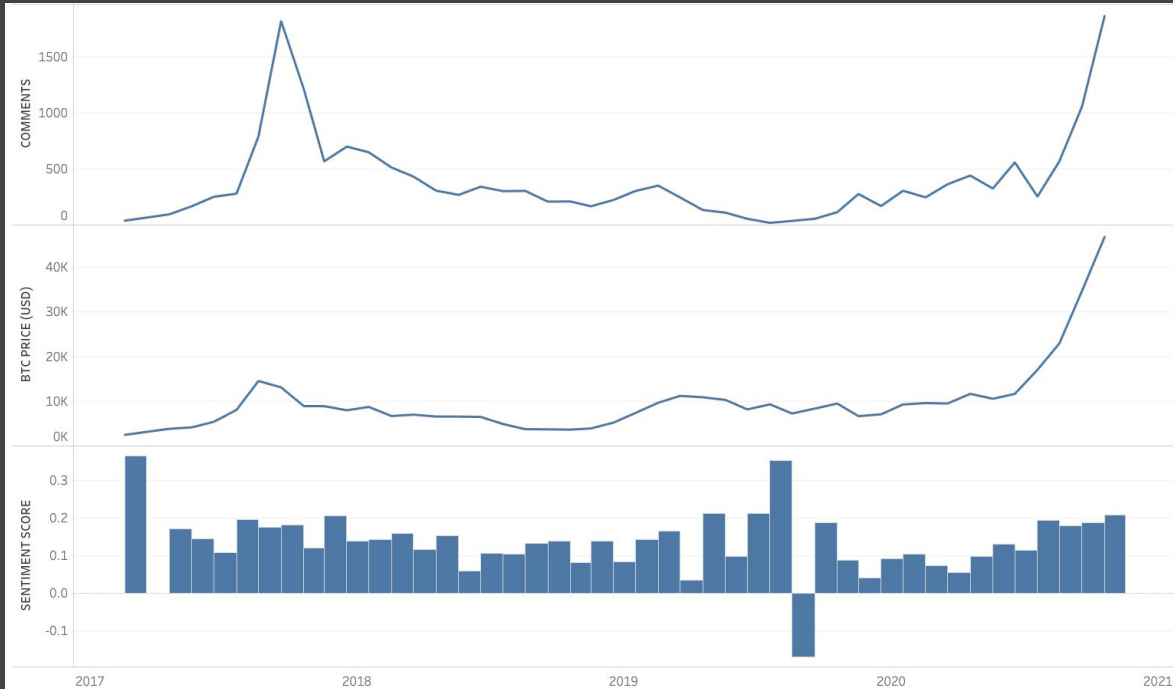
- Non-Negative Matrix Factorization with Count Vectorization
- 9 topics



SENTIMENT ANALYSIS

- Sentiment Analysis using Vader
- Compare with cryptocurrency prices

OVERALL ANALYSIS

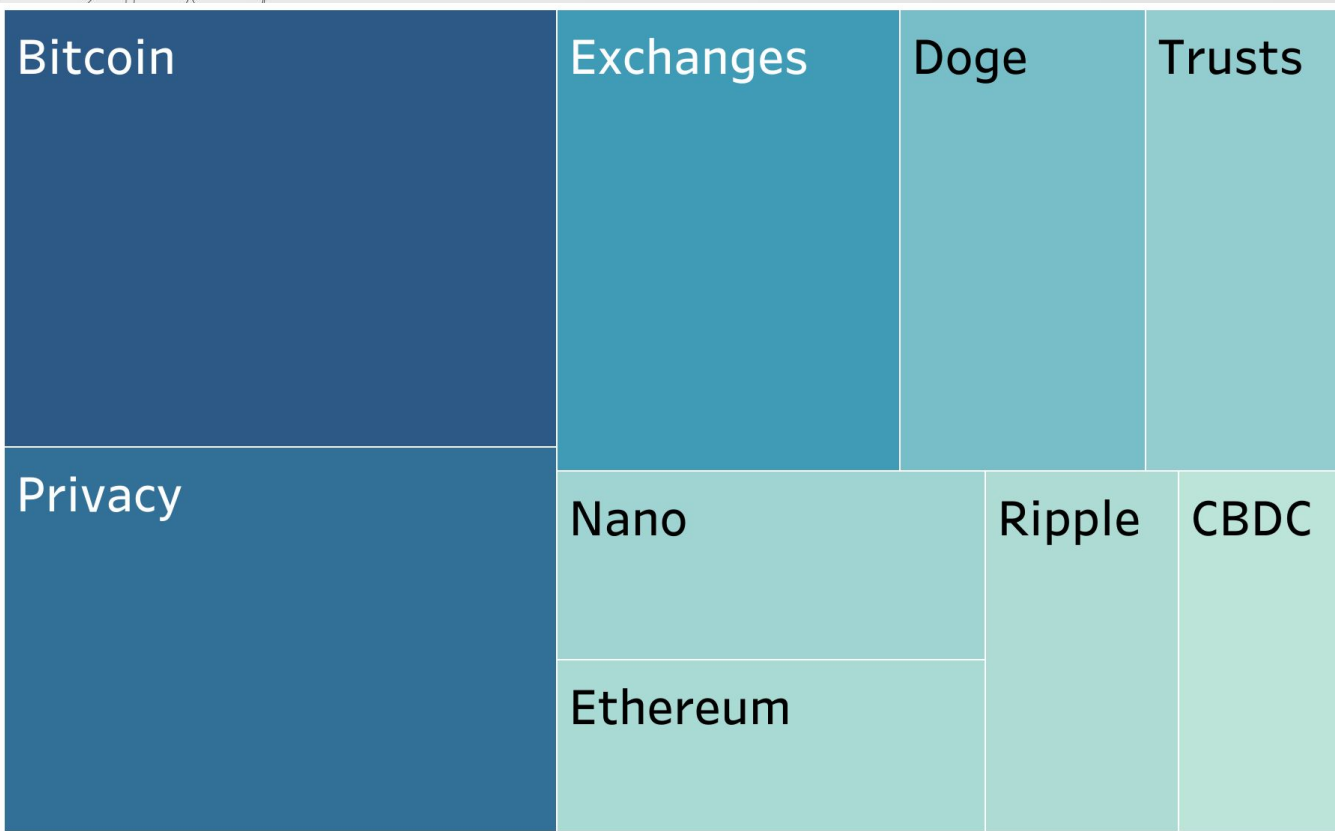


Sentiment & Reddit Popularity Aligns with Price

- Popularity of Reddit posts most closely relates to price
- Sentiment is mostly positive



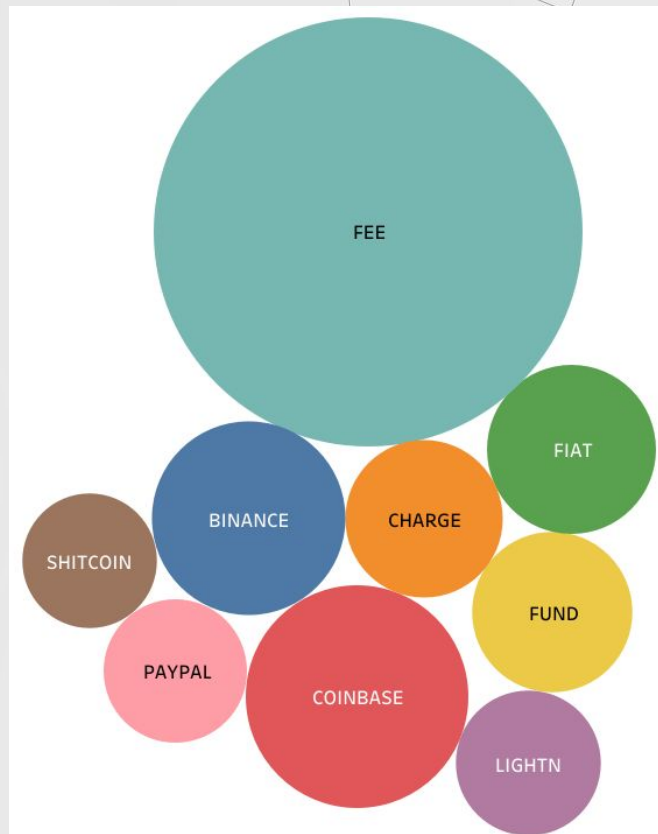
TOPIC MODELING



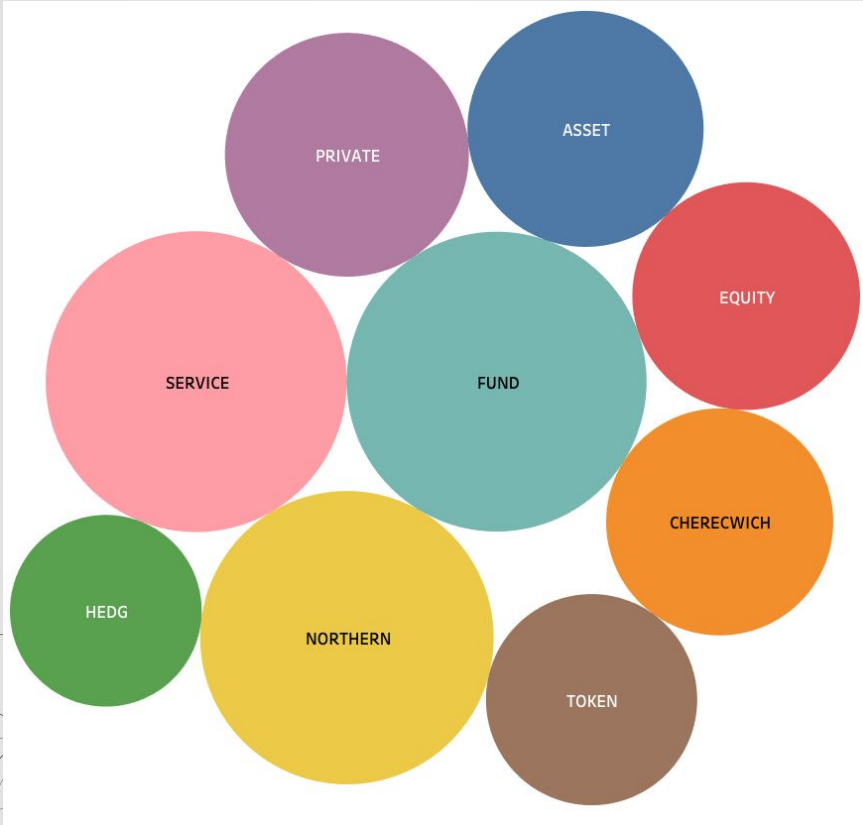
HOW SHOULD I INVEST?

Cryptocurrency Exchanges.

- Buy currencies with paper money (**fiat** currency)
- **Charge fees** for transactions
- Most popular is **Coinbase**
- **Binance** enables consumers to make credit card purchases
- **PayPal** allows users to buy and sell directly
- **Lightning network** specific to Bitcoin



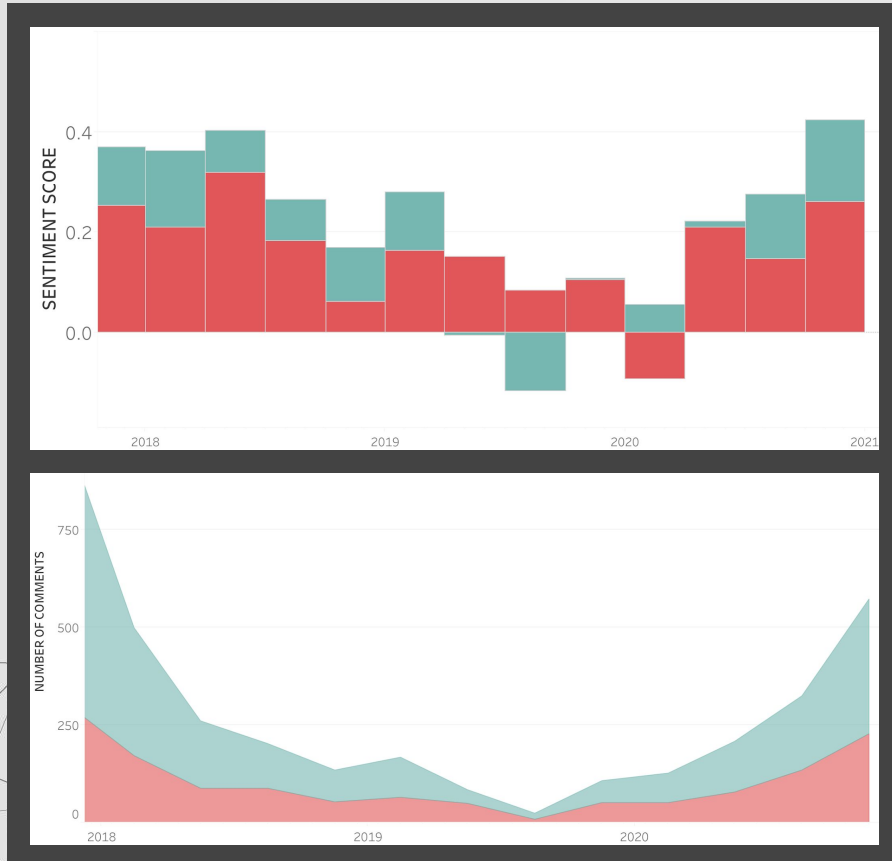
HOW SHOULD I INVEST?



Cryptocurrency Trusts.

- Grayscale investments offers **trusts** that trade like stocks
- **Northern Trust** and **Fidelity Digital Assets** using blockchain to manage its **private equity** workflow
- Custody **services** for institutional investors and **hedge** funds

HOW SHOULD I INVEST?

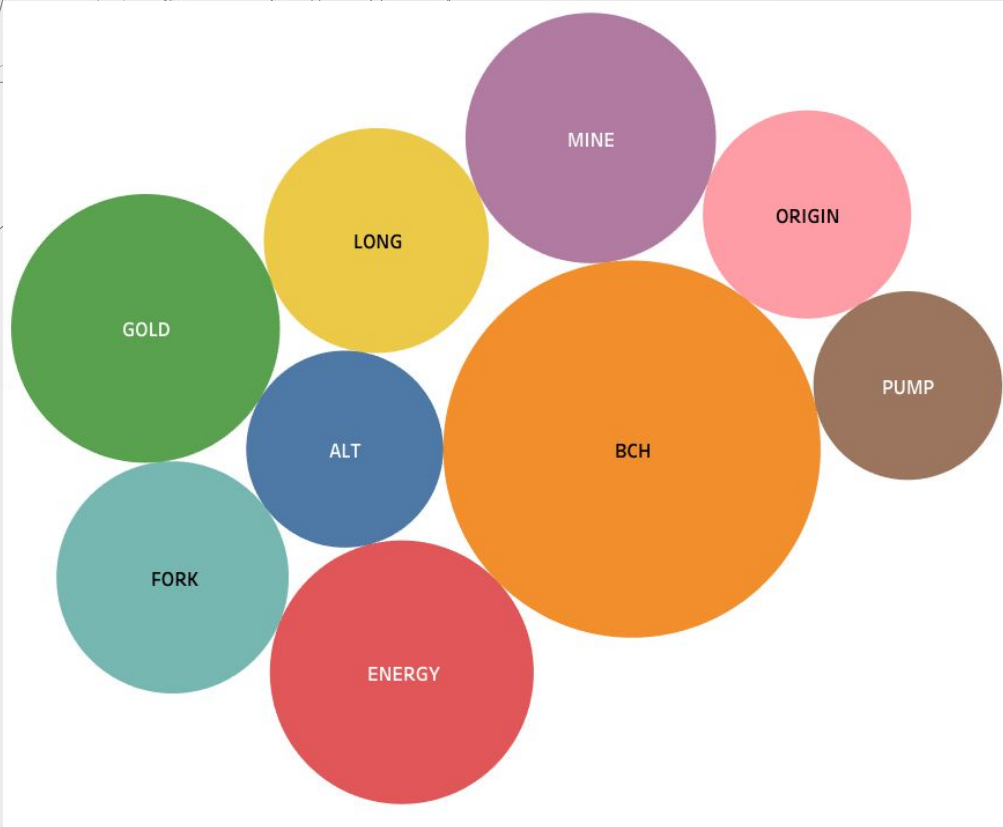


Topic Choice

- Exchanges
- Trusts

- Sentiment analysis shows that exchanges score slightly better
- Exchanges are more popular among the everyday Reddit user

WHERE SHOULD I INVEST?



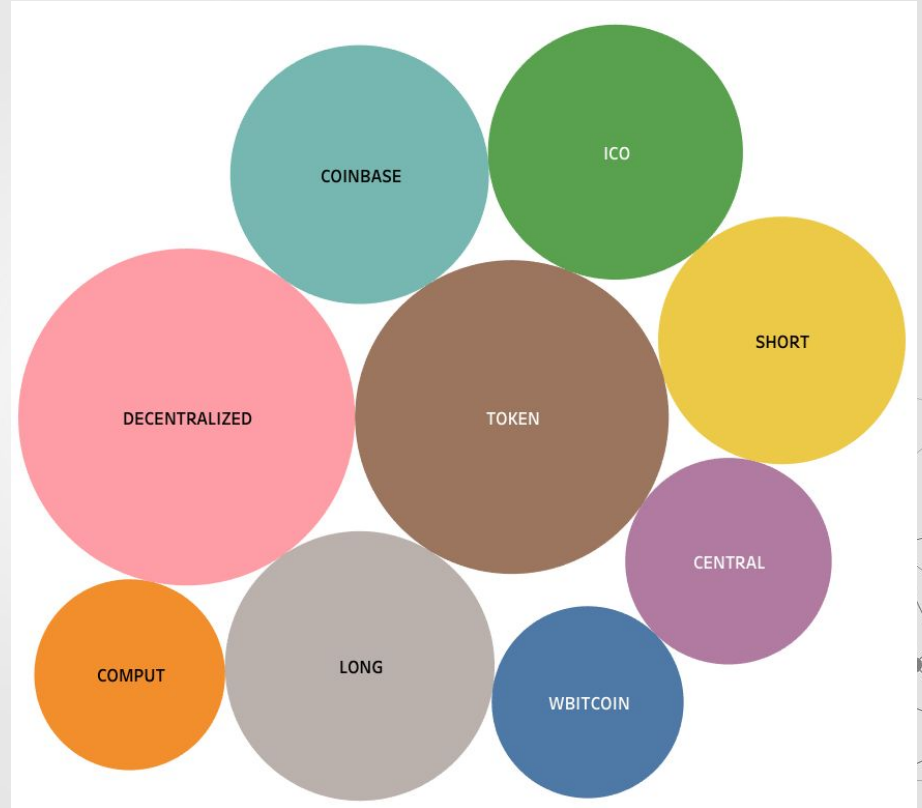
The OG **Bitcoin**

- **Mining** requires massive amounts of **energy**
- Splits in the blockchain called **forks**
- Bitcoin cash (**BCH**) and Bitcoin **Gold** are newer versions of bitcoin created from hard **forks**

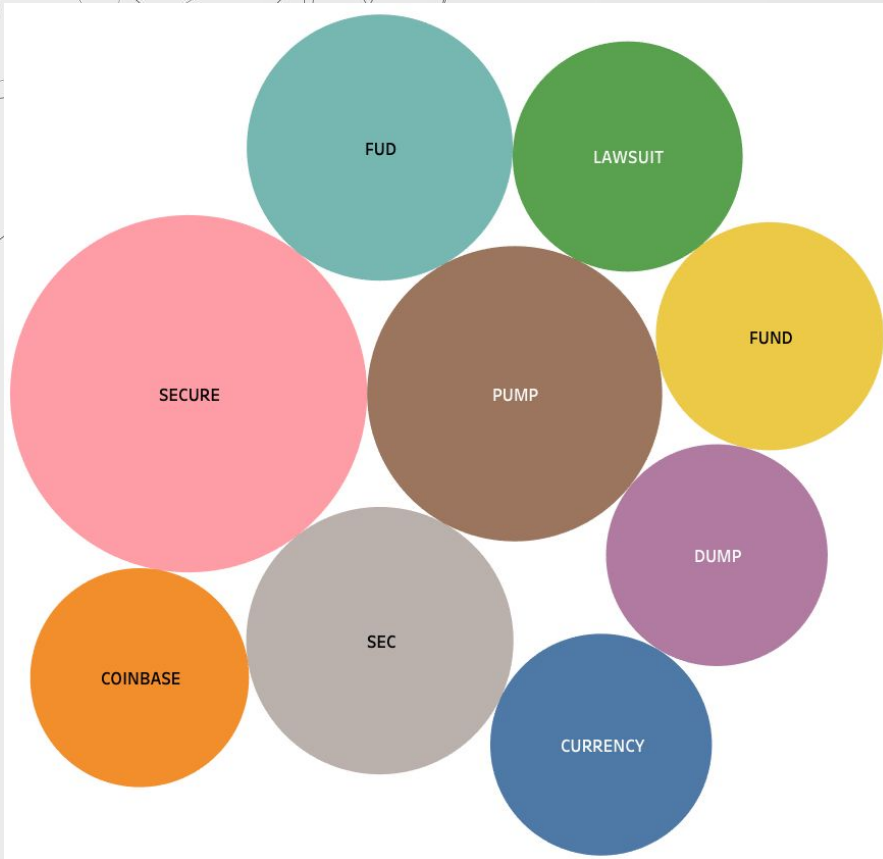
WHERE SHOULD I INVEST?

Ethereum (ETH)

- Enables users to write **decentralized** apps
- Had one of the first **ICOs**
- **Coinbase** offering customers the opportunity to stake ETH



WHERE SHOULD I INVEST?



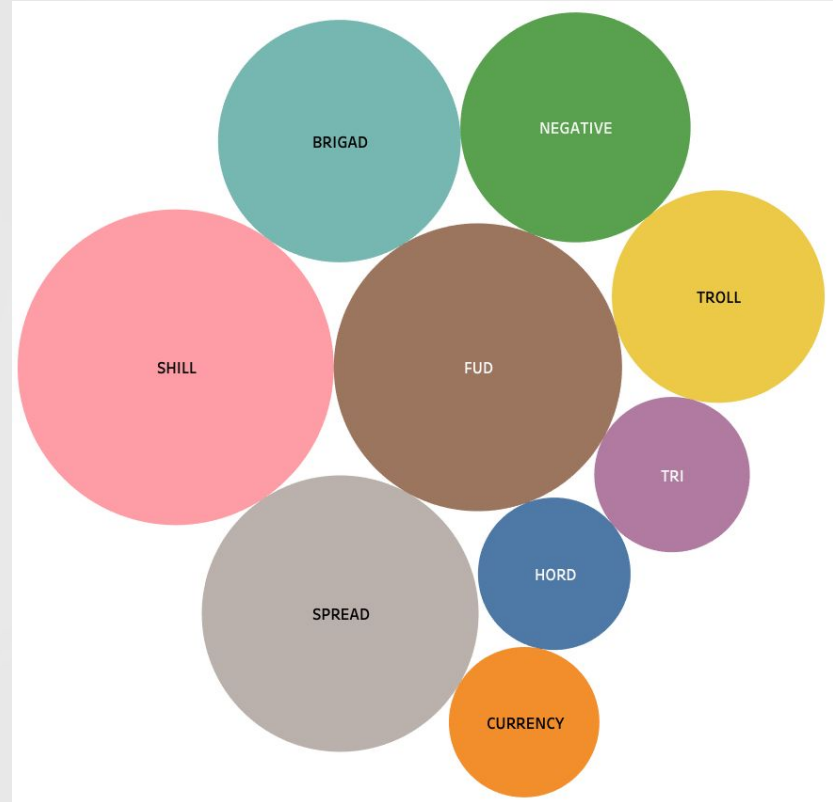
RIPPLE (XRP)

- **SEC lawsuit** against ripple, claiming ripple is a **security** or a **currency**
- Experienced a “**pump** & dump” following the rise of GME stock

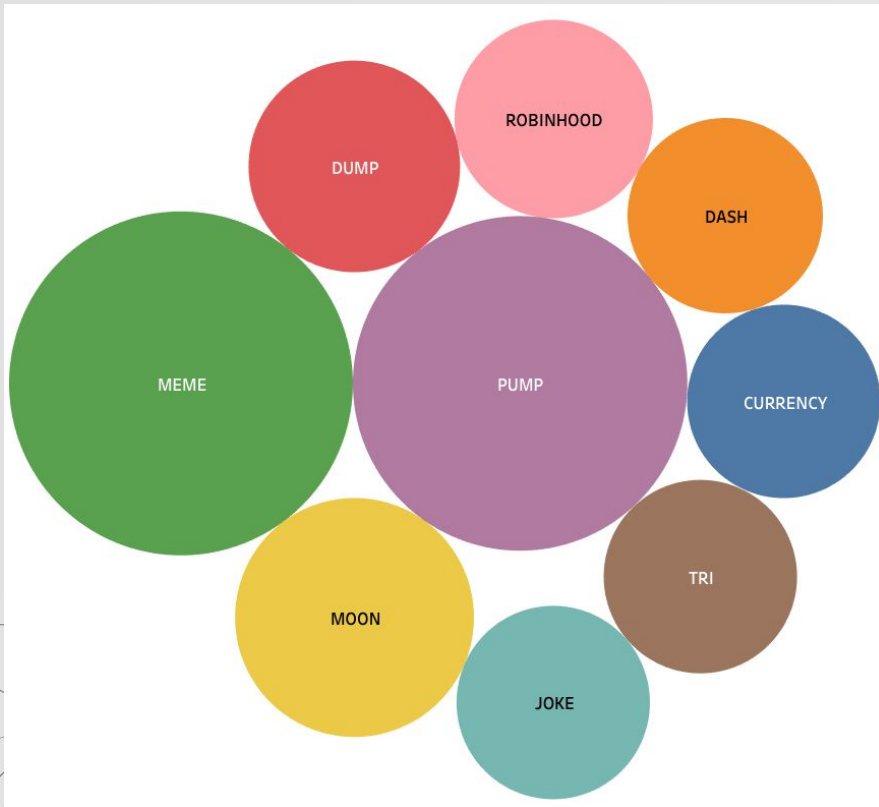
WHERE SHOULD I INVEST?

Nano (NANO)

- Has a huge following and has experienced a lot of **shill** and fear, uncertainty, and doubt (**fud**) **spread** by “**trolls**”
- Very fast,
- Zero transaction fees
- Most energy efficient



WHERE SHOULD I INVEST?

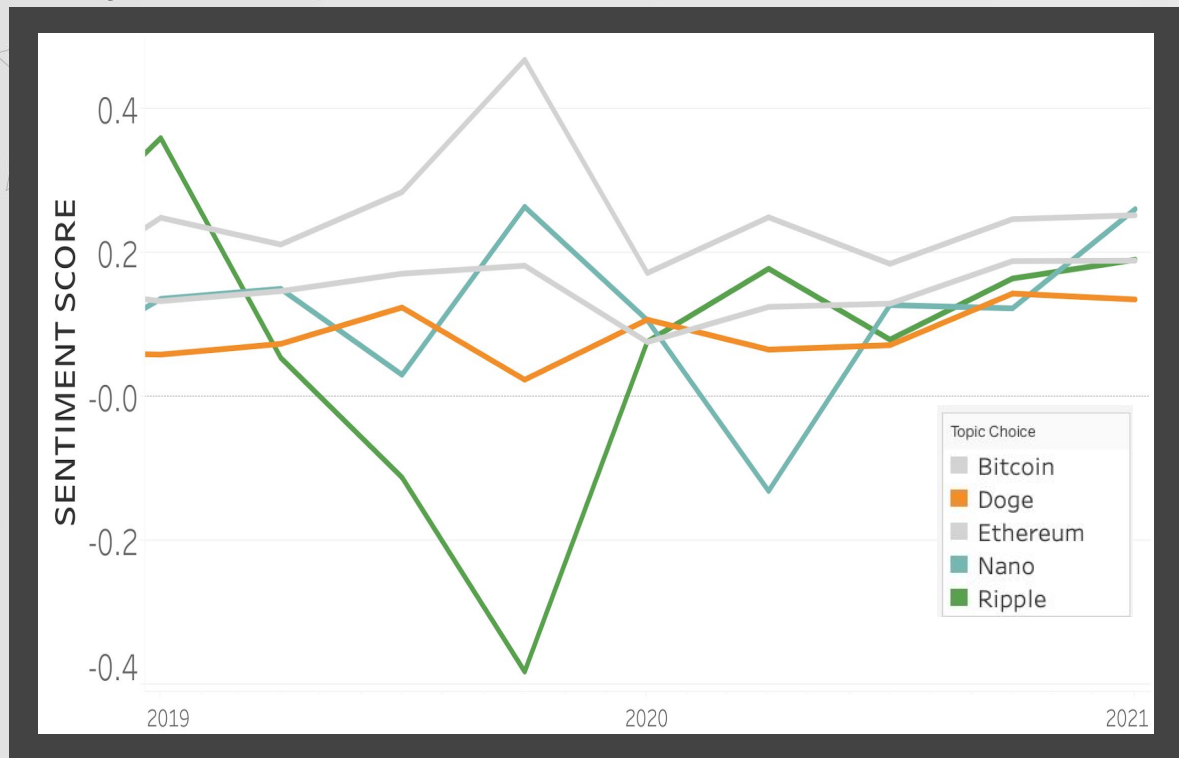


Dogecoin (DOGE)

- Originally created as a **joke**
- Experiencing a “**pump & dump**” fueled by tweets and **memes** by Elon Musk
- Term “to the **moon**” used in efforts to get the coin to a \$1 value



REALLY RISKY INVESTMENTS

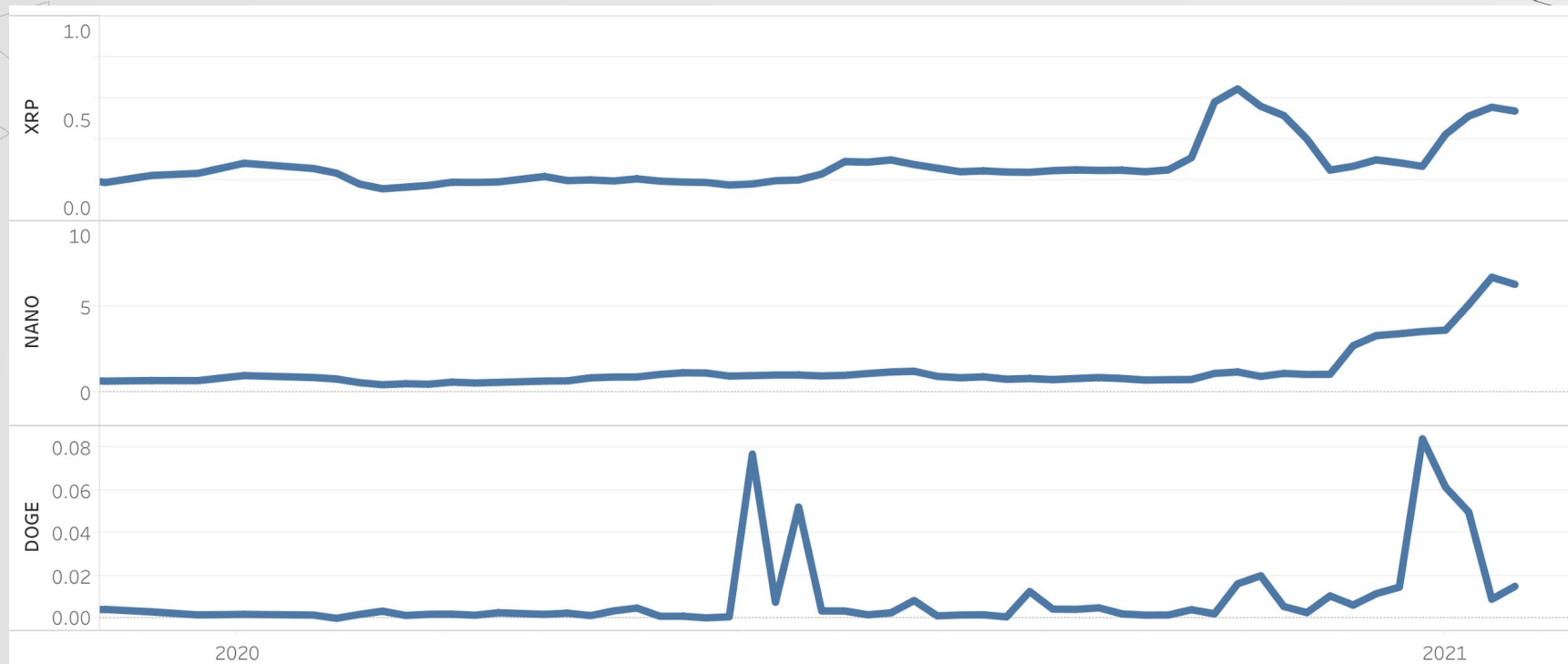


Dogecoin, Nano, & Ripple

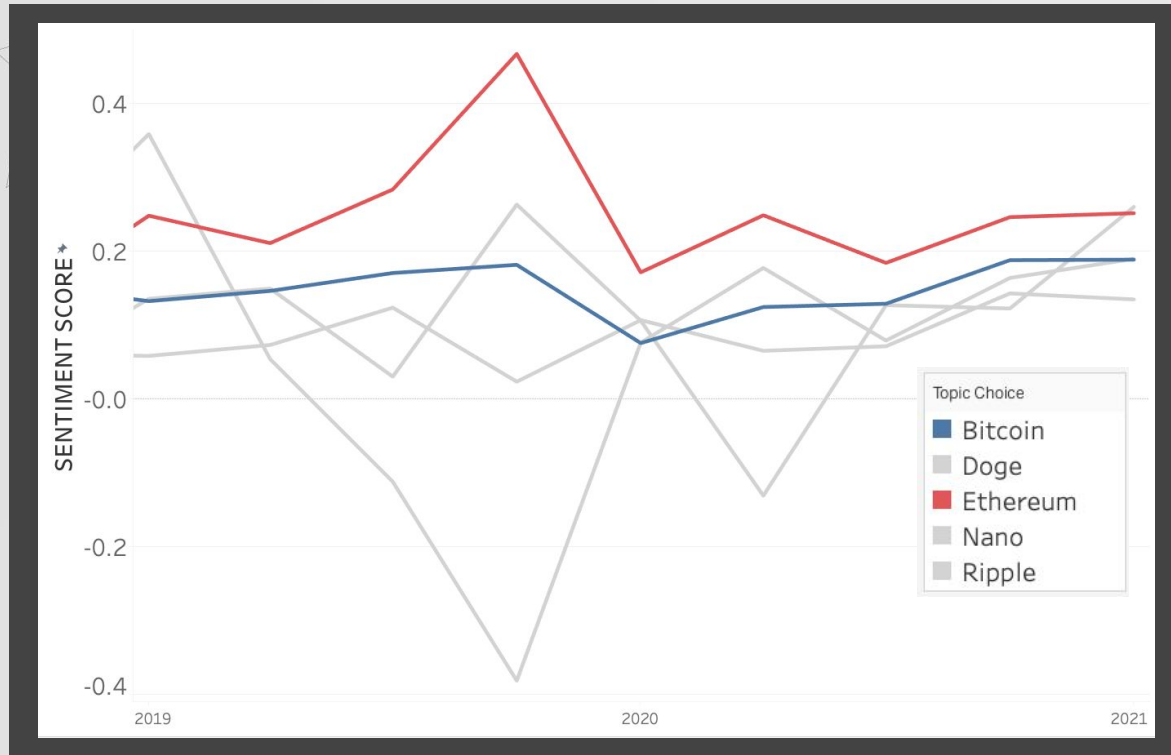
- Ripple halted programmatic sales in late 2019 and the SEC lawsuit filed in December 2020 against Ripple
- Big debate of Ripple vs Nano

REALLY RISKY INVESTMENTS

Dogecoin, Nano, & Ripple Prices (USD)



LESS RISKY INVESTMENTS

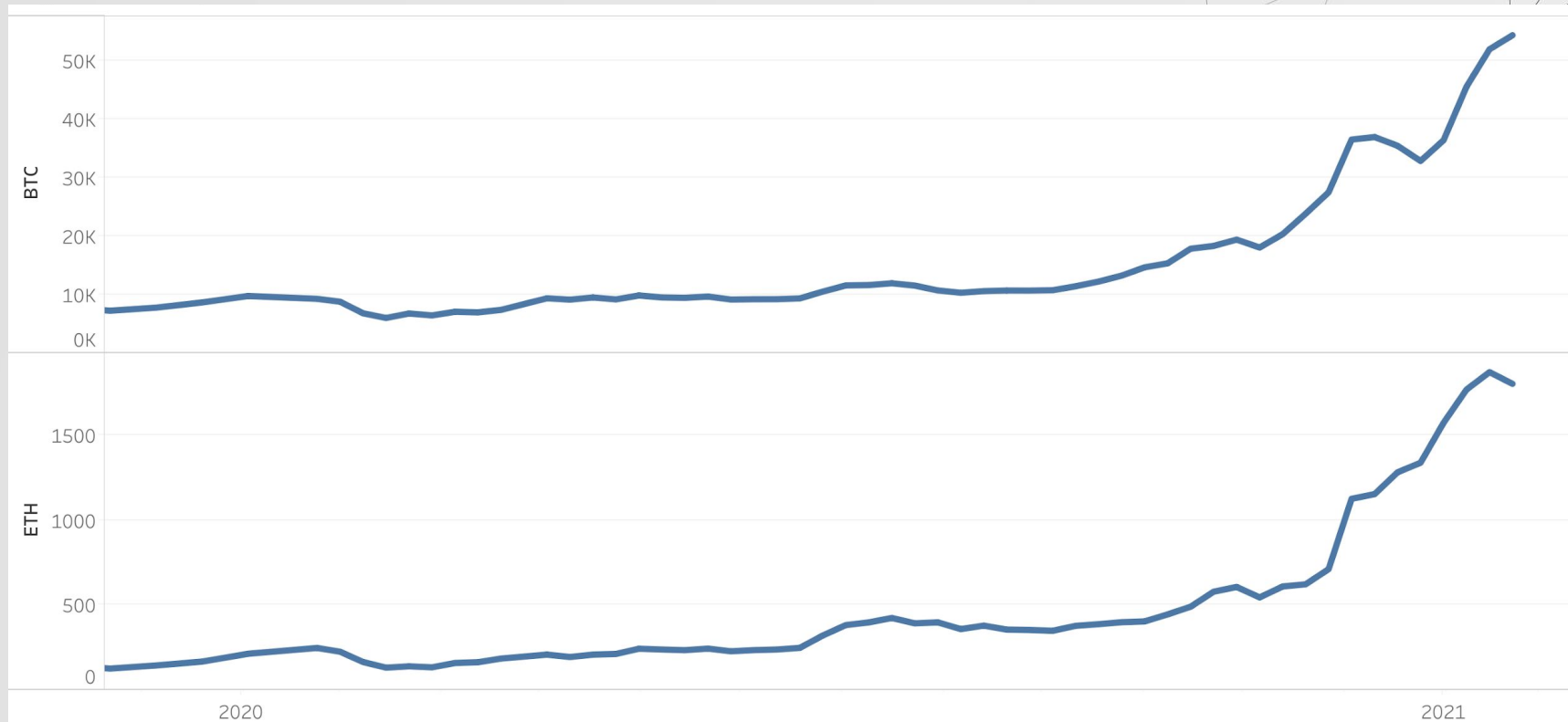


Bitcoin & Ethereum

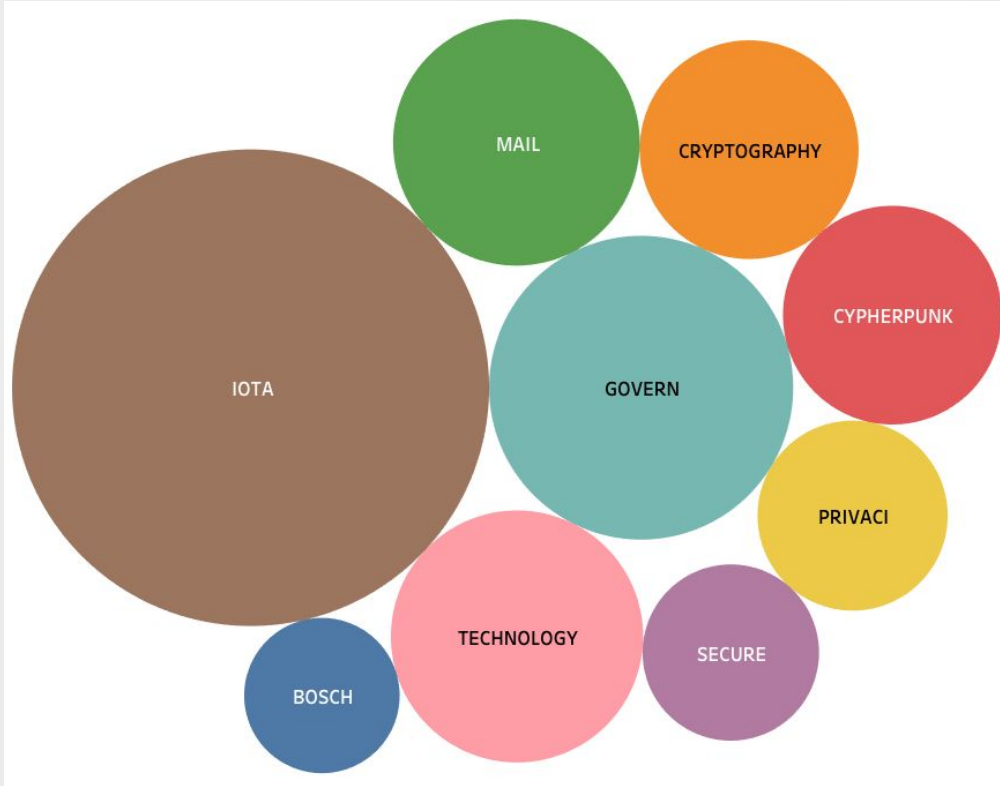
- Ethereum had the highest overall sentiment scores due in most part to its decentralized apps (dapps) and finance (DeFi)
- Bitcoin was steady with a sentiment score between 0.1 and 0.2

LESS RISKY INVESTMENTS

Bitcoin & Ethereum Prices (USD)



A NEED FOR PRIVACY



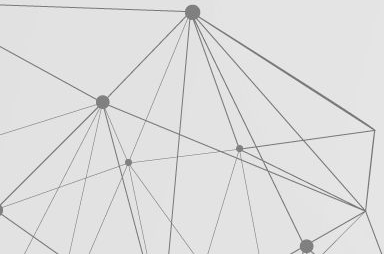
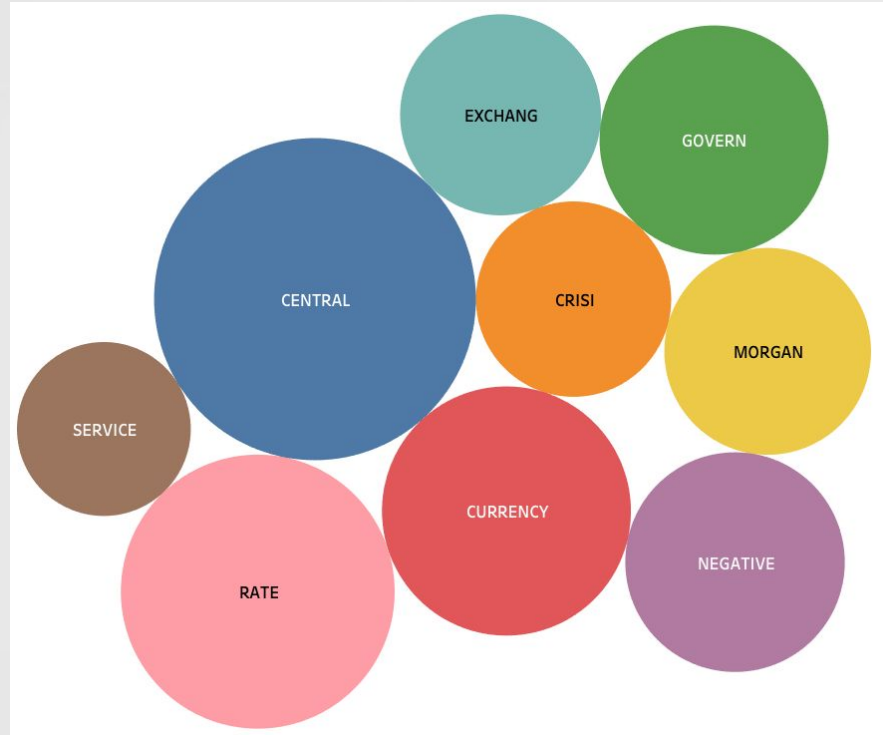
- **IOTA's** features allow for the most private transactions
- Secure **email** implementations are based on public key **cryptography**
- **Cypherpunks** advocate for strong privacy enhancing technologies



A LOOK INTO THE FUTURE

Central Bank of Digital Currency or CBDC is a new form of money issued by a country's digital bank.

- Traditional money in digital form
- Could mitigate the need for **negative** interest **rates**
- **JP Morgan** has launched its own centralized currency
- In exploratory phase



NEXT STEPS



More customized sentiment analysis



Explore each topic more in depth



Bring in other social media platforms



Make price predictions



THANKS

Any Questions?



Appendix: TOPIC MODELING

