

Cryptocurrency's surprising transparency advantage

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As perhaps befits a product of the post-2008 economy, the cryptocurrency space has never known normalcy. In a mere 13 years, crypto went from an untried software innovation of mysterious origin to

being touted as the future of investing by major movie stars in Super Bowl commercials. Soon thereafter, of course, came the "crypto winter" of 2022, which began well before, but was surely deepened by, the downfall of FTX and disgraced wunderkind Sam Bankman-Fried.

Now, despite possible indicators of recovery, crypto's reputational crises are standing in the way of the mainstream adoption that once seemed inevitable. Google searches for "Web 3.0" terms such as "Bitcoin" and "Ethereum" have fallen to their lowest levels in years.

Regulators, too, seem to be leaning into a hardline stance, as indicated by the SEC's lawsuit against Coinbase and Binance that [strikes at the heart](#) of crypto's decentralized business model.

The crypto backlash appears rooted in the belief that the sector is too rife with bad actors, and too technologically complicated, to be worthy of public trust. The consensus in the crypto community, however, is that accurate [clues to crypto quality](#) are hidden in plain sight.

The majority of cryptocurrencies use open source platforms such as GitHub for the development of their software. Seasoned investors will routinely inspect the publicly available development history of a cryptocurrency as a basic aspect of due diligence.

Published in *Journal of Management Information Systems*, a paper co-authored by Mariia Petryk, an assistant professor of information systems at the Donald G. Costello College of Business at George Mason University, is the first to examine whether the intensity of developer engagement with a cryptocurrency could indeed be related to its quality. Her collaborators were Liangfei Qiu and Praveen Pathak of University of Florida.

"This paper is about how we evaluate reputation in a setting where

traditional reputational instruments are not precise," Petryk explains. "When we choose a doctor, we often rely on an endorsement from someone we trust. But in lieu of that, we look into the history of the doctor—education, training, etc." By the same token (no pun intended), crypto investors could "judge quality based on the total effort developers made to write the code."

Using GitHub data for 559 cryptocurrencies over the period August 2016–December 2019, the researchers zeroed in on five open-source activities. They classed three under the heading of "quality enhancement." Commits are code modifications submitted by developers and eventually added to the crypto source code.

Before official adoption, proposed modifications exist as pull requests awaiting assessment. Issues are questions, bugs or problems raised by developers or users for discussion within the open-source platform.

The remaining two activities fall under "diffusion of software," essentially a proxy for developer attention. Forks are mirrored copies of the original code attached to a developer's account. Watches are a way for developers to "subscribe" in order to more closely follow the discussion within the community around a cryptocurrency.

Across the data set, the researchers found that a one-standard-deviation increase in forks and watches would equate to a 0.56% price increase per month, or 6.7% per year.

As for the three "quality enhancement" metrics, increases in issues exerted upward pressure on token price, but pull requests and commits displayed the opposite effect. A one-standard-deviation increase in issues led to a 4.3% higher price over one year, while an equivalent increase in pull requests was linked to annual losses of 5%.

These contradictory results perhaps point to uncertainties about the length of time it would take for [crypto](#) admins to evaluate and implement proposed changes. It goes without saying that greater numbers of requests for revision would heighten such uncertainties and their possible implications for cryptocurrency quality.

Overall, these findings imply a "virtuous circle" whereby more promising cryptocurrencies attract more developer attention, which in turn produces quality improvements that are reflected in the token price. While the expansion of the developer community creates the potential for rising pull requests and commits to lower the token price, the price-positive impact of forks and watches was approximately six times stronger.

As a general rule, then, intensity of developer attention and engagement could be viewed as a leading indicator of how the market values the tokens—with the very important caveat that broad statistical patterns may have little to no bearing on specific investment decisions.

Therefore, information from GitHub and other open-source platforms could be an important reference point for policymakers looking to evolve nuanced regulatory approaches. "One purpose of regulation is to create equal opportunity," Petryk says.

"Transparent mechanisms allow investors to learn about underlying assets and properties and make their own judgments. Open source platforms like GitHub are open to everyone, but not everyone thinks to use it. In terms of info disclosure, this could be an important factor."

More information: Mariia Petryk et al, Impact of Open-Source Community on Cryptocurrency Market Price: An Empirical Investigation, *Journal of Management Information Systems* (2023). [DOI: 10.1080/07421222.2023.2267322](https://doi.org/10.1080/07421222.2023.2267322)

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