Bitcoin Sentiment and Topic Analysis

Sentiment and Topic Composition as Tools for Crypto Investing

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METIS®

Why Sentiment and Topic Analysis on Bitcoin?

Bitcoin is a Lucrative and Unique Investment

Bitcoin ROI:

- Best Performing Asset in History
  - 20X Return if you Invested in 2014

Digital Currency -- Price Depends On:

- Fixed Supply/Scarcity -- Blockchain and Code

- Social Acceptance/Confidence -- Legitimacy and Adoption
  - **Measured by Sentiment and Topic Composition**

Methodology

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Data Gathering:

- Used Crypto News Websites and Aggregator APIs
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Topic Modeling:

Data Preprocessing:

- Cleaned Data
- Lemmatized Text (SpaCy)
  - Tfidfvectorizer: Tokenize and Vectorize Words, placing more weight on less common words

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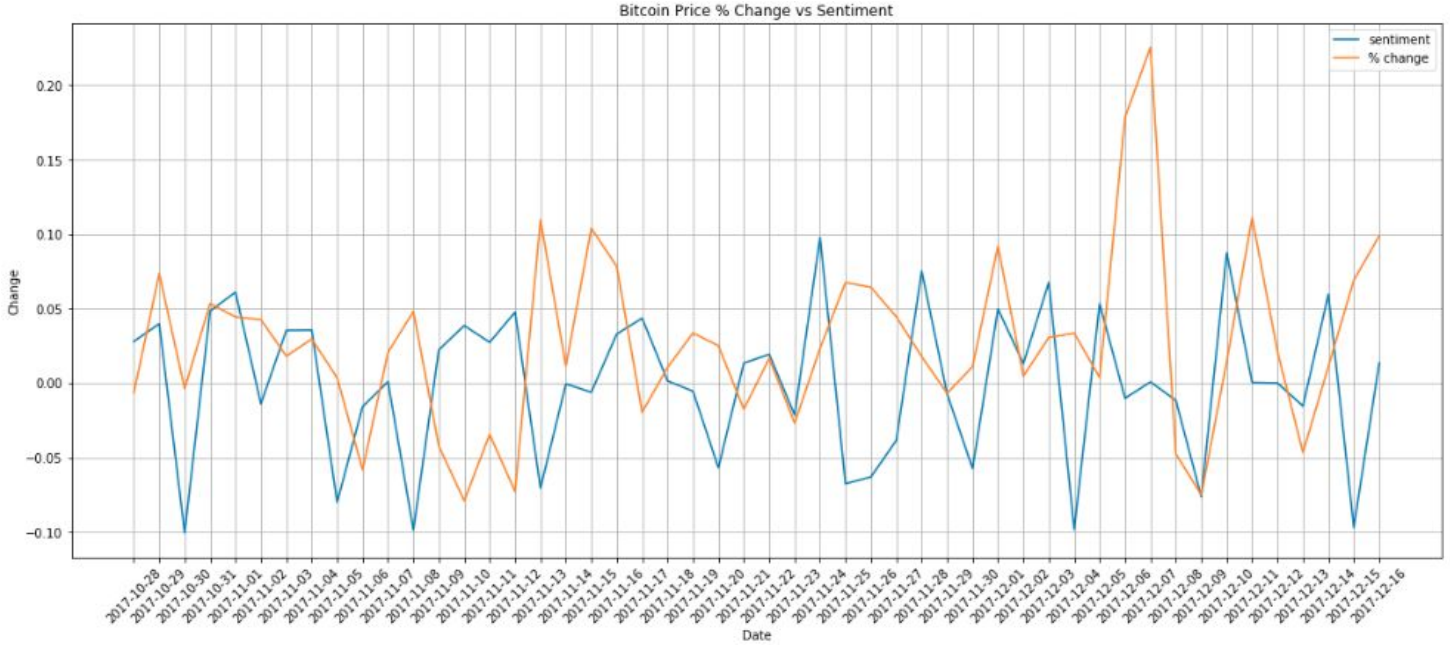
Dimensionality Reduction:

- Choose LDA: Articles can be Long
  - Adjusted Stopwords and # of Components
  - 5 Meaningful Topics Generated
  - Tracked Topic Changes and BTC Price over Time

Findings

Sentiment: Leading Indicator for Short Term Trades



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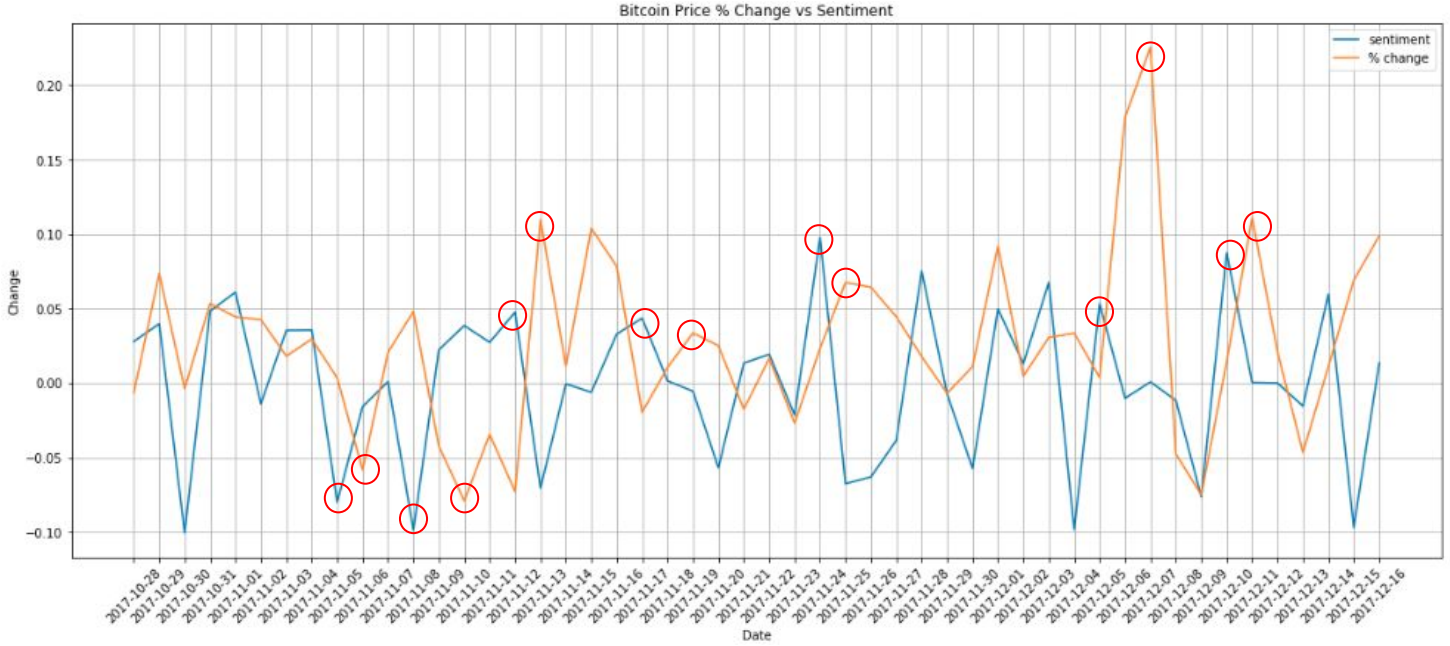

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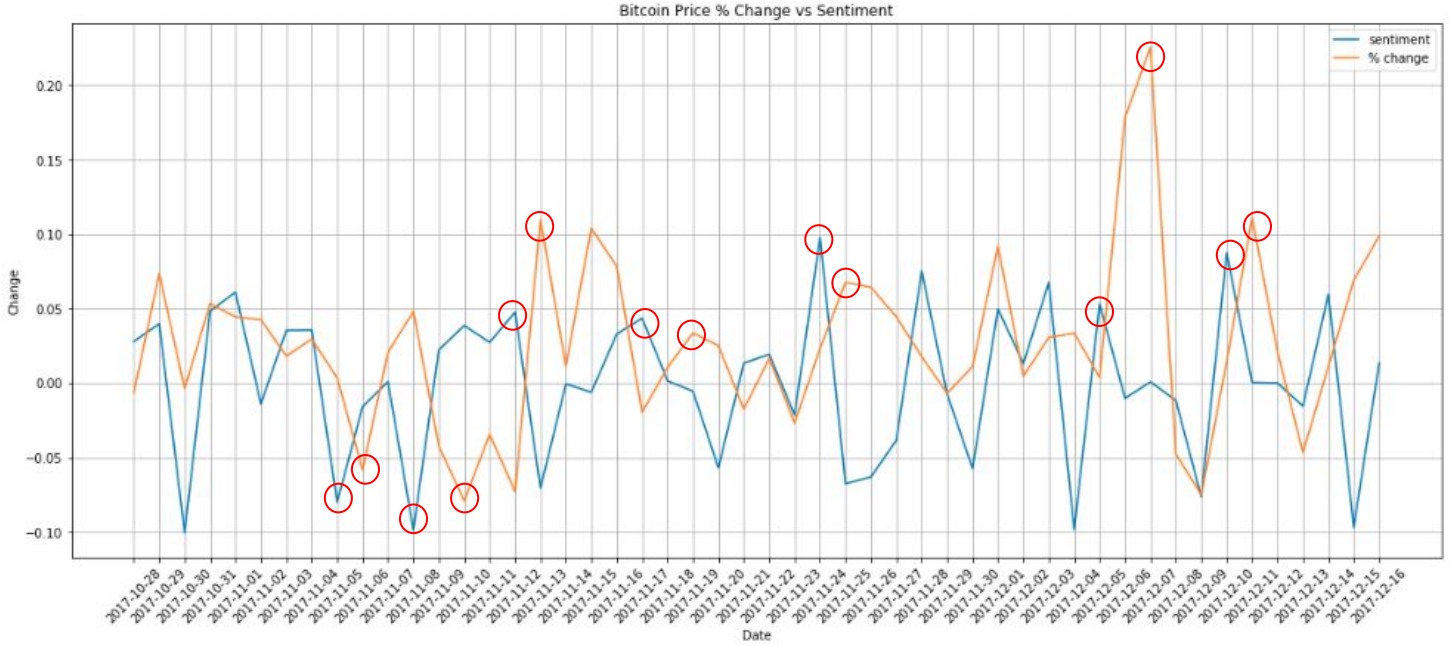


Not Always Reliable, but could be a part of a Robust Trading System with Technical Analysis

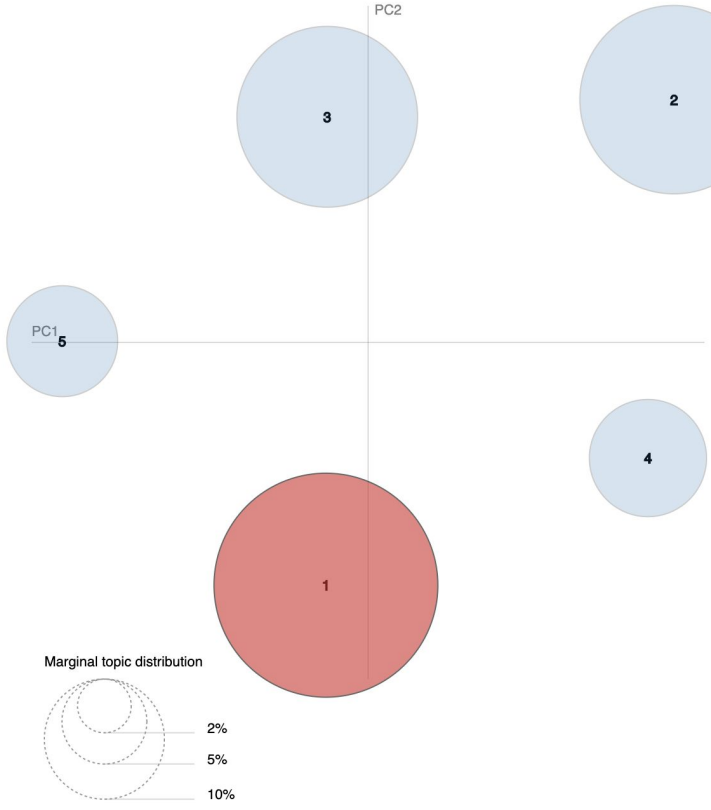

Topics could be used to Analyze **trends** for **long term** movements

LDA: Generated 5 Meaningful Topics

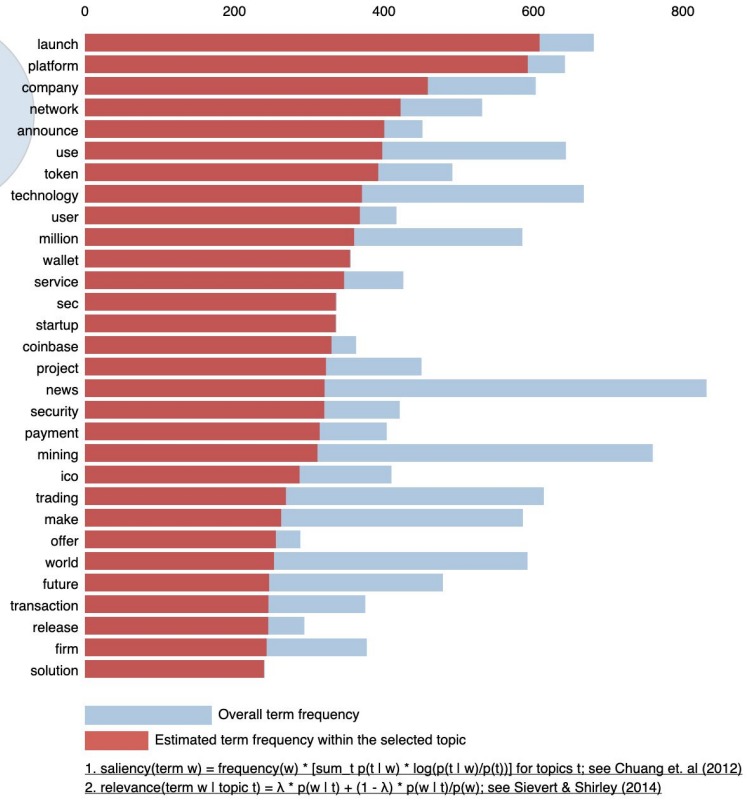
1. **FOMO**(Positive Tech Driven News)
2. **Financial** News and **Regulation**
3. **Market** Analysis
4. **Altcoins** News
5. **FUD** (National Bans, Scams, 51% Attacks)

Topic 1: FOMO (Positive Tech Driven News) Adds to Legitimacy

Intertopic Distance Map (via multidimensional scaling)



Top-30 Most Relevant Terms for Topic 1 (34.8% of tokens)



Topic 5: FUD (National Bans, Scams, 51% Attacks)

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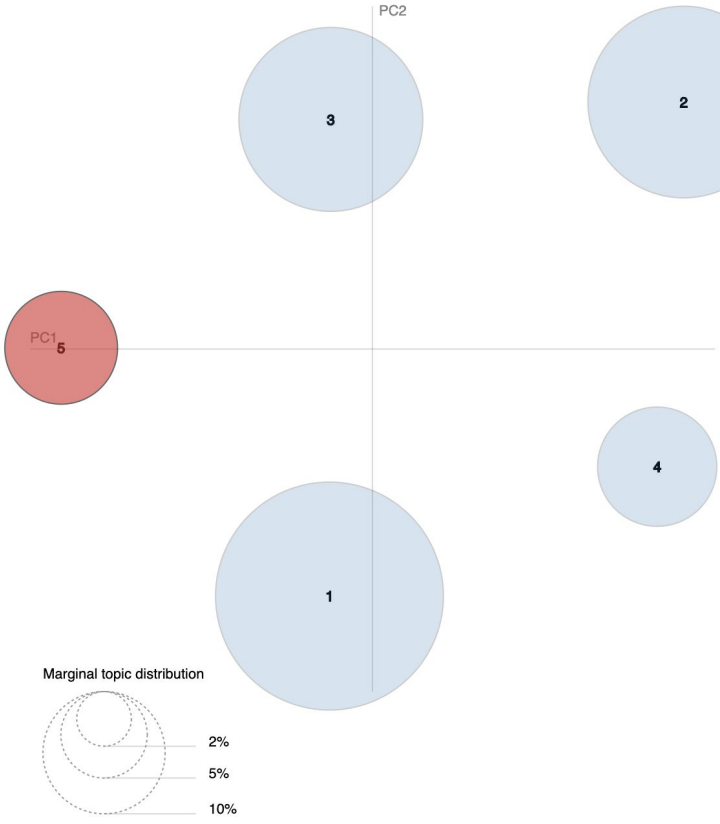
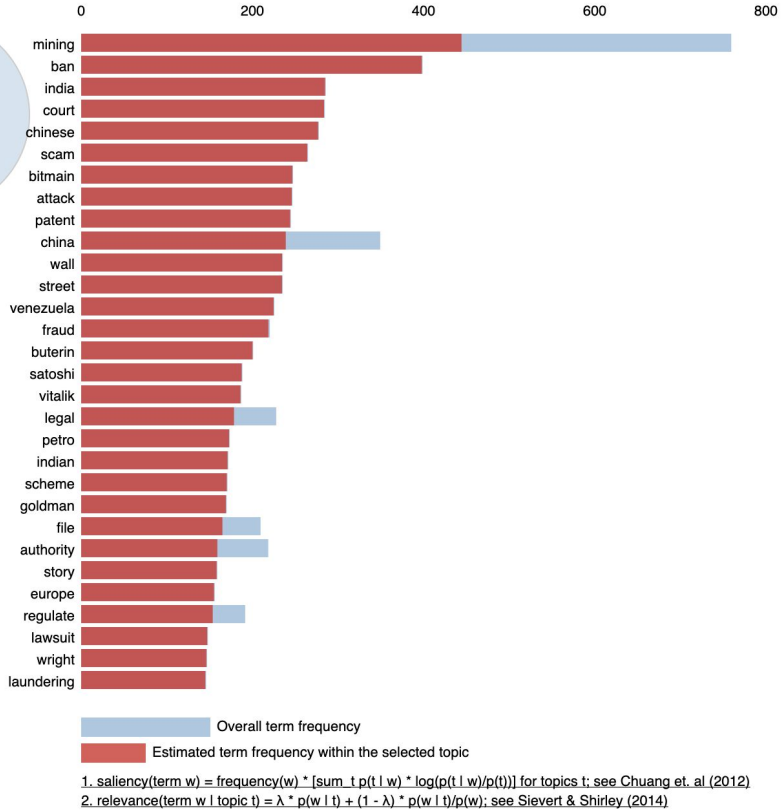


Top-30 Most Relevant Terms for Topic 5 (8.5% of tokens)



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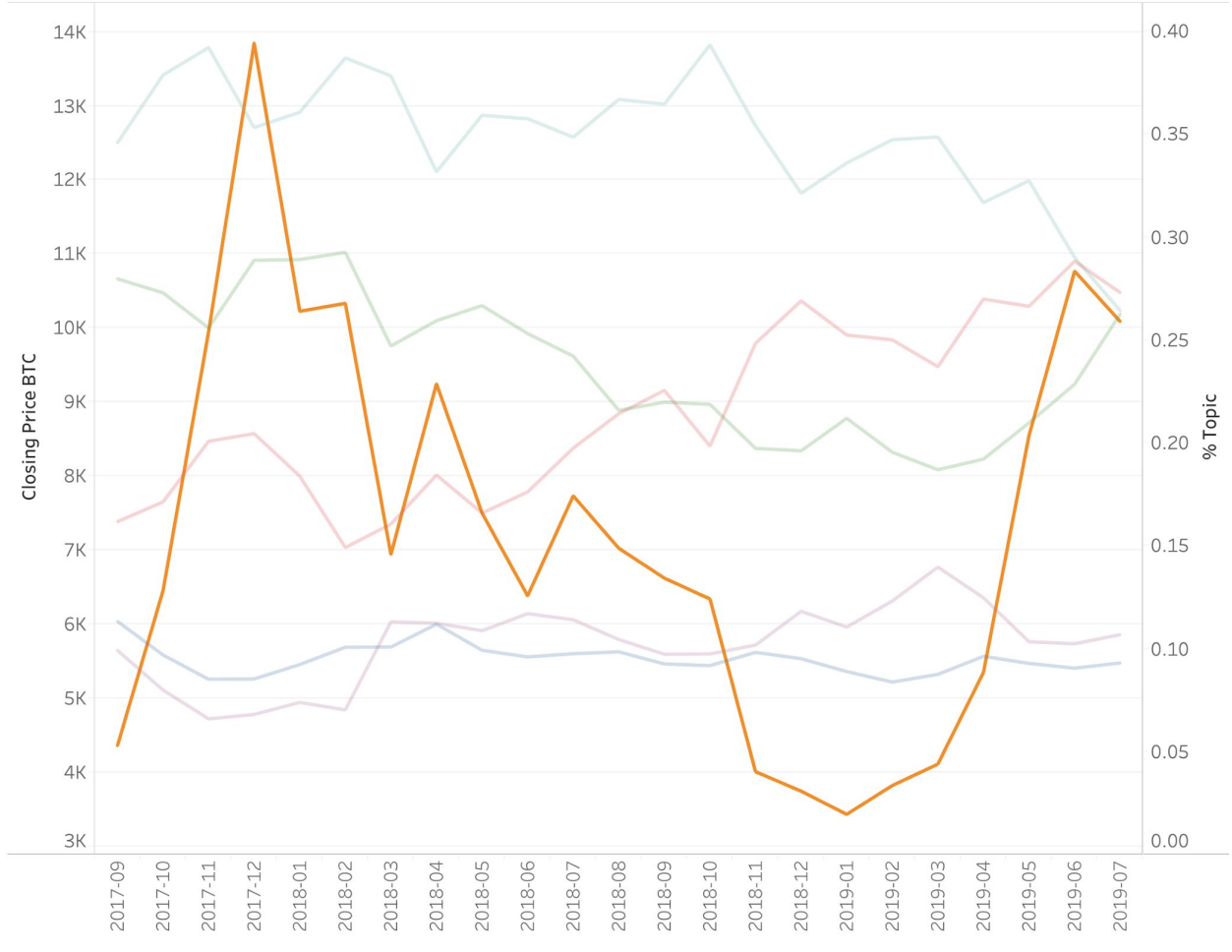
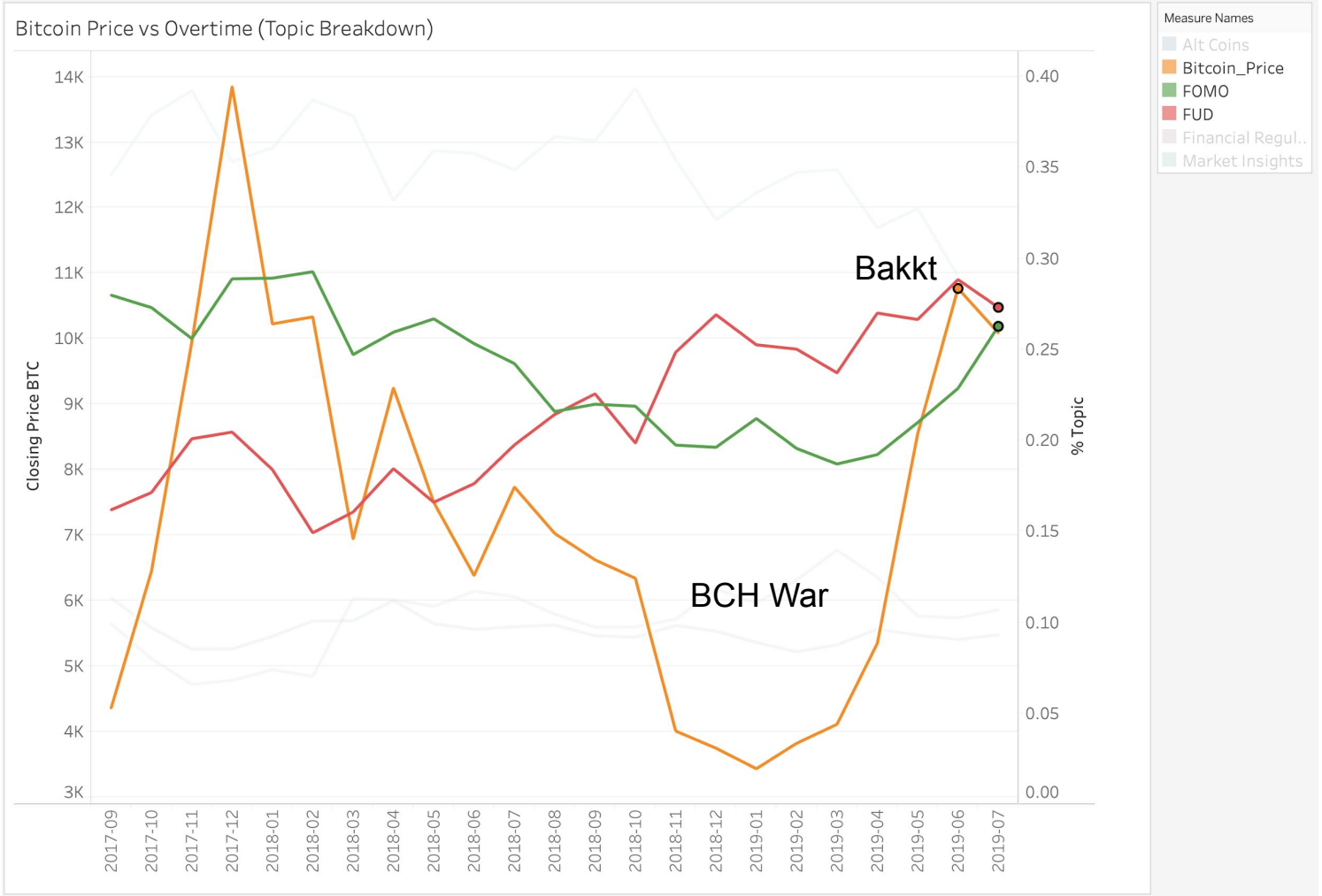
Bitcoin Price vs Overtime (Topic Breakdown)



Measure Names
- Alt Coins
- Bitcoin_Price
- FOMO
- FUD
- Financial Regul..
- Market Insights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Bakkt
BCH War

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Takeaways:

- Sentiment can be used to predict short-term movements
- Proportion of Topics of News Articles can indicate overall climate of the market - **Spread of FUD and FOMO**
- Currently BTC is at a pivotal point where FOMO and FUD converge
- Future Work: Incorporate Sentiment and Topics over time into a Trading Algo with TA indicators

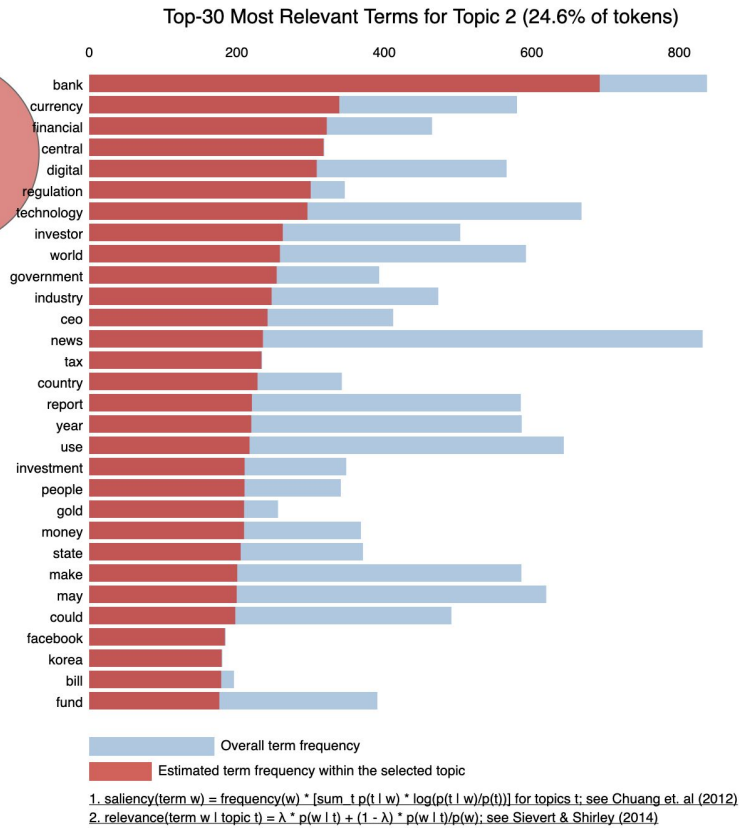
Questions?

Appendix

What is Bitcoin?

- Decentralized Digital Currency
- Created by Satoshi Nakamoto in 2008
  - Financial Crisis
  - Alternative to Bank Controlled Currencies
- Reward from a process called mining
  - Energy and Computing Power intensive process
- Transactions
  - Recorded on a public distributed ledger (Blockchain)
  - Verified by peer to peer network of computers
    - Rather than a centralized entity

Topic 2: Financial News and Regulation



Topic 3: Market Analysis

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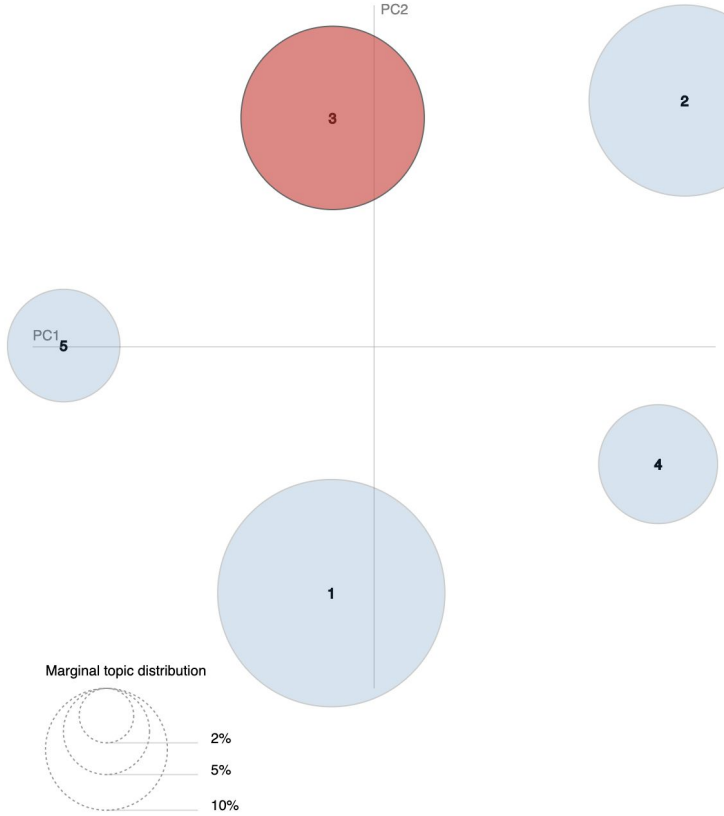
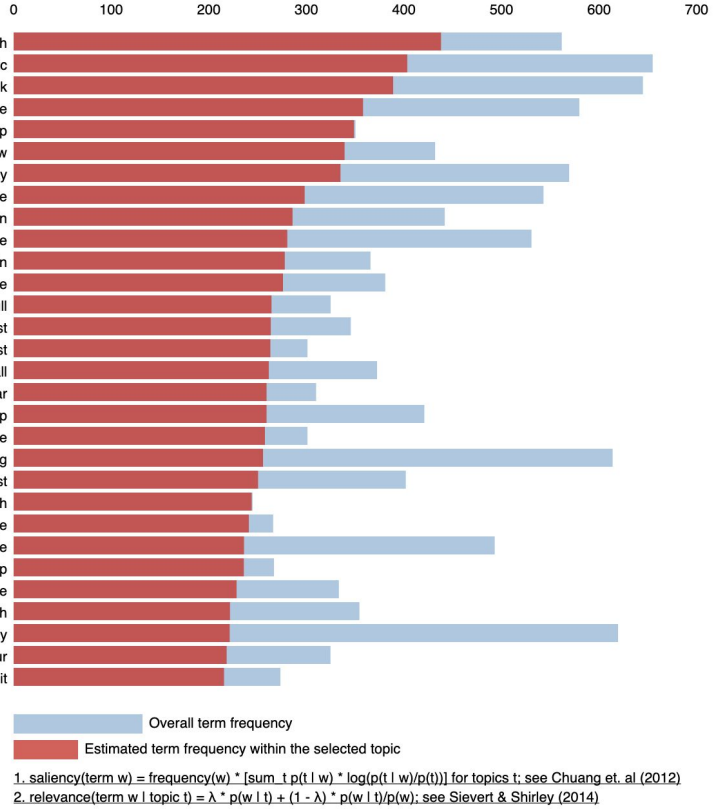


Top-30 Most Relevant Terms for Topic 3 (22.6% of tokens)



Topic 4: Altcoins News

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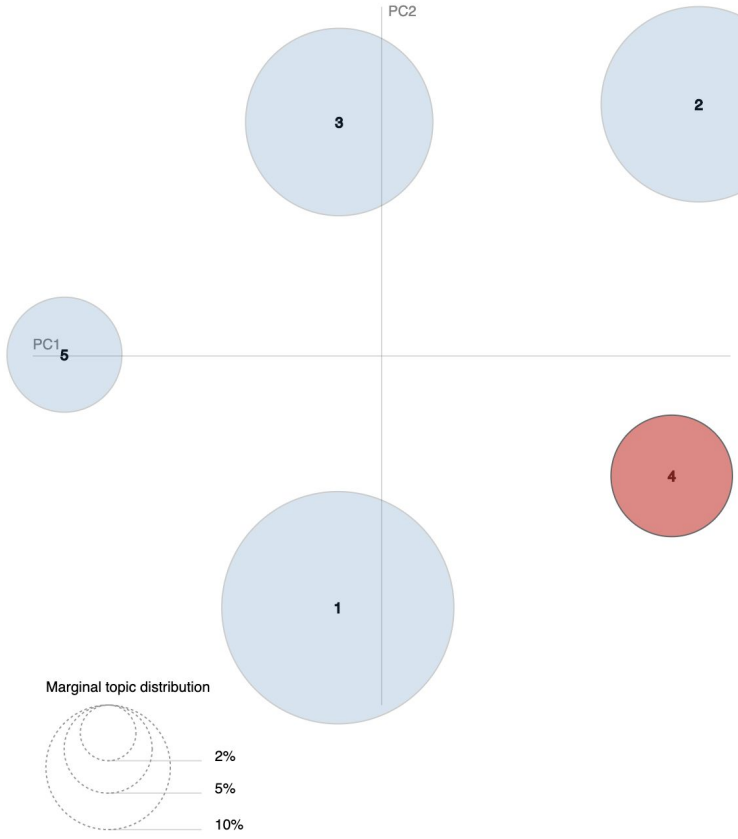
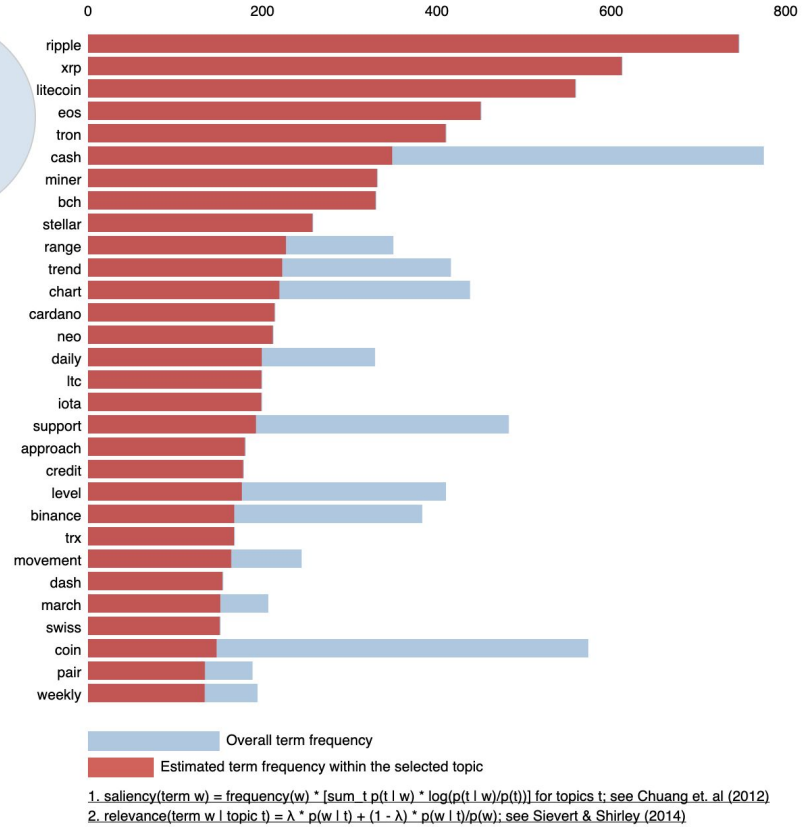


Top-30 Most Relevant Terms for Topic 4 (9.5% of tokens)



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