

# The impact of derivatives on cash markets: Evidence from the introduction of bitcoin futures contracts

*Discussion*

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## Motivation & Setting

- **Futures** introduced by both CBOE and CME on December 10th, 2017 on **BTC-USD**.
- Study **market characteristics** (synchronicity, integration, market-quality, liquidity) of BTC-USD pre- and post- the introduction of the Futures.
- **Setting**: Multitude of exchanges (Coinbase, Kraken, Gemini, etc.). On each exchange one can trade different currency pairs (BTC-USD, BTC-EUR, BTC-CAD, BTC-,AUD, BTC-JPY, etc.)
- Advantages: **data** is widely available and BTC is **fungible** across exchanges.

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## Method

### Differences in Differences analysis:

- **Control:** BTC-CCY (e.g. BTC-EUR, BTC-CAD, BTC-,AUD, BTC-JPY, etc.).
- **Treatment:** BTC-USD.
- **Pre:** January 1st, 2016–July 31st 2017.
- **Post:** January 1st, 2018 – July 31st, 2018.

$$\text{Characteristic}_{i,j,t} = \alpha_0 + \alpha_1 \text{Treatment} \times \text{Post} + \delta_i + \eta_j + \gamma_t + \epsilon_{i,j,t}$$

- **Currency Fixed Effect - i:** absorbs time-invariant unobservable heterogeneity currencies.
- **Exchange Fixed Effect - j:** absorbs time-invariant unobservable heterogeneity across exchanges.
- **Month Fixed Effect - t:** absorbs time-varying unobservable common shocks.
- **Exchange-Month Fixed Effect - j x t:** absorbs unobservable time-varying exchange characteristics.

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## Main Results

The introduction of BTC-USD Futures leads to:

- more price **synchronicity** (currency-pair correlation & Kapadia and Pu (2012) market integration - checks for returns in the same direction).
- more price **efficiency** (Hou and Moskowitz (2005) D1 measure): Ratio of  $R^2$  of a constrained and unconstrained regression of asset returns over market returns and lagged market and asset returns.
- better market **quality**: Hasbrouck (1993)  $q$  measure: Ratio between variance of noise and variance of the efficient price.
- increased **liquidity**: aggregate measure of liquidity.

→ paper very well written and carefully executed: the appendix is possibly longer than the paper itself!

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## Comments

- **Economic channel:**

- Attention
- Liquidity
- Spot vs Futures spread
- Type of traders (Institutional investors)

→ Getting to the mechanism would help to generalize the results.

# Bubble?

Markets Tech Media Success Video

Quest's Profitable Moment

## Quest: Bitcoin bubble brewing or is it still a bargain?

by Richard Quest [@richardquest](#)

🕒 December 1, 2017: 3:20 PM ET



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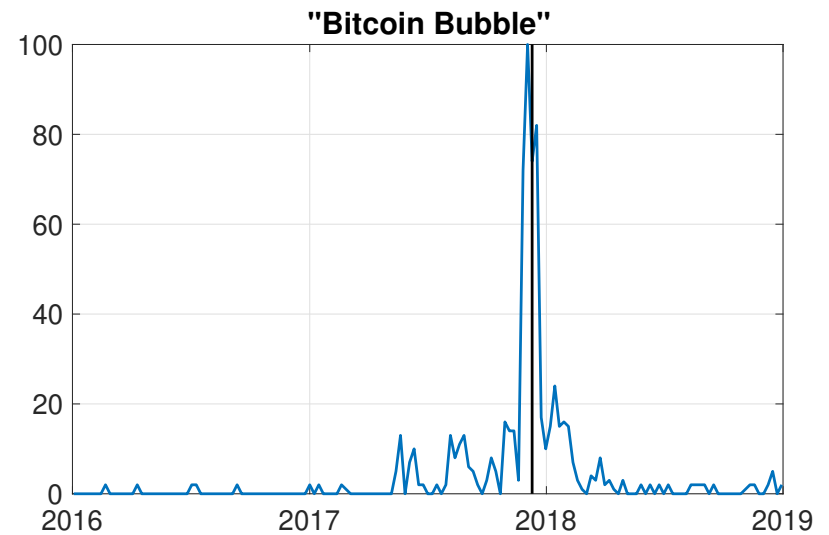
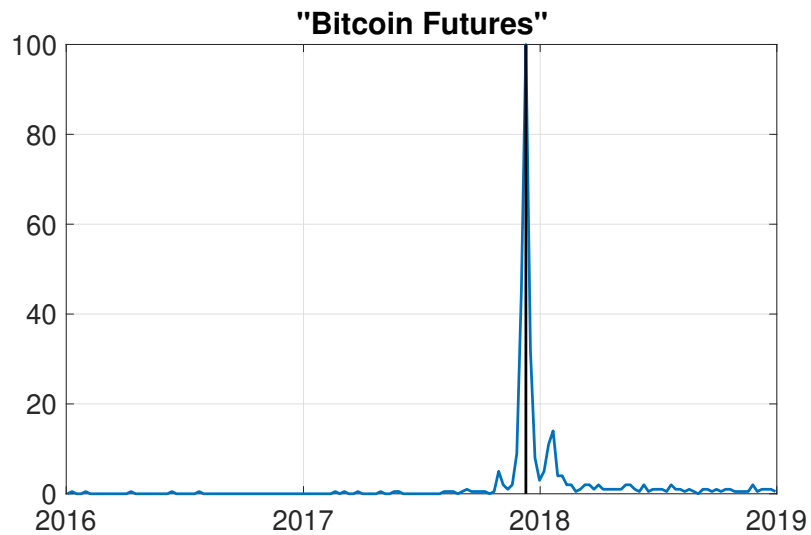
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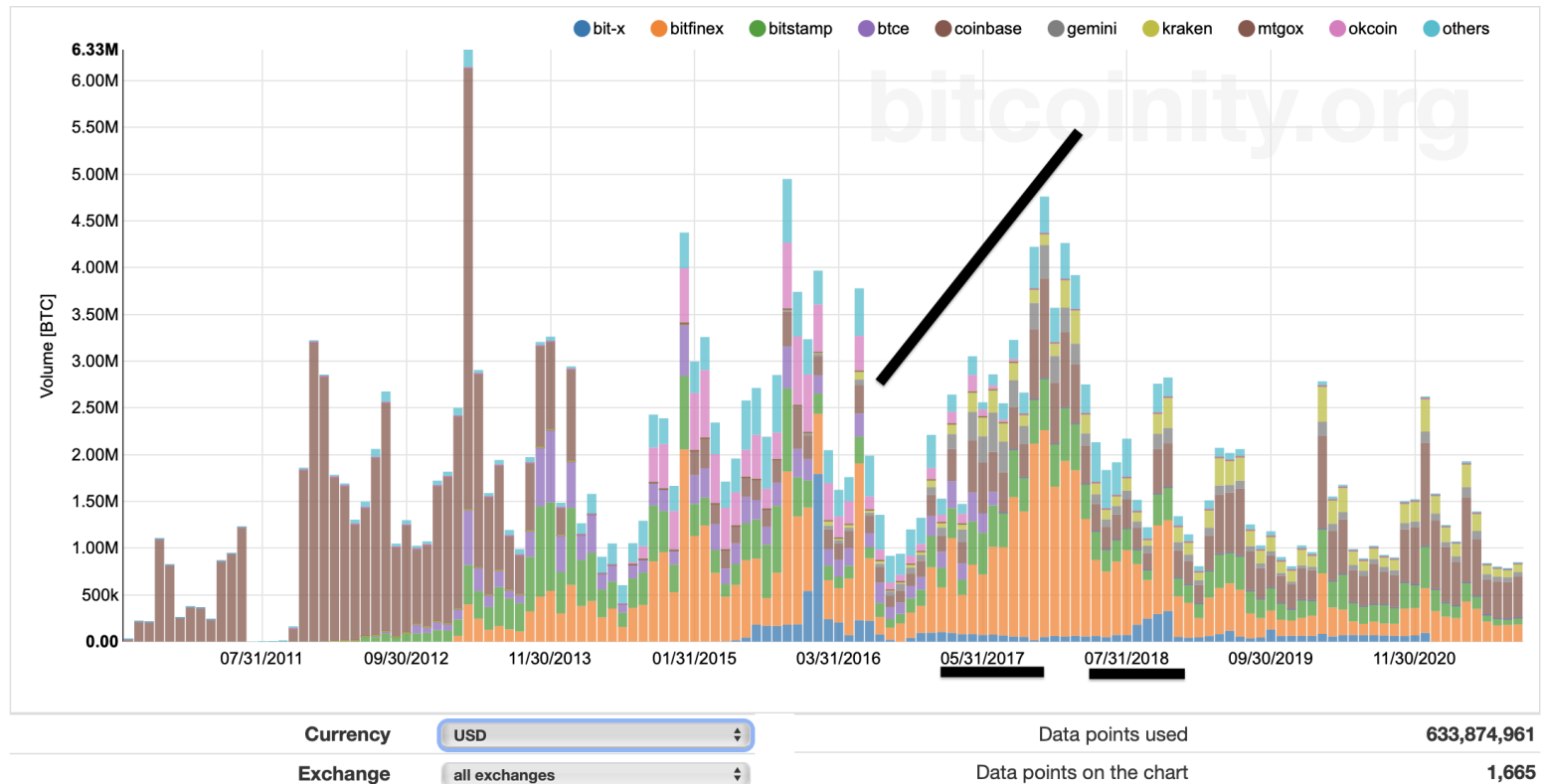
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## Google Trend



→ The introduction of the Futures on BTC-USD coincided with an unusually high media coverage, of a possible BTC bubble.

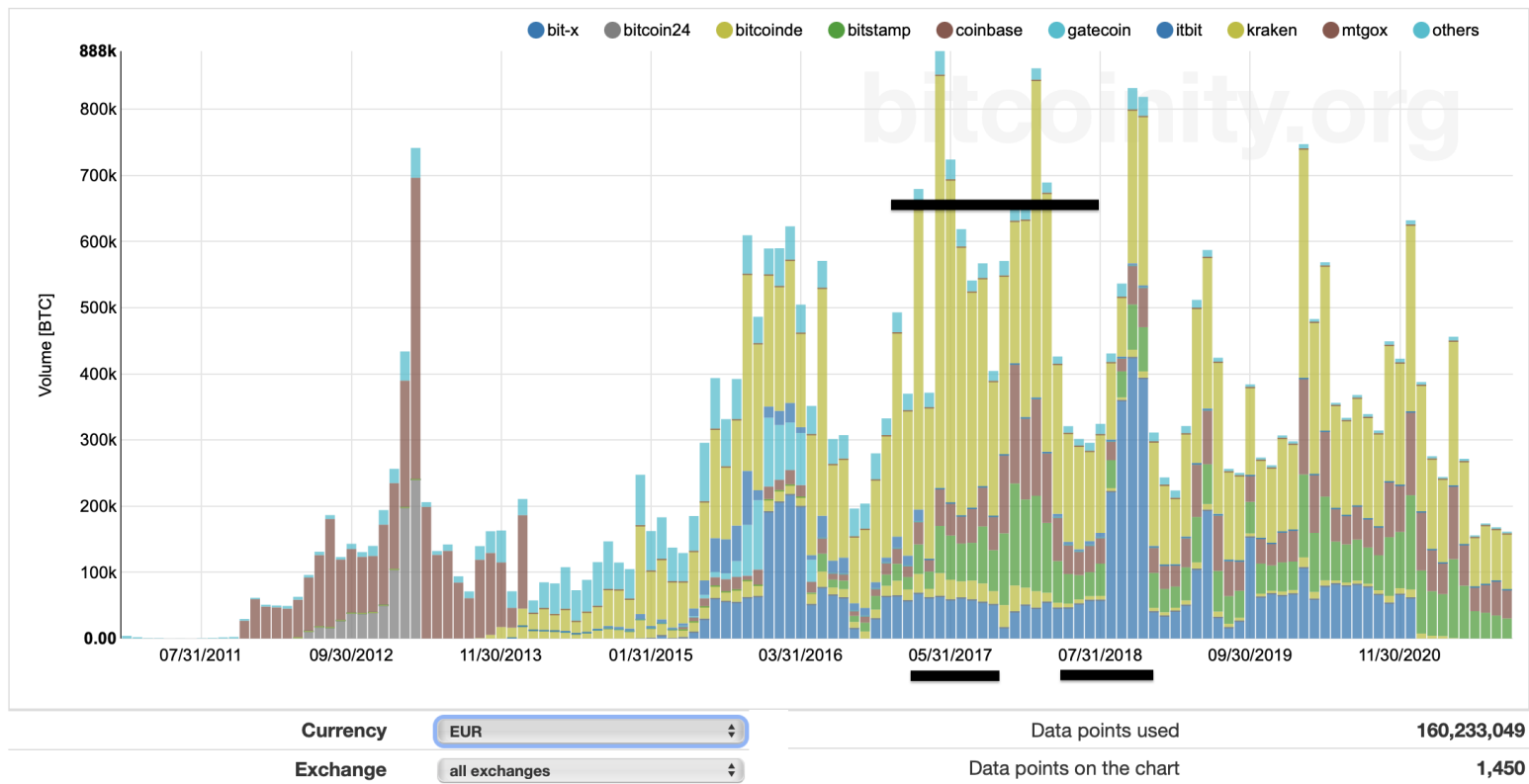
## BTC-USD: Trading Volume



→ Large increase in BTC-USD trading volume over the entirety of 2017.



## BTC-EUR: Trading Volume

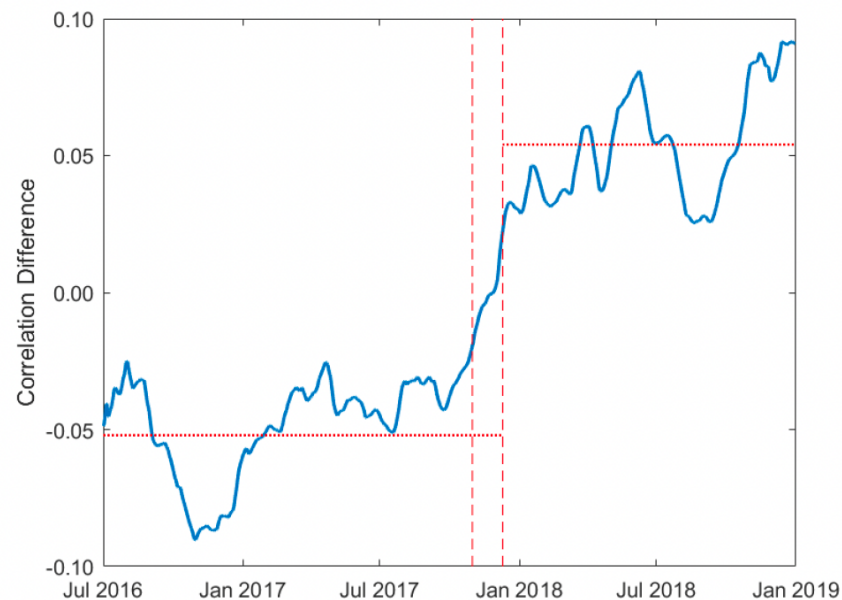


→ Less so for other BTC- exchange rates.

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## Example: Synchronicity

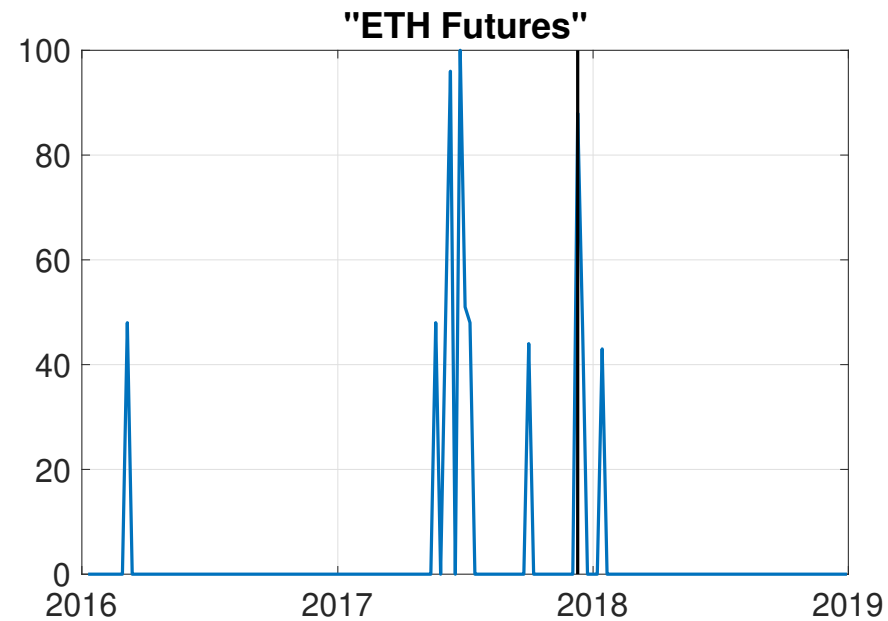
Difference in the average pairwise cross-exchange correlation between BTC-USD and all other BTC- exchange rates.



→ **Placebo test** with hypothetical announcement dates (January 1st, 2017 and July 1st 2018) finds no effect, however it would be useful to expand the time window to more than 3 months.

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## How about Ethereum? Google Trend

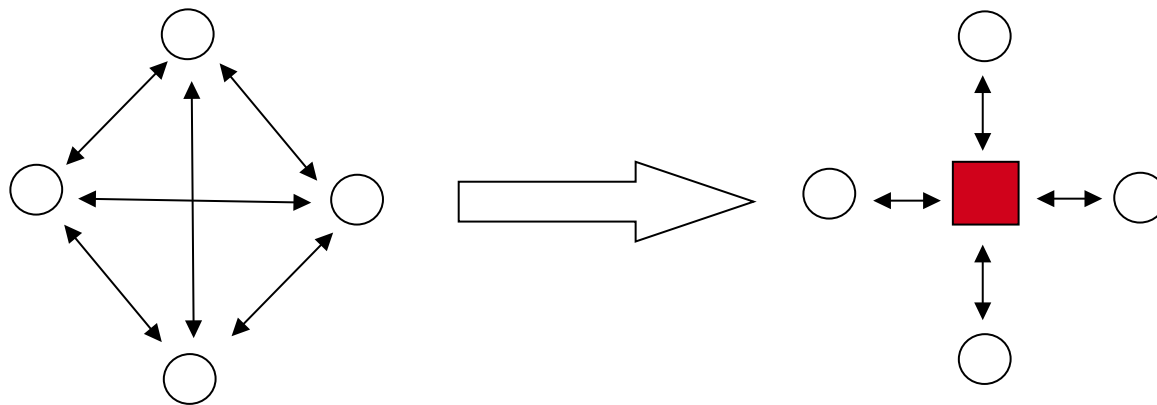


→ The paper compares BTC-USD with BTC-ETH. However, they do not seem to be perfect substitutes.

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## Economic Channel

- Facilitation of **cross-exchanges arbitrages**: evidence from wallet-based transactions?



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## Economic Channel

- Flows of **institutional investors**: however Grayscale Bitcoin Trust allows direct exposure to Bitcoin since 2013. Was the introduction of the Futures perceived as a sort of **endorsement**?
- **Benchmark effect?** However, the Futures tend to trade at a steep premium over the cash market, and the gap might not be constant over time.  
*"Coming months after the Chicago-based derivatives exchange operator first revealed plans for dedicated bitcoin offerings, the launch took place at 6 p.m EST. At that time, the opening price for the January contract was \$20,650, \$1,150 over the last price on CME's reference rate (\$19,500)." (CoinDesk.com)*
- **CBOE retired BTC-USD futures in March 2019**: what should we expect/learn from this event (depending on the underlying economic channel)?

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## Conclusion

- Very interesting paper that I really enjoyed reading. I learned a lot and it made me dig deeper into the crypto world. Everyone should read it!
- New take on an old (but still unanswered) question.  
In a nutshell: *The introduction of derivatives seems to improve the market of the underlying cash asset.*
- **Economic channel:** how can we generalize the results?