

Cover sheet

NATIONAL UNIVERSITY OF SINGAPORE

SP1541 EXPLORING SCIENCE COMMUNICATION THROUGH POPULAR SCIENCE

Assignment: Science News Article (First Submission)

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Major(s): Data Science and Analytics

Discipline of the selected research article: Quantitative Finance/Data Science

*Delete as appropriate

Using Twitter to predict cryptocurrency prices

Interestingly, the microblogging platform can be used to predict the unpredictable.

By: Claudeon Reinard Susanto, 2 October 2022

Most of us have probably heard of cryptocurrency before, but what does it actually mean?

In simple terms, cryptocurrency works like the digital cash in your phone's banking app which you can use to transfer money to friends or buy things on Amazon or Shopee.

However, cryptocurrency's main advantage lies in how each individual cryptocurrency token is secured and chained to one another, which makes hacking or counterfeiting almost impossible. Cryptocurrency is also faster as third parties like banks are not needed to verify and manage transactions; they are already verified using complex mathematical algorithms.

But why should you care about cryptocurrency? Due to its advantages, this new technology is set to become the norm in the near future. Apps such as Google Pay and Bitpay are currently working on allowing users to transfer, buy, and sell crypto tokens from anywhere to anyone with greater speed and security than your normal banking app. With this, cryptocurrencies will replace the dollar sign in your digital wallet.

Hopefully, now you're convinced to switch to cryptocurrency. But there's one big problem with that, especially for newcomers who want to start buying crypto but don't know where to start.

Just like how we look for discounts at supermarkets, we would want to buy crypto when prices are low and avoid buying when prices are high. However, cryptocurrency prices are

highly volatile and fluctuate greatly even in one hour. So, deciding the exact time to buy crypto is difficult, unless we know when prices would rise or fall.

If we can really predict crypto prices, we would be able to buy crypto at the moment when prices are at the lowest. We can also make some serious cash by selling them at the exact time when prices are at the highest.

So far, one way to predict prices is by looking at factors that are known to influence prices directly. Cryptocurrency is a new technology, so there has only been limited research done on such factors. Some of these known factors include news sentiment, exchange rates, and the current political situation. However, sourcing for some of this information requires us to depend on news channels' reporting timing. This lag in information is not always helpful in predicting the constantly fluctuating cryptocurrency prices.

supplementary concept: need people to accept

Unlike the relatively slower news channels, social media like Twitter provide real-time updates of posts provided by users. Millions of these posts contain users' opinions about almost anything, including cryptocurrency.

Knowing this, business analysts and researchers Kraaijeveld and De Smedt at the University of Edinburgh wondered if Twitter users' opinions can influence cryptocurrency prices. Yet, until now, nobody has done any research on this.

So, the two researchers wanted to test if Twitter really has the power to predict cryptocurrency prices. For this reason, they were the first to study the relationship between Twitter and crypto prices for multiple cryptocurrencies.

As a start, they collected millions of posts from Twitter for two months. But each post contains lots of words and can be very messy, so how did the researchers study them?

Each word in a post can be scored positive, negative, or neutral depending on its emotions (for example the words “bad” and “exciting” have negative and positive scores respectively). We can then figure out if the post has an overall negative or positive sentiment on cryptocurrency by determining if there are more positive than negative words and averaging the word scores.

By doing this for all posts posted within an hour, they were able to determine the average Twitter sentiments.

unexpectedness, pronouns

Next, the average sentiments are compared with cryptocurrency prices. The researchers discovered that Twitter sentiments highly correlate with how prices move in an hour: when the majority of posts have a positive outlook on cryptocurrency, prices tend to rise, while prices tend to fall when sentiments are negative.

Surprisingly, despite being messy and wordy, the researchers discovered that Twitter posts have the power to predict cryptocurrency prices; just by examining these posts, we can get a sense of whether prices will move up or down in the next hour without relying on slower reporting from news channels.

Still, the scope of this study is limited as it only focused on 1-day and 1-hour predictions, so it's still unknown if long-term price prediction is possible. On top of that, this study only explored whether it is possible to use Twitter to predict prices; it did not address the question of how to predict and if the prediction would be accurate.

engagement strategies, humor, pronouns,

With that being said, this study shows **great promise**. Future studies can **potentially combine both artificial intelligence and Twitter sentiments to make an accurate and timely prediction of cryptocurrency prices**. In the future, you might be able to consult an AI relying on Twitter data before making your big decisions on crypto.

provide a foundation for future research, investors, (), 360 degree of the impact, consider multiple stakeholders: like doctors, patients, and stuff

(800 words) Context: very good logical flow from background to rationale, with sufficient explanation of concepts (using strategies learnt). Some **supplementary concepts** could be developed.

Reported study: some **supplementary concepts** especially in move 6 (methods) could be clearer.

Significance: implication is linked to context. Balanced appraisal could be improved with specific discussion of future research direction(s). Consider impact on **multiple stakeholders** and the field

References:

Engagement: appropriate use of tone/register. Teleological appeal could be stronger. Good use of questions, unexpectedness, asides.

Frankenfield, J. (2022, September 18). *Cryptocurrency explained with pros and cons for investment*. Investopedia. Retrieved October 2, 2022, from <https://www.investopedia.com/terms/c/cryptocurrency.asp>

Kraaijeveld, O., & De Smedt, J. (2020). The predictive power of public twitter sentiment for forecasting cryptocurrency prices. *Journal of International Financial Markets, Institutions and Money*, 65, 101188. <https://doi.org/10.1016/j.intfin.2020.101188>

Revise the first submission of your science news article by integrating **at least two supplementary sources**. Supplementary sources can be recent research articles, statistical reports, or news articles. The revised version should be between 800 and 1,000 words.

You are expected to **provide more evidence on how the scientific development reported in your science news article can impact the scientific field and society** (e.g. practical applications and implications of the key finding). Your evaluation of the key finding supported by evidence from supplementary sources and logical explanation will help readers appreciate the significance of the key finding associated with the scientific field and beyond.