

On the Diseconomy of Memes: Stonks, Crypto and the Wager Against Democracy

Alex Goldenberg, Author

Senior Intelligence Analyst,
Network Contagion Research Institute;
Research Fellow, Miller Center for
Community Protection and Resilience,
Rutgers University

Alexander Reid Ross, Author

Senior Research Fellow,
Network Contagion Research Institute

Lydia Stark, Author

Undergraduate Fellow,
University of Alaska, Anchorage

John Farmer, Author

Former New Jersey State Attorney General
and Senior Counsel, 9/11 Commission
Director, Miller Center for Community
Protection and Resilience,
Rutgers University

Jack Donohue, Author

Network Contagion Research Institute;
Fellow, Miller Center for Community
Protection and Resilience,
Rutgers University;
Former Chief Of Strategic Initiatives,
New York City Police Department

Adam Sohn, Author

CEO, Network Contagion Research Institute

Joel Finkelstein, Primary Investigator

Chief Science Officer and Director,
Network Contagion Research Institute;
Senior Research Fellow, Miller Center for
Community Protection and Resilience,
Rutgers University

Cristian Ramos, Author

Analyst, NCLabs

Prassidha Sudhakar, Author

Analyst, NCLabs

Tayler Glover, Author

Analyst, NCLabs

Kiana Perth, Author

Analyst, NCLabs

Malav Modi, Author

Analyst, NCLabs

Heath Newton, Author

Analyst, NCLabs

Ashlyn Kofford, Author

Analyst, NCLabs

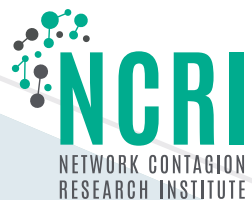
Mark Hopkins, Author

Analyst, NCLabs

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INTRODUCTION

Information overload, which creates risks in markets¹, is rapidly leading to a diseconomy of memes, which demonstrates its alpha in hype, narrative and propaganda as a replacement to investment based on value. Memes, and Web communities especially, which have negatively impacted social conversation and civility, now impact financial conversation and market information integrity. This comes in part as a result of innovation in both traditional and decentralized finance that democratizes and lowers the barriers for access to sophisticated markets. Disinformation attacks paired to tech-fueled financial fraud are now perpetrated from a variety of sources: from state actors, disinformation operatives, fringe Web communities and influencers seeking personal gain.

While speculative Web 3.0 assets, such as cryptocurrency and NFTs are often the object of such campaigns, increasingly sophisticated meme-based disinformation attacks now regularly impact commodities, stocks and other traditional financial assets. Often, though not always fraudulent, this activity exceeds the reach and depth of traditional financial regulatory bodies which permits speculators to invest successfully in increasingly lawless behaviors, further eroding market trust and information integrity.

The Web 3.0 tools that are now upending finance, such as distributed autonomous organizations (DAOs), cryptocurrency-based tools and other blockchain based technologies are more than just financial instruments; they create systems, software and culture with their use. These new tools and their cultures therefore comprise a potential threat to democracy and entrenched institutions. Yet up until this point, the governments of the world have regarded these tools as annoyances to be regulated, ignored or quashed. By refusing to engage with them, or worse, or engaging in artless and widespread financial censorship, the government has no seat at the table and no voice in the formation of Web 3.0 culture. Web 3.0 systems, software and culture is thus growing as a contender against the system of traditional governance and finance that seeks to constrain it.

Political groups now seize on Web 3.0 tools and memes simultaneously to bring censorship-free finance to mobilizations as they protest against governments, from Ukraine to Canada. This places the cultural growth of Web 3.0 into an explosive intersection of political confrontation and invites spectacles of censorship and criminalization. These spectacles invite financial speculators to pair their investments to the growth of causes poised to further political unrest, dissent and confrontation; a wager on the viability of democracy.

Bottom Line Up Front

- Adversarial state actors engage in coordinated financial disinformation campaigns to bolster sovereign asset holdings.
- Bad actors using cryptocurrency and social engineering take advantage of industry wide media/newswire vetting gaps to implement pump and dump schemes costing hundreds of millions of dollars in value.
- Stonks and crypto Web communities on Twitter and Reddit, which organize and invest using coded language and meme-narratives, were significantly bolstered by the antagonism and censorship of elite financial institutions.
- Granger causality analysis suggests that comments on stonks and cryptocurrency Web communities both react to and exert influence on asset price and exchange volume.
- r/Doge, a dogecoin Web community, shows the highest proportion of meme-coded language and appears to be the most reactive community to asset changes.
- Dogecoin, a meme-coin itself appears to be most susceptible to price/volume influence by chatter across crypto and stonks enthusiast communities on Reddit.
- Analysis shows that these features make Dogecoin vulnerable to unregulated, systematic and mass manipulation by coordinated activity, online raids, influencer participation and potential abuse of insider information for personal gain.
- Web 3.0 tools now underwrite activism and direct action from Ukraine to Canada (and elsewhere), often pairing the interests of polarized activist elements, accelerationists and financial speculators.
- Impulsive censorship of financial tools and protest movements feeds enthusiasm for both and sets the stage for accelerating conflict both in financial markets and the kinetic space.

Iranian Trolls, Silver and Gold: How State Actors Leverage Financial Disinformation to Bolster Holdings from Subverting International Law

The NCRI analyzed Iranian Troll activity² on Twitter and detected thousands of tweets pertaining to financial assets including “crypto”, “gold”, and “silver”, disseminated in coordinated fashion, over the Summer of 2020 (figure 1). Close inspection of the contents of the tweets revealed clear themes in the messages, which sought to disparage the value of bitcoin and other cryptocurrencies, and promote the value of precious metals, especially silver and gold. To delve more into the content, NCRI then developed a topic network over the tweets mentioning these terms to reveal both prominent strategies and terms of interest (Figure 2). Analysis of the topic network suggests sophisticated tactics were deployed by the trolls, posting their comments on threads from known influencers (Appendix Table 1) in the crypto/precious metals communities on Twitter. Furthermore, inspection of the comments showed that they were posted at the bottom of controversial threads that were gaining traction to ensure high readership. NCRI then examined the URL’s disseminated by trolls to characterize the types of mis/disinformation used in the campaign. These analyses show several narratives attempting to spark panic about shortages and mines being shut down in the face of the pandemic. Notably, immediately after the Iranian disinformation operation on Twitter, similar pandemic-driven shortage narratives gained international prominence on r/wallstreetbets and other Web communities and were part of a popular disinformation campaign and run on precious metals, especially silver, world wide. The regime thus appears to have been an early adopter and amplifier of disinformation narratives that would become globally dominant in commodities markets and impact billions of dollars in asset values.

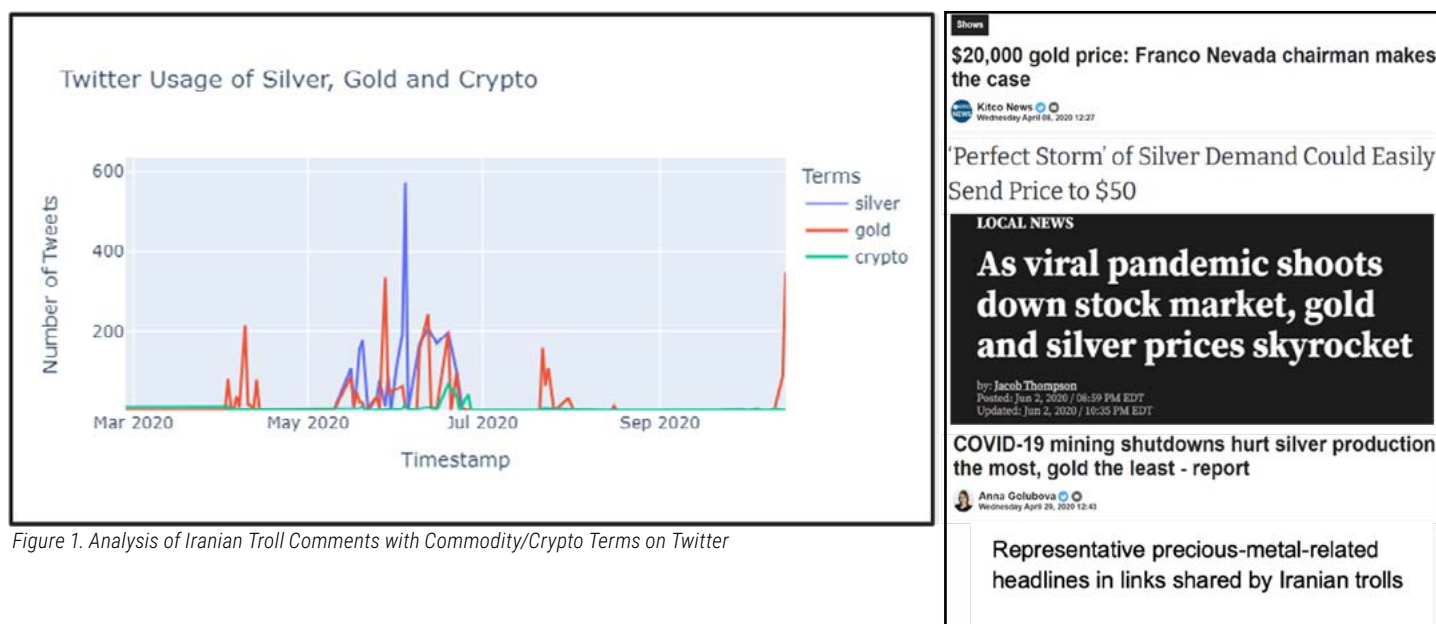


Figure 1. Analysis of Iranian Troll Comments with Commodity/Crypto Terms on Twitter

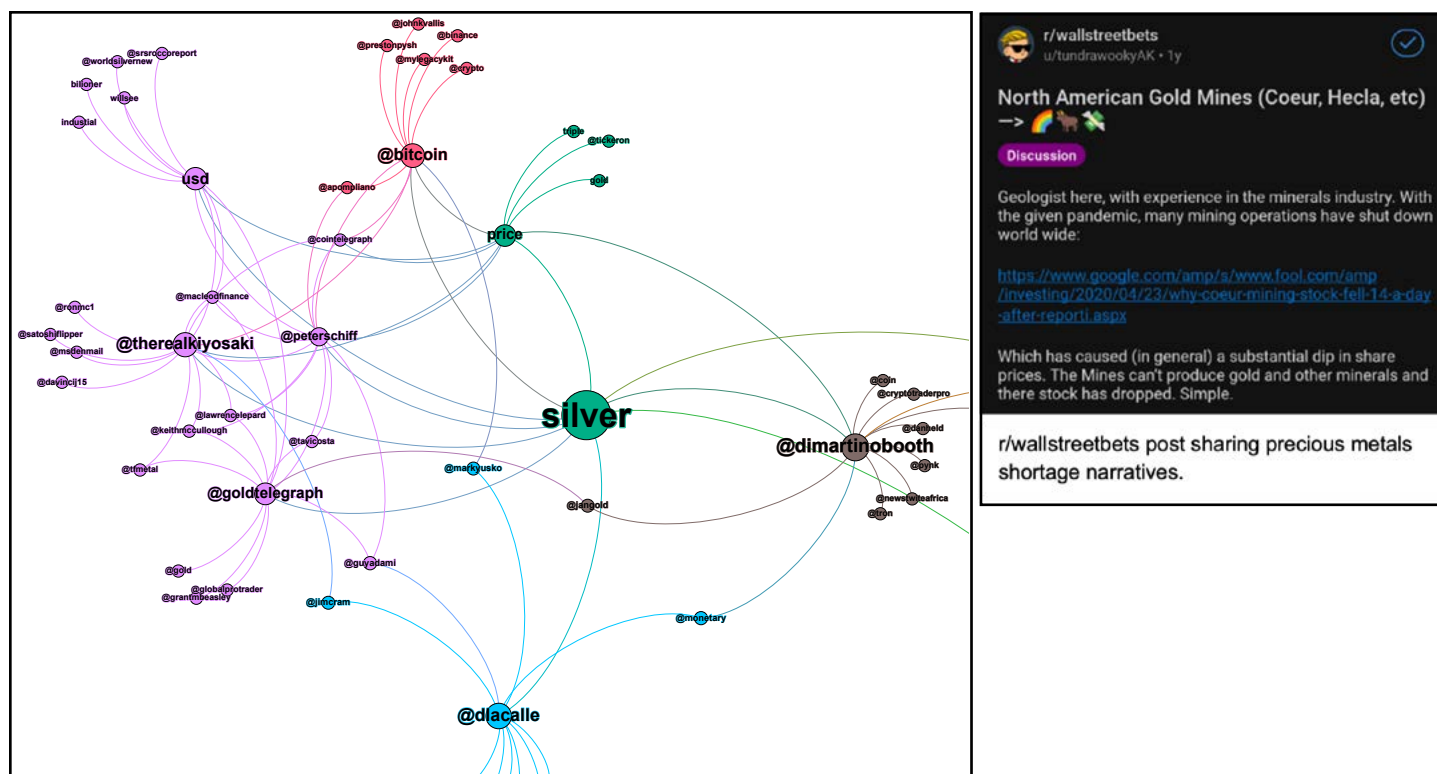


Figure 2. Topic Network for seed term "Silver" over Iranian Troll Comments with Commodity/Crypto Terms on Twitter show trolls targeting specific influencers and media outlets specializing in both the precious metals and crypto spaces.

Indeed, NCRI analysis using Storyzy, an automated tool that characterizes disinformation sources based on open-web ingestion and analysis, showed an over 200% increase in articles from disinformation (as well as uncharacterized) sites during this time period. Given these findings, questions arise around the motivation behind the Iranian's influence operation, which clearly sought to target influencers in order to bolster the speculative value of precious metals. A potential explanation comes from a [report](#) from April 2020 detailing Iran "Hauling Goldbars" valued at 500 million dollars out of Venezuela by plane load in exchange for oil. This suggests that the regime deploys financial disinformation operations to bolster its economic holdings and subvert international sanctions.

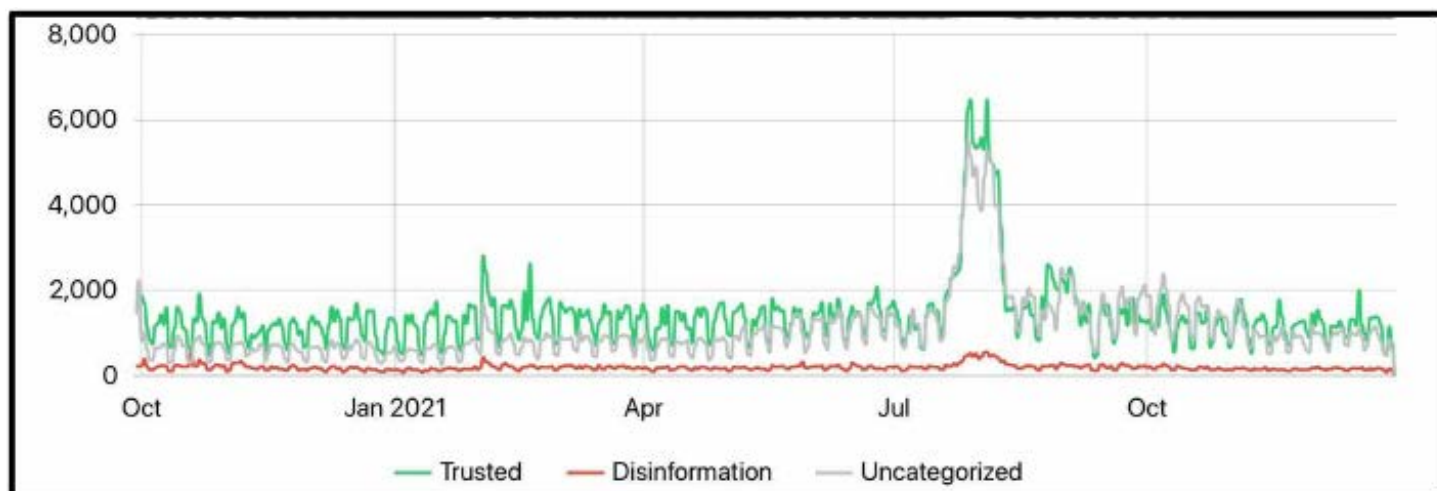


Figure 3. A Timeline of articles on the open web containing the word "silver" using the Storyzy platform shows a >200% increase in the period immediately following the Iranian disinformation operation.

The Litecoin Adoption Fake: How Media Manipulation Creates Opportunity for Financial Fraud Using Cryptocurrency

Minutes after the U.S. stock market opened on Monday September 13th, 2021, a fake press release published by GlobeNewswire³ falsely announced that Walmart would be accepting payment in Litecoin (LTC), a crypto currency. Following the news, the price of Litecoin jumped from \$180 to \$230 per coin, which is roughly a 22% increase. In terms of long term change to the price of Litecoin, after the hoax was debunked the price returned to normal levels, but the transaction volume across all exchanges showed that retail trading activity remained at highly elevated levels for several days.

It's likely that the traders behind the story placed strategic trades on the expectation that the market would move significantly upward when the press release was picked up, and then again back down when the hoax was discovered.

That traders capitalized on the hoax was evidenced by anomalous, large, on-chain transactions that bracketed to the date of the hoax. These transactions are evidenced in the distribution of the highest transactions recorded on the litecoin blockchain from 9-7-2021 through 9-21-2021 below. Several of these show USD equivalent being transacted on-chain of nearly \$750 million with one of the highest value (>quarter billion) transactions taking place mere days before the hoax itself.

That the activity surrounding this event is anomalous is evident in the skew within the distribution of ranked block chain transactions during the time period (Figure 5) around the hoax in contrast to the majority of transaction distributions for Litecoin, which show far less skew and normal distribution (Figure 6).

Notably, less than a month later a fake press release claiming the supermarket chain, Kroger, will start to accept Bitcoin Cash was released on PR Newswire. Within 15 minutes, the price of Bitcoin Cash rose roughly 5 percent, from \$602 to \$630 per coin.

Although most news wire services purportedly vet releases they publish, authentication is geared towards expediency, and it isn't difficult to exploit with common social engineering techniques. These vulnerabilities are compounded by the lack of familiarity with decentralized organizations. Both Litecoin and Bitcoin Cash, as with many blockchain protocols, aren't owned by a central organization. There is a non-profit custodial organization that is tasked with making updates to the protocols' code, but these organizations do not directly benefit financially from the usage of the protocol.

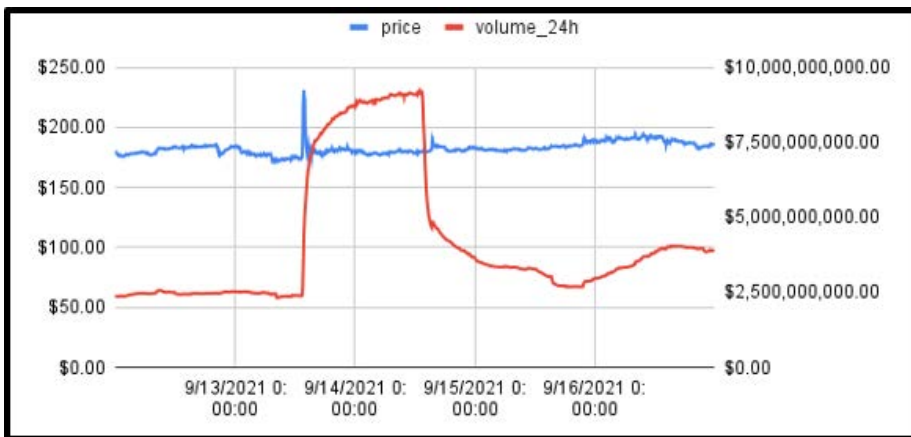


Figure 4. A Timeline of transaction volume and price of Litecoin during the Walmart Hoax by 5 minute interval.

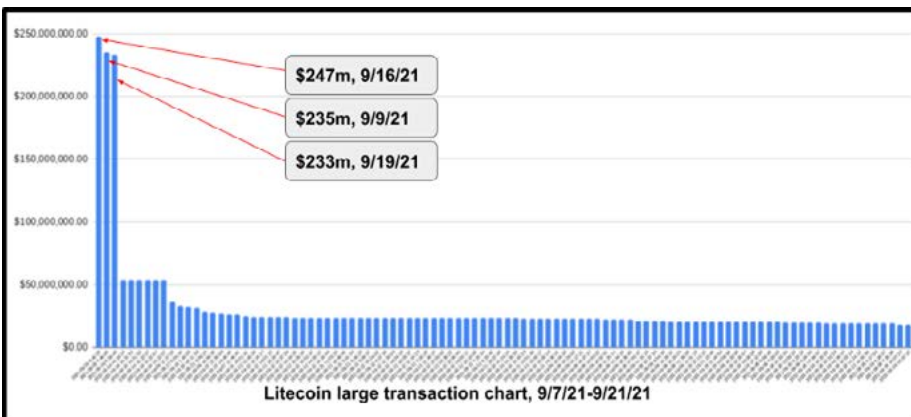


Figure 5. A rank ordered distribution of top on-chain transactions by volume during the 12 day period centered on the Walmart hoax event. Sizeable, anomalous movements both preceded and followed the event on the blockchain.

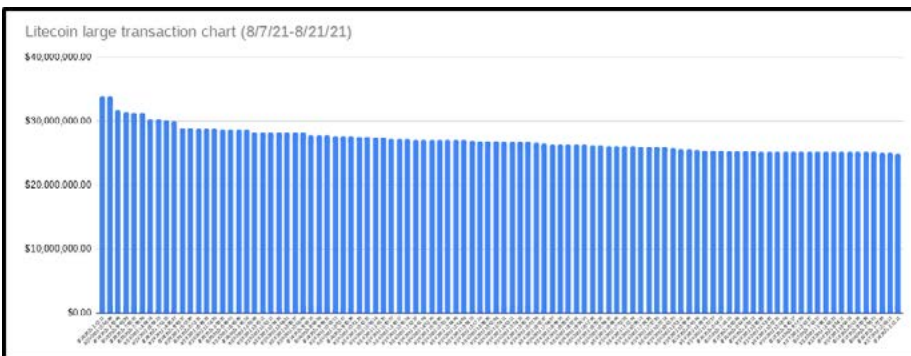


Figure 6. A representative rank ordered distribution of top on-chain transactions by volume during a 12 day period one month prior to the Walmart hoax event.

Contributions to the work are largely on a volunteer basis (typically funded by donations and bounties), and membership is very transitory (a model consistent with most open source projects even outside the realm of blockchain). It would be trivially easy for a casual community member to credibly claim to speak for Litecoin under the frameworks most media and PR wire organizations vet contributions.

Evidently, fake news can act as a key driver of “pump-and-dump” schemes and other manipulative behavior in the capital markets. While “pump-and-dump” schemes are illegal in the stock market, similar schemes taking place in the cryptocurrency markets still fall into a legal gray area, exhibiting a major risk for investors.

Market Nihilism, Meme Stocks and Apes, A Quantitative, Econometric Analysis of the Influence of Web Communities on the Value of Speculative Assets

Crypto-enthusiast and stock/investment Web communities, particularly on Reddit, have arrived as a substantial market force in the past 2 years. These communities are characterized by shared memes and common, in-group and often coded language as well as a communal David-vs-Goliath mythology seeking revenge against financial elites, especially hedge funds (“hedgies”). The communities employ narratives that orient collective investment behaviors to alter the value of specific stocks or crypto assets, often without regard to underlying value; a condition tech and media entrepreneur Demetri Kofinas terms “Market Nihilism”. Meme-culture refers to the stocks purchased by these communities jokingly as “stonks”.

The Gamestop (GME) saga emerged as a canonical example of the impact of meme-investors on stock values. A number of hedge funds had taken short positions (bets that a stock price will sink) on Gamestop, a video game rental chain, in early 2021.

Initially, r/Wallstreetbets on reddit and others took positions against these shorts on the basis that underlying value was being discounted. but what began as a counter argument on value soon exploded into the first “short squeeze” ever orchestrated by a Web community. Fueled by media hype, meme campaigns, and promotion by Elon Musk, GME stock would rise in the coming months by over 1000%, forcing the short sellers to close their options at a significant loss and the growth of numerous subreddits for both crypto and stonk enthusiasts would explode in popularity.

In response, Robinhood and other trading platforms halted the sale of GME, ultimately forcing lawmakers on both sides of the aisle to weigh-in, which would pressure the platform to re-allow meme-investors to resume activity. Large communities such as r/AMC and r/GME both sprung to life around this time with floods of new members. Notably, r/wallstreetbets reached it’s steepest growth rate in its history the day that Robinhood shut down the meme investors, suggesting that censorship may have served to bolster the popularity of the meme-investment communities.

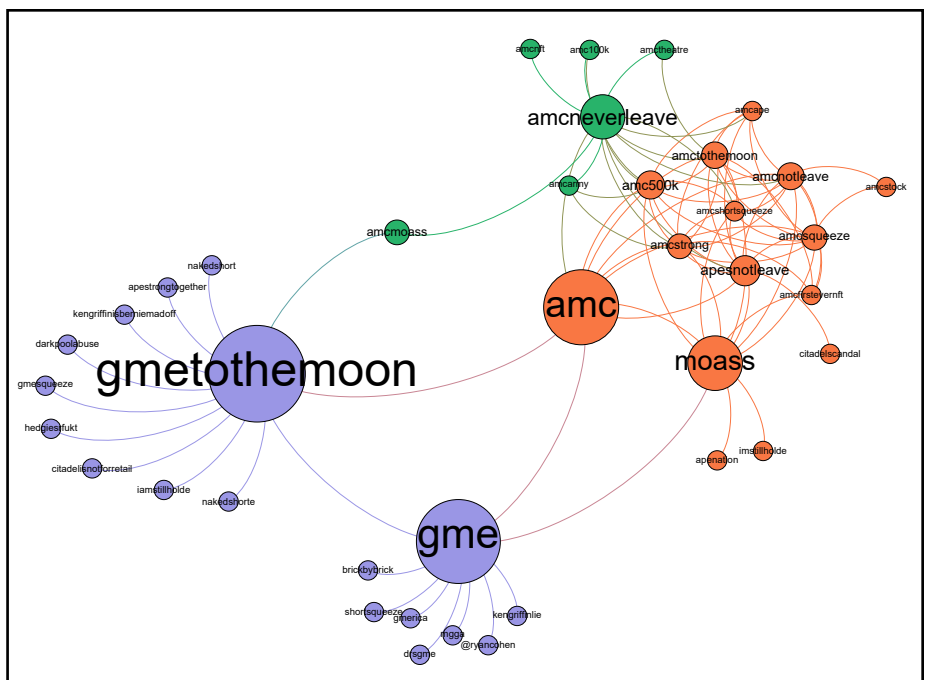


Figure 7. A topic network taken from 230 thousand comments on Twitter from between Nov 27th - Dec 20th 2021, shows connectivity on stonks such AMC and GME along with coded meme language on apes, rockets, moons and other coded terms. The network demonstrates anti-elitist narratives of studied financial control and manipulation such as “hedgie”, “darkpoolabuse” and accusations of fraud by Ken Griffin while portraying the meme community as a romantic counterforce and resistance.

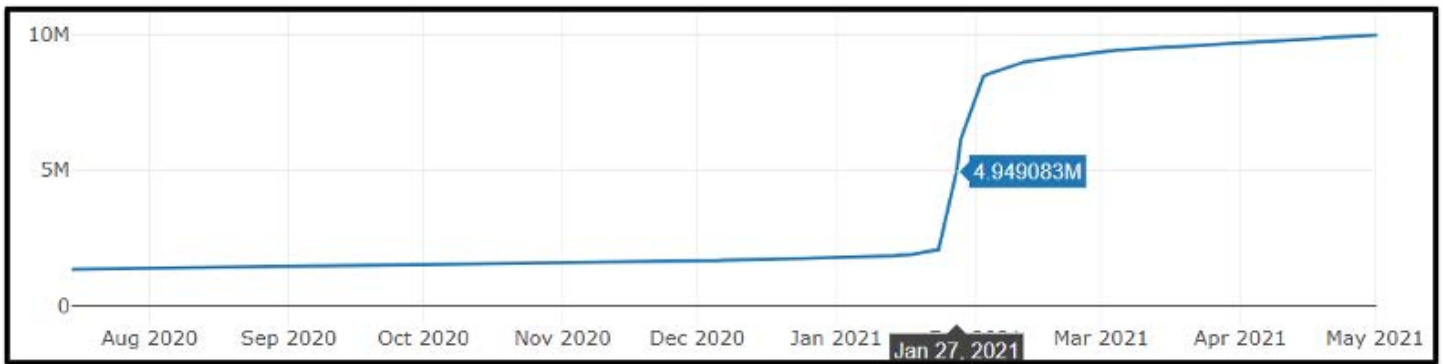


Figure 8. A chart from subreddit stats, using NCRI's Pushshift data, shows a timeline of new memberships for r/wallstreetbets with a transform in growth centered over January 27th, the day of the Robinhood deplatforming event.

To probe further NCRI conducted analysis which further suggests that the response of this pushback from large platforms served to energize the anti-elitist sentiment, institutional distrust and overall activity of the meme-communities. It elicited the growth of conspiracies as the communities protested and they disseminated large volumes of in-group hashtags, often containing emojis, following the event.

Notably this describes a pattern which has played itself out along these lines repeatedly in previous NCRI analysis: *Poorly conducted attempts to suppress or censor loose popular movements aligned with meme communities can often backfire to forge them into more*

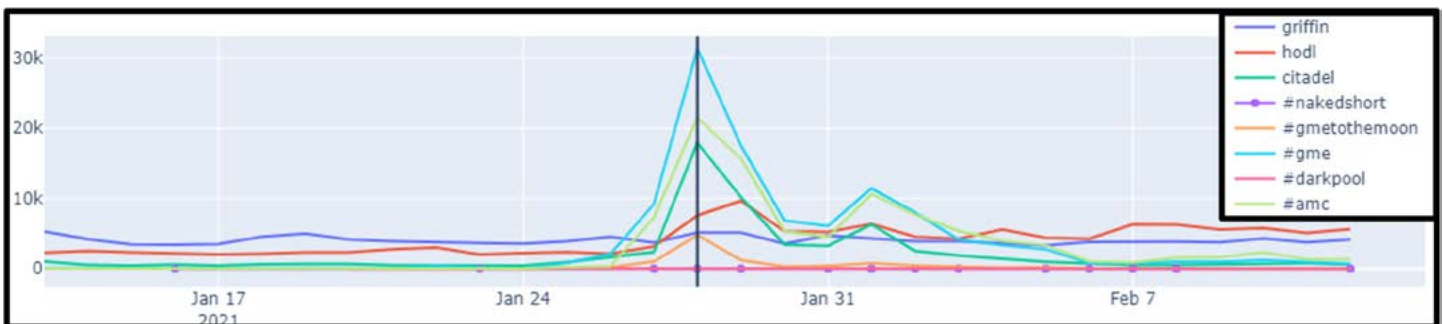


Figure 9. A timeline analysis of select terms/hashtags related to memestocks on Twitter around the time of the robinhood deplatforming event (black line).

coherent, polarized and resilient entities.

Given the putative impact of these communities on both stocks and cryptocurrencies, NCRI developed econometric analyses over numerous subreddits using granger causality, a statistical method that models the directionality of signal precedence, as contrasted with simple correlation, in a time series. Modeling both trade volume and price, NCRI examined whether daily comments pertaining to a financial asset on prominent subreddits would display precedence on the price or volume of Bitcoin, Doge, Ethereum and AMC stock. Because insider language or



such as the following:

NCRI separated meme-emoji comments from normal chatter to examine whether pronounced differences might exist. NCRI developed Granger models⁴ to determine how asset price might influence comment activity on the subreddits as well.

The analysis shows that in key communities both normal comments and emoji-meme comments predict upstream changes in both the volume and price of underlying assets and vice versa. Interestingly, the data suggests that the asset most "influenced" by online chatter within the analyzed set across communities is Dogecoin, a coin most strongly associated with meme-culture and seen by the crypto

community as the reference architecture for meme-coins. The coin's value, even as enthusiasts such as Mark Cuban and others argue, comes partially from having "no intrinsic value". In fact, Doge coin, like many movements, began as an implausible joke⁵.

In keeping with the meme-like nature of the coin, r/dogecoin, the premier DOGE enthusiast subreddit, appears to be the community most reactive with emoji-meme language to changes in volume and price of all the coins and stocks that NCRI measured (Figure 10).

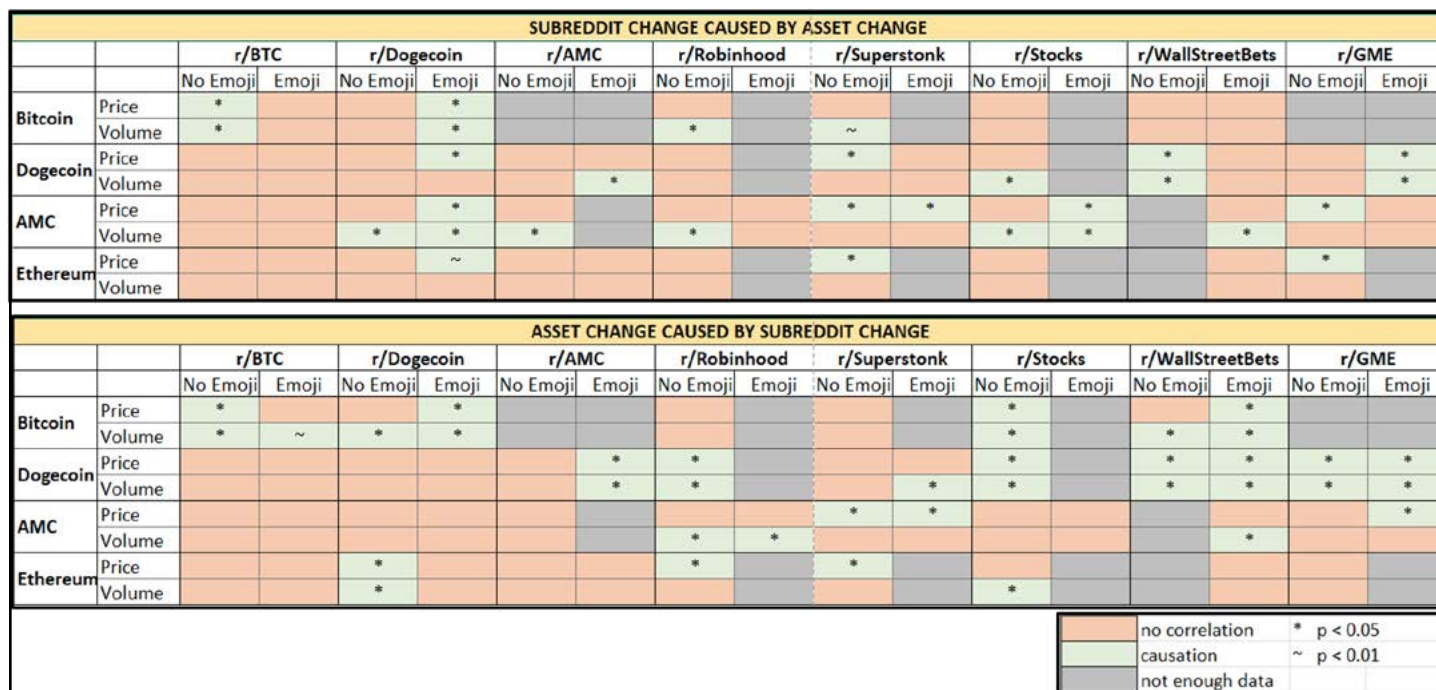


Figure 10. Top: A granger causality matrix shows when the price or volume of an asset (Y-axis) granger causes changes on chatter in select subreddits (X-axis). Bottom: an inverse granger analysis on how subreddit chatter granger causes asset price or volume change. r/Doge appears to be the most "reactive" community to price and volume change, particularly with emoji-meme responses.

Indeed, analysis showed that this community showed the highest volume and ratio of in group meme-emoji signaling in the sample by far. These parameters make DOGE an optimal platform for high impact coordinated authentic and inauthentic activity and meme campaigns. NCRI therefore sought to identify and examine potential meme campaigns focusing on DOGE to better understand the underlying dynamics and interactivity between influential Web communities, amplification of memes, and underlying asset volume/price. An analysis of Reddit found that in spite of its relative weakness compared to bitcoin, DOGE shows unusual levels of amplification especially. In the 3 month period starting from the end of January in 2021 DOGE was the most mentioned coin on Reddit by nearly an order of Magnitude.

Notably, this surge of activity began with an anomalous spike of DOGE related chatter and immediately following this by 3 hours, a tweet by Elon Musk (Figure 11) on Twitter promoting Dogecoin.⁶ Prior to this tweet, seemingly coordinated authentic activity spearheaded in the r/Dogecoin community aimed to create a singular moment where members of the community would make a market

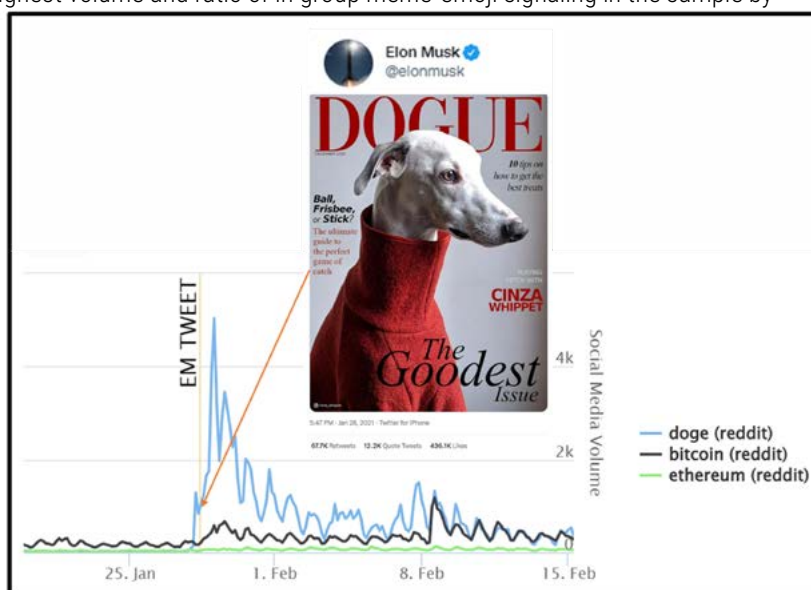


Figure 11. A campaign was launched on r/dogecoin January 8th followed by a tweet from Elon Musk supporting dogecoin (indicated by the yellow arrow). Crypto price, chatter, and volume surge after this event.

buy of dogecoin, and it was this coordinated event that Musk was perceived to be supporting.

During the raid and subsequent to Musk's tweet on January 28th, the dogecoin market capitalization surged to \$6.9 billion, up about 86%.

This and subsequent tweets from Musk in February show a clear pattern of interactivity previously absent from Musk's Tweets about Doge and other crypto assets. The significant movement in price of Doge, coupled with a pre-existing, motivated amplification network provided a catalytic recipe for a feedback cycle that appears to emerge with the combination of these factors. Indeed, Throughout the month of February in 2021, Musk's tweets and the surrounding social media activity correlated with price surges and high transaction volumes.

Analysis (Figure 12) shows that Elon Musk's tweets referencing Doge were preceded by sudden transaction volume changes in dogecoin trading and steep reversals in volume of transactions. Rapid sell-off events are also evident following his tweets in Dogecoin exchange data. To be clear, NCRI has no evidence that Elon Musk himself is using a system to "pump and dump" doge; indeed, the risk of engaging in such conduct for someone so prominent would be prohibitively irrational. But the coincidence of trading both prior and subsequent to social media messaging suggests that a network of activist and namecoin investors are engaged in speculation and saturating markets

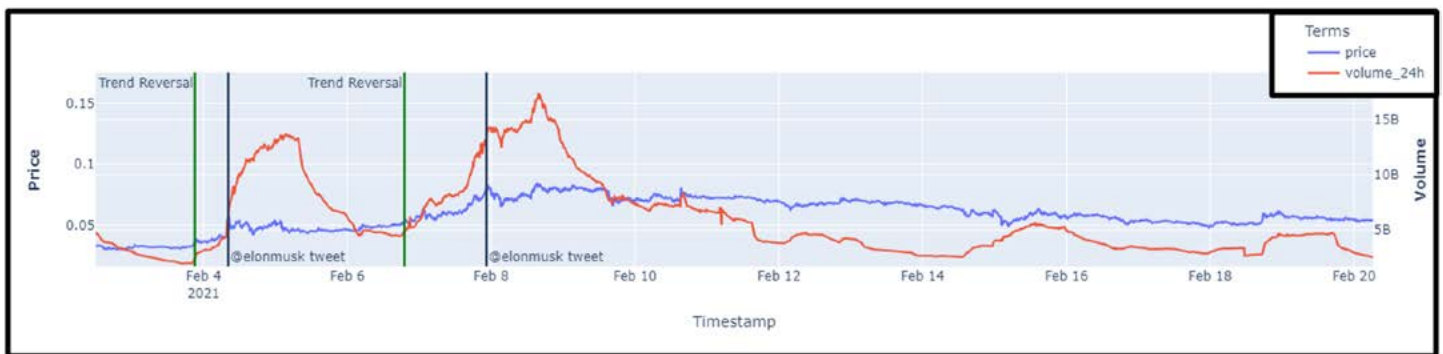


Figure 12. Volume of doge transactions show reversals (green vertical lines) shortly before tweets from Elon Musk (black vertical lines) related to dogecoin in early 2021.

with propaganda, which can undermine market information, trust and integrity.

Distributed Autonomy: How Blockchain Collectives Struggle with Elite Financial Forces and Governments to Seize Symbolic Power Using Memes

A recurring theme in the realm of cryptocurrencies and blockchain is the harder the state and elite financial forces suppress or censor crypto and other Web 3.0 technologies, the more adaptive and resistant to suppression they become. Examples of this pattern range from the response of Bitcoin mining networks resisting censorship by authoritarian regimes to DAOs turning the hostile suppression of traditional financiers into marketing campaigns. From the freedom convoy in Canada, to the Russian invasion of Ukraine, Web 3.0 technology is now permitting the crowds to organize and directly intervene as cohesive forces in geopolitics.

China:

China and other regimes that have outlawed Bitcoin mining and trading, the technology has proven resistant to censorship and shows evidence of anti-fragility. When China banned crypto mining in late 2021, the mining hashrate fell dramatically, but the price of the underlying asset was relatively unaffected (Figure 13). No serious attempts to make seizures of the underlying crypto assets were made, largely because the nature of the technology foils government control of self-custodied cryptocurrency (and in fact Huobi, one of the largest

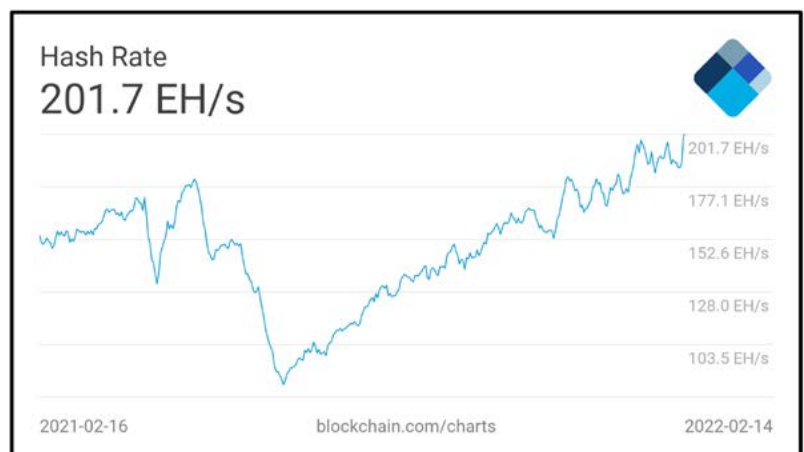


Figure 13. Hash rates for bitcoin show steep decline and consistent recovery following censorship in China, suggesting the resilience of the hash rate internationally to crackdowns.

bitcoin mining pools and exchanges, continues to be headquartered in Hong Kong).

The hashrate dropped precipitously, but very quickly recovered⁷ as miners were sent to other places where there was no ban in place. According to reports, the biggest beneficiaries of China's ban on bitcoin mining were Texas⁸ and Kazakhstan⁹.

DAOs:

As in the case of meme-stocks, when traditional financiers have turned against new Web 3.0 communities such as DAOs, acts of suppression become ideal marketing opportunities. Ken Griffin is the CEO of Citadel Finance¹⁰, and has had an ongoing feud¹¹ with the retail activist and crypto investor contingent ever since the negative press his firm suffered over the Gamestop and AMC short squeeze debacles in January of 2021. When a group of crypto investors came together in late 2021¹² to buy the last remaining copy of the US Constitution in private collector hands (with the intention of placing it into the Smithsonian), Ken Griffin drove up the price during auction to many times the expected value, purchased the artifact and then loaned it to a small free museum in Arkansas.

The mechanism these crypto investors utilized to make this bid for the Constitution is called a DAO (a Decentralized Autonomous Organization). A DAO operates as a crowdfunding tool that facilitates transactions trustlessly between stakeholders that at most times are anonymous, even to each other. It's an old concept to the world of cryptocurrency (dating back to 2007 in thought leadership by cypherpunk Danial Larimer¹³), but one that has rapidly become a key innovation area for activism, blockchain and finance.

In the case of ConstitutionDAO, which raised over \$40 million for their cause, the unilateral rebuke from Griffin energized the community and raised the DAO's token to "memecoin" status¹⁴, minting a host of new millionaires and crypto-rich in the process. It was the reactionary approach from Griffin that propelled the narrative within the in-group of the DAO, and created a cohesive culture for them to continue to exist and thrive.

Constitution DAO did not win the auction, but was transformed into a movement when their foil made them feel like martyrs (Figure 14). This fueled the community with passion, and created an attractive target for financial speculators. In fact, though initially oriented toward constitutional idealism, notable trends of financially motivated raid behaviors began to emerge in private discord chat servers by DAO members, a trend specifically intercepted by the DAO's legal counsel (Appendix Image 1). This shows how the interest of financial speculators can predominate ethical concerns and determine behaviors of even well-intentioned DAO operations.

This pattern was then refined and emulated by FreeRossDAO, AssangeDAO and Honk Honk HODL, whose combined raises totaled well

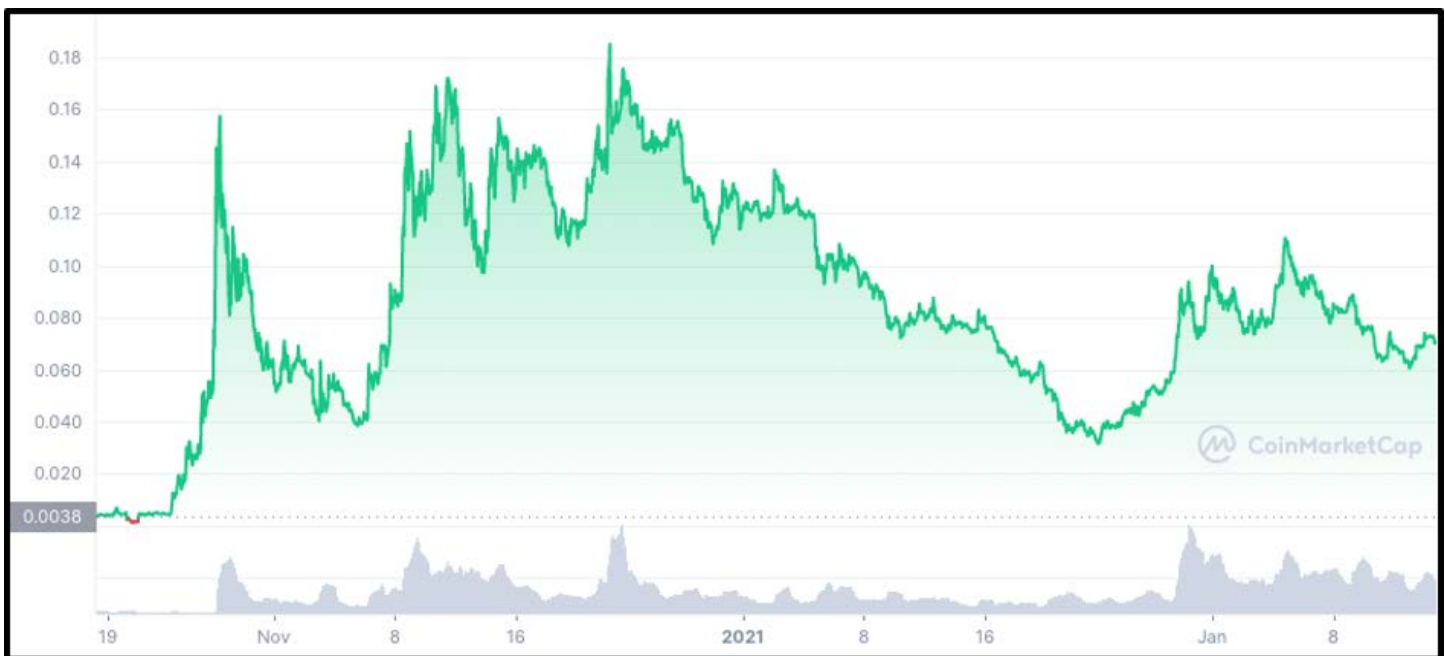


Figure 14. Ken Griffin purchased a historical copy of the constitution to undermine efforts of the constitution DAO community on November 19th (small red strip). Prices of the community token surge after the incident.

north of \$100 million.

Social and Political Mobilizations:

Another recent notable instance showcasing the use of censorship-resistant financial technology was used, in a small manner, to impact the real-world conditions on the ground amid the HK protests.¹⁵ A report released February 8th, 2022 from Elliptic,¹⁶ outlined the use of cryptocurrency by Ukrainian NGOs and volunteer groups to crowdfund possible conflict with Russia. Several hundred thousand dollars worth of BTC have been donated to these groups while pleasrDAO with support from social influencers such as Pussy Riot and Dolly Parton, has launched a support fund for the defense of Ukraine.¹⁷ To many in the crypto space, this is a proof-of-concept opportunity to showcase the utility of cryptocurrency if and when traditional financial institutions deny service.

February 14th, around 10PM CST, Prime Minister Justin Trudeau and Deputy Prime Minister Chrystia Freeland announced that they'd invoked the federal Emergencies Act in an effort to address ongoing convoy protests that have affected border crossings and cities across the country.¹⁸

This announcement was the fulfillment of over a decade's worth of memes and messaging first set forth in one of cryptocurrency's foundational documents, the Crypto-Anarchist Manifesto, by Timothy C. May: *"The State will of course try to slow or halt the spread of this technology, citing national security concerns, use of the technology by drug dealers and tax evaders, and fears of societal disintegration."* May penned this 1988 on the same internet discussion group where Satoshi Nakamoto eventually published the Bitcoin white paper.¹⁹

Twitter bitcoin influencers advertised the censorship to speculators as a lucrative opportunity and the price of Bitcoin jumped around 2% in the moments around the response to the rumors of and subsequent confirmation of the news, and 6% on the day itself (Appendix Image 2).

Fundraisers for the Canada Freedom Convoy, with the support of major non-partisan crypto influencers and publications (like Bitcoin Magazine), quickly turned from centralized funding platforms to cryptocurrency in an effort to circumvent restrictions.

The accelerationist right has taken notice. On 4chan, threads of apocalyptic ideation, replete with antisemitic conspiracy supporting a #bankrun²⁰ spilled over across the Web in response to new mandates by the Trudeau administration to suppress political speech and cryptocurrency. On the far

left, a member of Anonymous,²¹ a self described "anarchic" and "hacktivist collective" started on 4chan, hacked into the crowdfunding site GiveSendGo and leaked the names of contributors to the Canadian trucker envoy.²² The hacktivist justified the vigilante action by arguing that those engaged were "doing some fascism and domestic extremism". The Canadian government then used the Anonymous list for enforcement actions to crack down on donors, freezing both crypto and bank assets of its own citizens. That states, in executing enforcement actions, rely on support from anarchic and vigilante fringe actors, suggests that such actors can now shape events with



great impact and degrees of freedom.

CONCLUSION

The Chinese Finger Trap: Distributed Autonomous Accelerationism

NCRI's findings demonstrate that a confluence of political actors and financial speculators, working in combination with a network of financial disinformation agents and communities based on memes, are in the process of replacing investment fundamentals with hype. An emerging language of financial memes and stunning new financial technologies have led the imagination of existing and new investors alike into a new unregulated, untested and poorly understood dimension of capitalism.

The findings describe a regular pattern which pairs fraudulent behaviors that new finance technologies facilitate with sensational disinformation that new social technologies multiply. Between the rampant fraud, sensationalism and revolutionary trappings, the explosive combination of social and financial technologies routinely short circuits the ability for dialog and often spurs government efforts towards financial and social censorship.



As financial disinformation actors become more adept in the use of these technologies, they set the stage for a tipping point in the form of potential civil confrontation. As civil confrontation becomes worse, tendencies, revolutionary trappings become full blown revolutions. As significant distress in financial markets set in, speculative alternatives in the form of cryptocurrencies become genuine contenders to replace dollars. As government suppression of these tools accelerates, a new vertical industry of marketing firms enjoy employment by opportunistic financial speculators who turn incidences of censorship into opportunities for advertisement.

Just as social media has eroded value in public dialog, it now takes aim at eroding value in financial markets, engendering both market nihilism and social outrage. This pattern expresses itself repeatedly, and can be seen in example by NCRI's social graph analysis analyzing responses to a February 17th tweet²³ by Elon Musk. In it, Musk sought to stoke controversy around the Canadian government's overreach in censoring bitcoin during the recent convoy by comparing Trudeau to Hitler while simultaneously mocking his budget. While Musk's tweet almost certainly mirrored identical memes circulated at the time, his prominence as a public figure sparked a cascade effect.

A circus ensued:

- Instead of valid discourse about government overreach, we have Musk's Hitler meme.
- Instead of deep investigative programs about the true value of crypto, we get influencers such as Matt Wallace (the host of the "Final Stand", a name that speaks volumes about the popular aggression of crypto's trajectory) hyping to a pool of fans.
- Instead of users speaking candidly with one another about bitcoin and its value, we are left with crypto enthusiasts using animal memes like apes and seals to opportunistically promote their favorite coins and stonks for personal gain.
- Instead of dealing with the revolutionary problems of extremism plaguing democracy, we get the spectacle of call-out-culture, as the Auschwitz memorial advocates with disapproval at the abuse of holocaust related trauma for humor. Lawmakers such as Casey Weinstein take the opportunity to take a high profile moral stand, a move that should serve him well with voters.

The crucial need for dialog about threats to democracy suffocates as nihilistic financiers and sensationalists dominate the conversation.

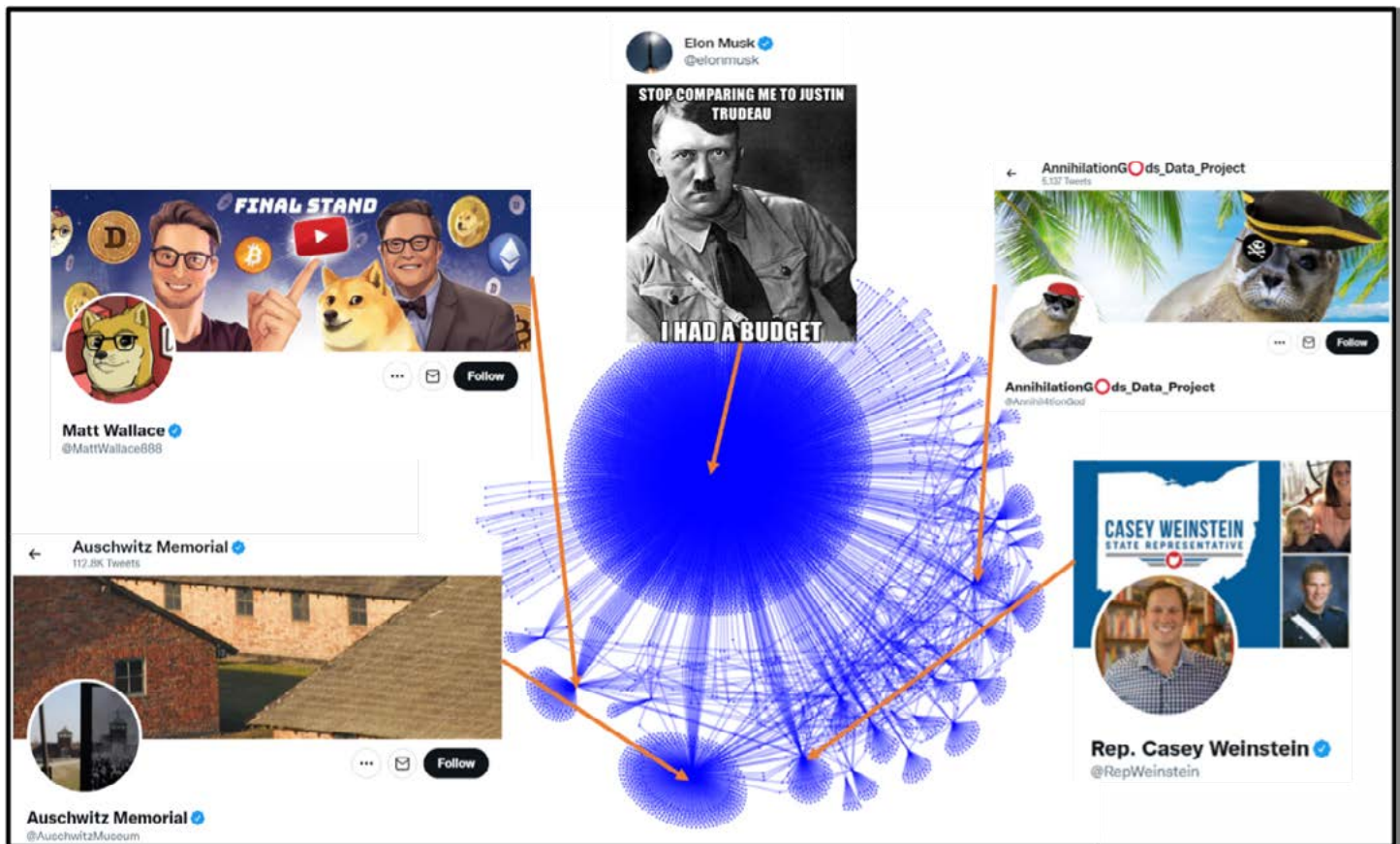


Figure 14. A retweet network²⁴ taken from Elon Musk's tweet comparing Trudeau to Hitler.

As they do, it becomes increasingly profitable to speculate on the incivility and hostility of the cycle.

At the same time: as neutral toolings often are, they are negatively subject to information diseconomy – A diseconomy of memes.

The widespread disinformation networks and narratives that manipulate many other pillars of society see their efforts monumentally amplified using these new financial, social and technological instruments. In this existing frame of censorship, we threaten to nurture a conflict between elite power brokers protecting inefficient systems and revolutionary vanguards supported by technological and financial opportunists.

These tools and the culture surrounding them will not simply dissipate or be quashed, and ethical and positive use-cases would suffer if they were. Data based observations show that the technology and ideology at their foundation demonstrate antifragility. Regulators and law enforcement (as well as the beneficiaries of traditional financial systems) who react in draconian ways find themselves repeatedly bound by a sort of Chinese finger trap, exacerbating the messaging they intended to quell, and accelerating the growth of their opposition.

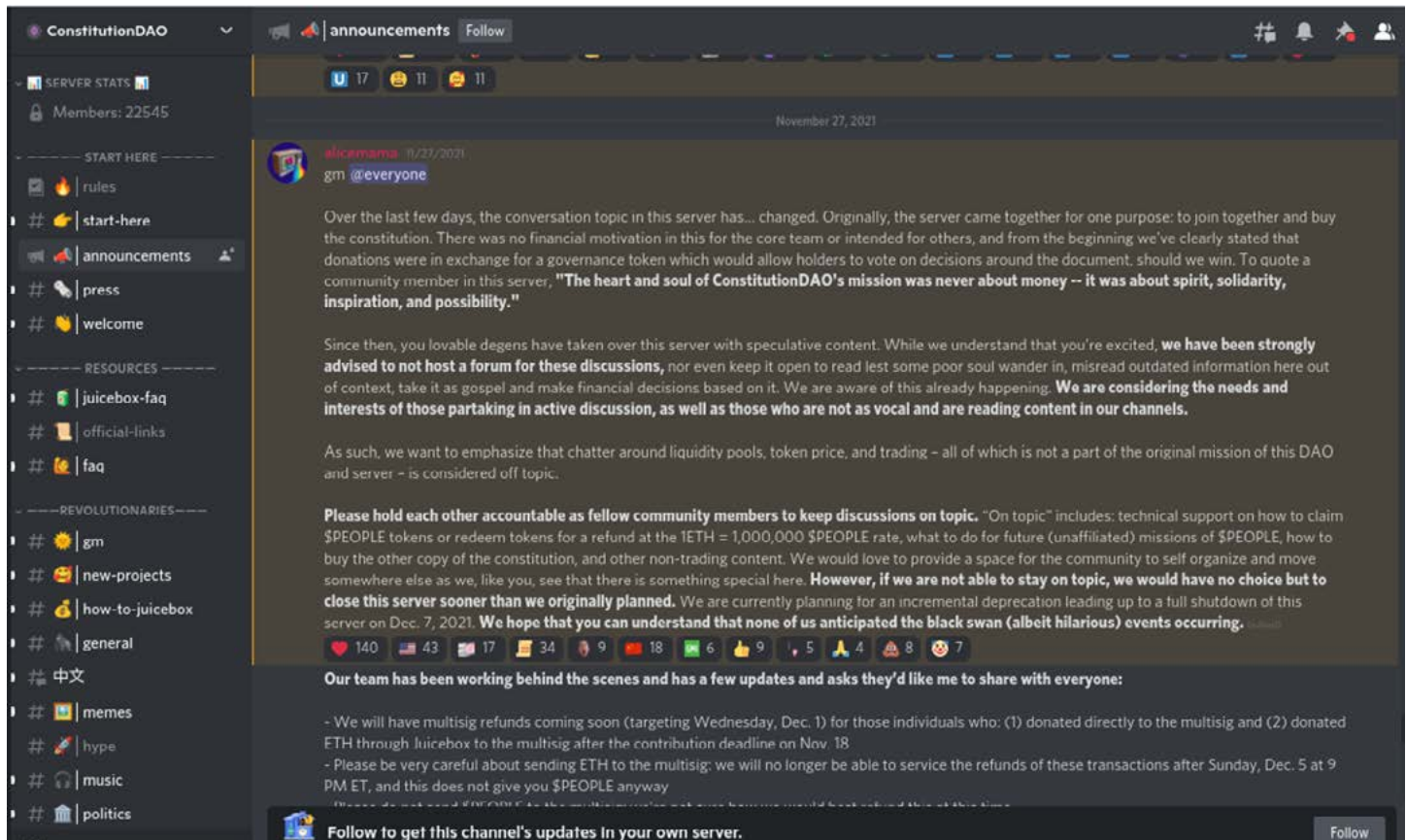


APPENDIX DATA

SUPPLEMENTARY INFORMATION FOR THE 2-HOP IRANIAN “SILVER” EGO NETWORK FOR SOME OF THE LARGER NODES MAPPED.		
@account	category	info
@cointelegraph	media	A well respected media publication with an interesting and nebulous operations and ownership structure.
@bitcoin	brand	The verified, semi-official Bitcoin account, run by anonymous bitcoin maximalists.
@apopmpliano	influencer	A well known twitter influencer loosely associated with the bitcoin maximalism tribe.
@peterschiff	influencer	A well-known bitcoin-hating goldbug tribe influencer.
@coingeek	media	A skill publication for the “extreme big blocker” tribe (aka, BSV).
@prestonpysh	influencer	An influencer In the general crypto tribe.
@danheld	influencer	A bitcoiner loosely associated with the crypto and bitcoin maximalist tribes.
@cointelegraph	media	A well respected media publication with an interesting and nebulous operations and ownership structure.
@bitcoin	brand	the verified, semi-official Bitcoin account, run by anonymous bitcoin maximalists.
@apopmpliano	influencer	A well known twitter influencer loosely associated with the bitcoin maximalism tribe.
@peterschiff	influencer	A well-known bitcoin-hating goldbug tribe influencer.
@binance	brand	Well known Asian-based centralized exchange with a strong reputation in and out of the cryptocurrency world.
@woonomic	influencer	A technical analyst in the crypto tribe.
@tron	brand	A blockchain founded in the ICO era, a Turing-Complete ETH competitor.
@erikvorhees	influencer	A cypherpunk and longtime member of the cryptocurrency community that founded decentralized exchange ShapeShift. Recently dissolved the company and formed a DAO to run it.
@jimcramer	media	Media personality influencer of that CNBC investing show fame.
@ft	media	Financial Times.

Appendix Table 1. A description of financial and asset enthusiasts/influencers targeted by Iranian trolls on Twitter for manipulating precious metals commodities.

On the Diseconomy of Memes: Stonks, Crypto and the Wager Against Democracy



Appendix Image 1. A screenshot of the attorney for constitution DAO warning of potentially problematic behaviors by the community.



Appendix Image 2. Bitcoin influencers promoted financial censorship of the Freedom Convoy in Canada as an investment opportunity (top), which rose in response to the speculation during the censorship (bottom).

FOOTNOTES

- ¹Bernales, A., Valenzuela, M., & Zer, I. (2021). Effects of Information Overload on Financial Market Returns: How Much Is Too Much?. Available at SSRN 3904916.
- ²From Twitter info operation data: <https://transparency.twitter.com/en/reports/information-operations.html>
- ³"NOTICE TO DISREGARD -- Walmart Inc." (<https://www.globenewswire.com/news-release/2021/09/13/2295959/0/en/NOTICE-TO-DISREGARD-Walmart-Inc.html>)
- ⁴See Methods
- ⁵Is Dogecoin having its moment? (<https://askdoctorbitcoin.substack.com/p/ask-doctor-bitcoin-is-dogecoin-having>)
- ⁶<https://twitter.com/elonmusk/status/1354924057825837060>
- ⁷Last year of Bitcoin hash rate, source Blockchain.com, public node network. (<https://drive.google.com/file/d/1-ldhCBjeBN0k9p4nepz9hr6DwJQZfBPZ/view?usp=sharing>).
- ⁸US leads Bitcoin mining as China ban takes effect (<https://www.bbc.com/news/technology-58896545>)
- ⁹Kazakhstan becomes world's second largest crypto miner after Chinese ban (<https://www.laprensalatina.com/kazakhstan-becomes-worlds-second-largest-crypto-miner-after-chinese-ban/>)
- ¹⁰Kenneth C. Griffin (https://en.wikipedia.org/wiki/Kenneth_C._Griffin).
- ¹¹Griffin Sees Crypto-Mania as 'Jihadist Call' Against Dollar (<https://www.bloomberg.com/news/articles/2021-10-04/griffin-sees-crypto-mania-as-jihadist-call-against-the-dollar>)
- ¹²ConstitutionDAO (<https://en.wikipedia.org/wiki/ConstitutionDAO>)
- ¹³The Advent Of Ownerless Businesses: Decentralised Autonomous Organisations (<http://www.ijstr.org/final-print/feb2020/The-Advent-Of-Ownerless-Businesses-Decentralised-Autonomous-Organisations.pdf>)
- ¹⁴CoinMarketCap \$People/ConstitutionDAO Market Data (1 Hour Resolution).
- ¹⁵Crypto's Connection to the Hong Kong Protests (<https://www.coindesk.com/markets/2019/06/17/cryptos-connection-to-the-hong-kong-protests/>)
- ¹⁶<https://www.elliptic.co/blog/ukrainians-turn-to-bitcoin-to-crowdfund-the-fight-against-russia>
- ¹⁷<https://decrypt.co/93787/pussy-riot-trippy-labs-pleasrdao-launch-ukraine-dao>
- ¹⁸PM Justin Trudeau speaks with reporters after invoking Emergencies Act – February 14, 2022 (<https://www.youtube.com/watch?v=pDQkyqxhPc&t=996s>).
- ¹⁹Bitcoin: A Peer-to-Peer Electronic Cash System (<https://bitcoin.org/bitcoin.pdf>)
- ²⁰<https://news.knowyourmeme.com/news/4chan-users-have-threatened-a-canada-bank-run-in-response-to-justin-trudeaus-emergencies-act-invocation>
- ²¹https://en.wikipedia.org/wiki/Aubrey_Cottle
- ²²"GiveSendGo Hacker Faces Death Threats for Leaking 'Freedom Convoy' Donor Info" <https://www.vice.com/en/article/g5q88w/givesendgo-hacker-aubrey-cottle-freedom-convoy>
- ²³<https://www.reuters.com/world/elon-musk-tweets-then-deletes-meme-comparing-trudeau-hitler-2022-02-17/>
- ²⁴We took Elon Musk's Twitter user name and his Hitler tweet as the center of the graph. We then found all the users who made a direct reply to Elon's tweet. These users were added to the graph as nodes, and their replies to Elon's tweet were added as connections between the user's node and the node representing Elon Musk. We then continued down the reply branches to find secondary users, who had replied to direct replies to Elon's tweet. If the secondary users were new, then they were added to the graph as nodes. The replies were added as connections between the secondary user's node and the direct user's node they were replying to.