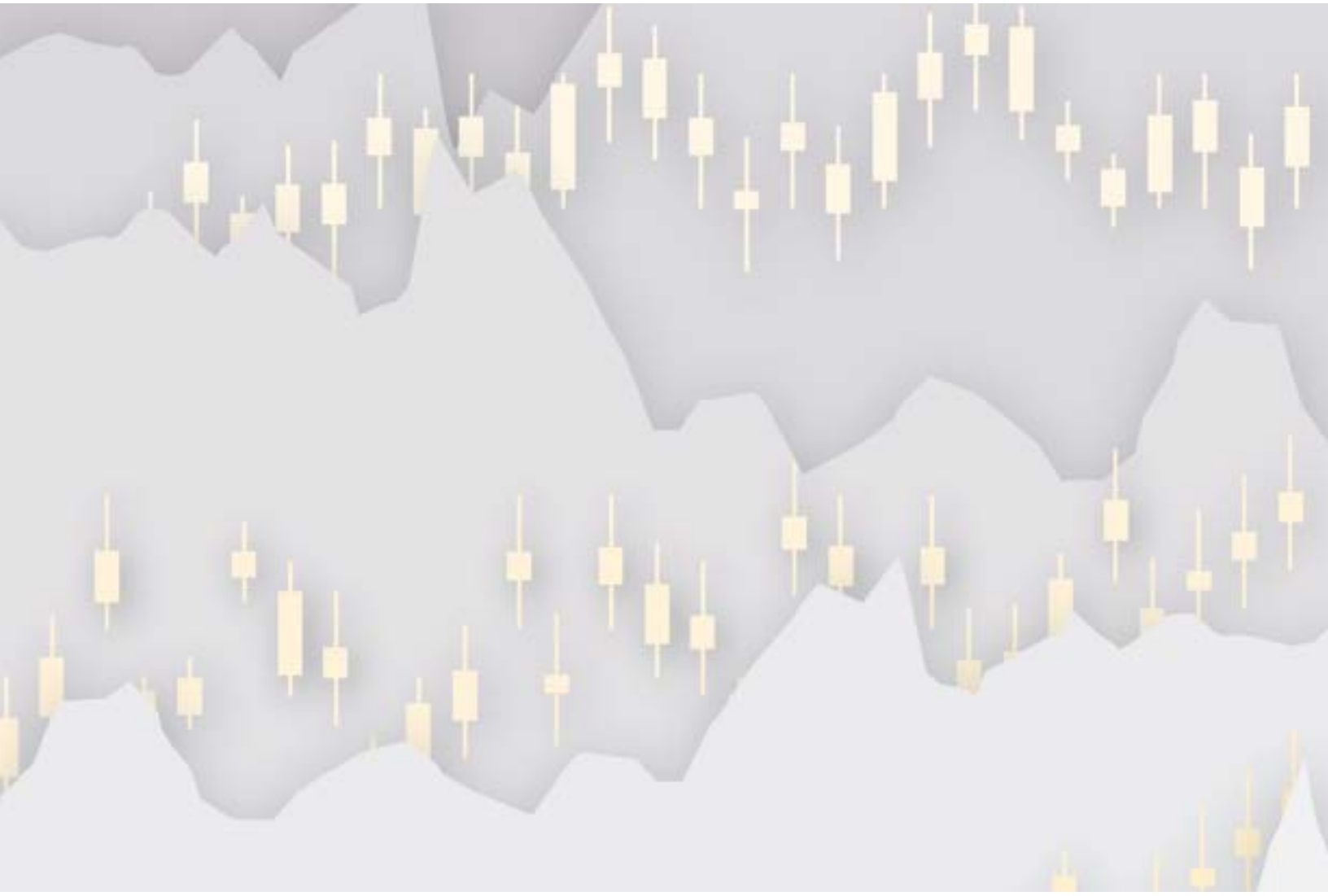
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IS BITCOIN A SAFE HAVEN?

By Galen Moore

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CONTENTS

Introduction **3**

Theory **4**

Data **5**

Correlation with traditional assets 5

Decoupling from other cryptocurrencies 8

Bitcoin dominance 10

Hodlwaves 11

First-time, unsophisticated buyers in troubled economies 12

Conclusions **13**

INTRODUCTION

Blockchain technology is vulnerable to the criticism that it is a solution in search of a problem. But more than any of the more than 2,000 other crypto assets out there[1], bitcoin has been searching for longer, and with more stakeholders interested in the outcome.

The result as of Q3 2019 is a clear narrative: bitcoin is "digital gold," or "gold 2.0." It imitates and improves upon gold's assurances of a limited supply: gold's supply increases as mining technology improves or more capital pours into the gold mining industry; bitcoin's supply schedule, encoded in its consensus algorithm, does not respond to changes in the amount invested in production. The same amount of bitcoin is issued whether 10 miners mine it, or 10,000. And of course, there is the vastly lower cost of storing and transporting bitcoin, compared to gold.

There's a problem with this narrative, however. Gold is accepted as a "safe haven": though it may be volatile, its price is expected to hold or even rise when everything else is going down. Bitcoin is still a high-risk bet. The value humanity places on gold goes back millennia, crisscrossing the globe through many cultures. Bitcoin is based on a new technology that many people have not heard of and most do not understand. Can bitcoin ever be a "risk-off" investment, drawing investors in times of flight to safety?

It is a good time to ask. Bitcoin's narrative has solidified, and most economists are predicting a 30 percent chance of a recession in the next 12 months.[2] If a recession occurs, will it prove bitcoin's worth as a safety investment? Or will bitcoin tumble along with global markets, as professional investors shed risk and companies and retail investors liquidate to pay expenses?

The answer is: it depends. In this paper, we'll go over some of the theory that has gone into predicting bitcoin's performance in a macro downturn. Then we'll demonstrate metrics that could become critical indicators. For updates to this paper and others in the same series, please visit: coindesk.com/intro-to-crypto-investment.

1 nomics.com: 2,260 actively traded crypto assets, retrieved July 29, 2019

2 "Economic Forecasting Survey," *The Wall Street Journal,* retrieved July 29, 2019

THEORY

As an alternative to forms of money that are issued by governments, and therefore subject to the depredations of politics and the vacillations of national economies, bitcoin has an inherent appeal to anyone who has a mistrust of government. It's possible to divine reasons for its adoption in specific geographies and demographics out of this thread.[3] Many crypto investors and theorists adopt this skepticism of government implicitly, and predict a coming global recession that will decimate the credibility of central banks and fiscal policy planners, in which bitcoin will take its place among other safe haven assets.[4]

Other investors take a less ideology-driven approach, considering what will happen to the capacity for risky investments among the holders of crypto assets, most of whom are probably retail investors,[5] when their circumstances are reduced by global recession.[6] This more practical approach informs a hybrid classification of bitcoin as being both a risk-on and a risk-off asset, or having some qualities of each. These analyses can be broken into three ways of splitting bitcoin's risk qualities and its safety qualities:

- **By time:** bitcoin is a risk-on asset now, but it will be a risk-off asset in the future. "Tomorrow, if we entered another global recession, the price of bitcoin would plummet," wrote venture investor Jill Carlson in October. "In 50 years, when we enter another global recession, the price of bitcoin will skyrocket."[7]
- **By geography:** "Interestingly then, we have #bitcoin satiating appetite for risk in the West and much of the world, while simultaneously serving as a risk-off hedge in China," wrote venture investor Chris Burniske in June.[8]
- **Both at the same time:** some analysts believe bitcoin responds well in volatility: "Bitcoin has a sort of barbell dynamic in that it tends to rally in risk-on tech rallies but also in big risk-off moves," wrote venture investor Spencer Bogart in 2017.[9]

3 Galen Moore and Noelle Acheson, "Crypto in Context: The Social and Technical Underpinnings of an Emerging Asset Category" *CoinDesk*, July 2019

4 Yuriy Anosov, "BTC and the Pending Corporate Credit Collapse," *Galois Capital blog,* July 16, 2019, retrieved July 29, 2019

5 Moore and Acheson, 2019

6 Nic Carter, tweet, June 6, 2018

7 Jill Carlson tweet, October 29, 2018

8 Chris Burniske tweet, June 15, 2019

9 Spencer Bogart tweet, June 22, 2017

DATA

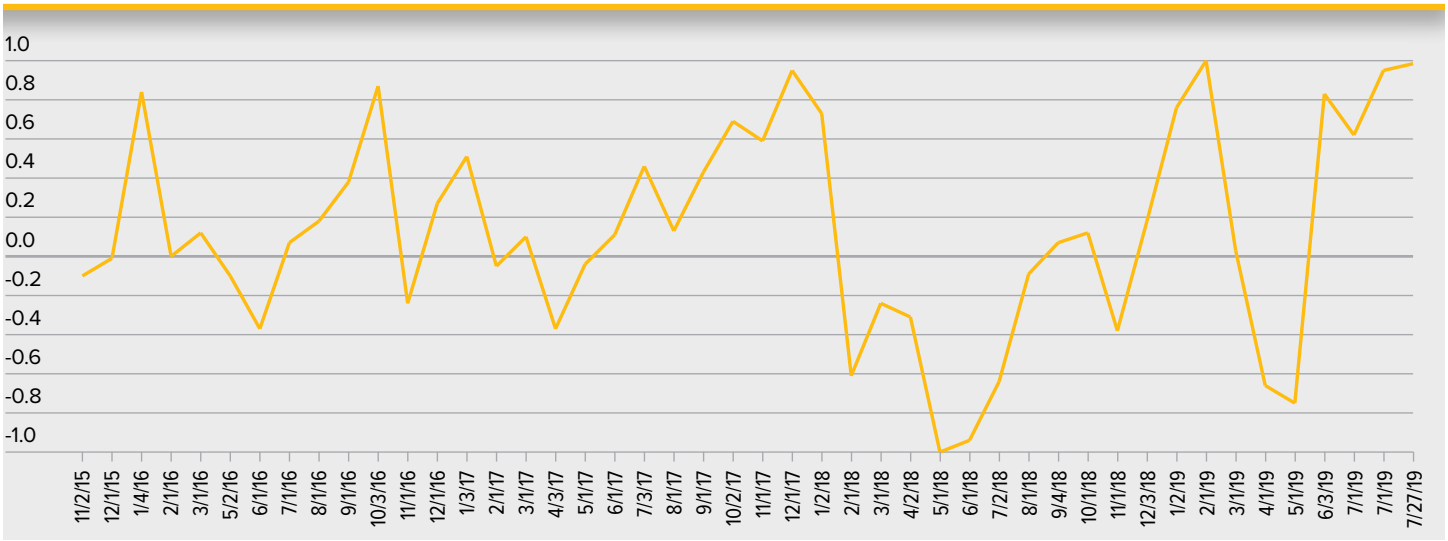
Let's now take a look at some data that could show how bitcoin is responding to macro factors that might drive investors toward risk or away from it. A simple caveat is needed, which is that bitcoin's implied market cap is today measured in the low hundreds of billions. Concerns about price manipulation abound, its volatility is an order of magnitude greater than traditional asset categories and a single large order can still move the price significantly. In other words, there is a lot of noise around any attempt to correlate bitcoin activity with macroeconomic data.

Still, a few metrics exist where bitcoin could show itself as an emerging safety asset.

Correlation with traditional assets

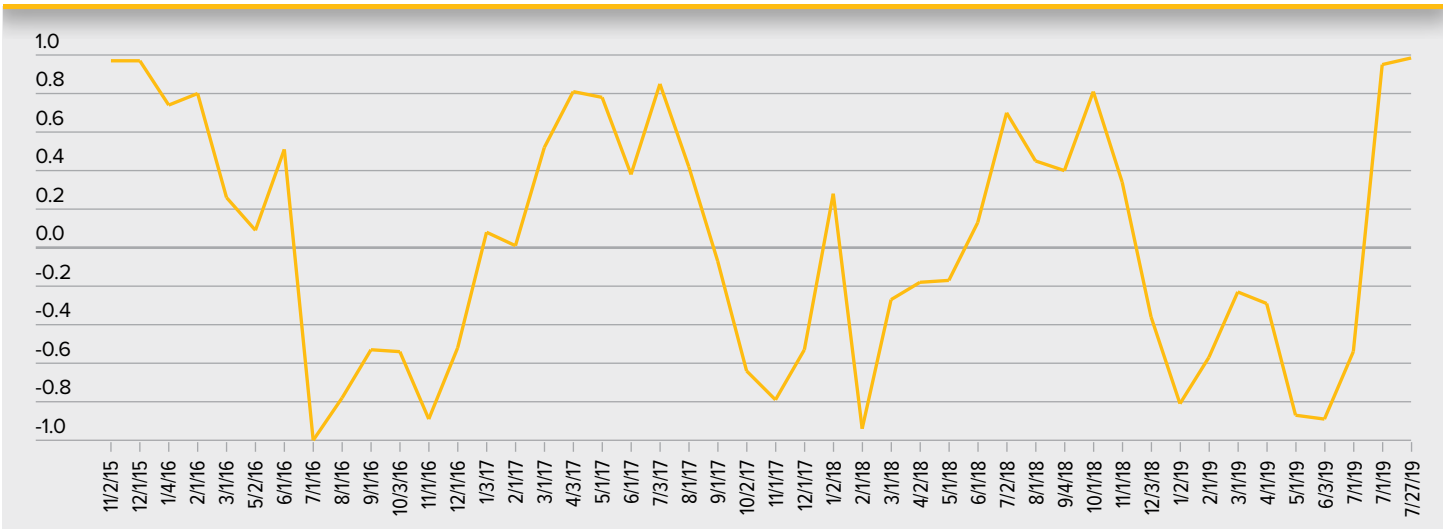
If bitcoin is becoming a haven investment, then it should start to show some correlation with assets that respond similarly. Some observers have noted that bitcoin's Q2 2019 rally coincided with rallies in traditional havens like gold, the yen and the Swiss franc. Coincidental rallies can make a good chart, but they are far from covariance. To test these theories, I pulled in bitcoin's month-over-month returns over the past four years, alongside month-over-month gold returns, the Cboe Volatility Index (VIX), the S&P 500 Index and the exchange rate to buy US dollars in Chinese yuan (USD/CNY). Using 30-day returns is intended to smooth out some of the daily volatility in bitcoin's price; the 90-day correlation is more jumpy than a 180-day correlation, but it provides a better view into what's happening right now, compared against historical data.

Figure 1. BTC-gold monthly returns, 90-day correlation



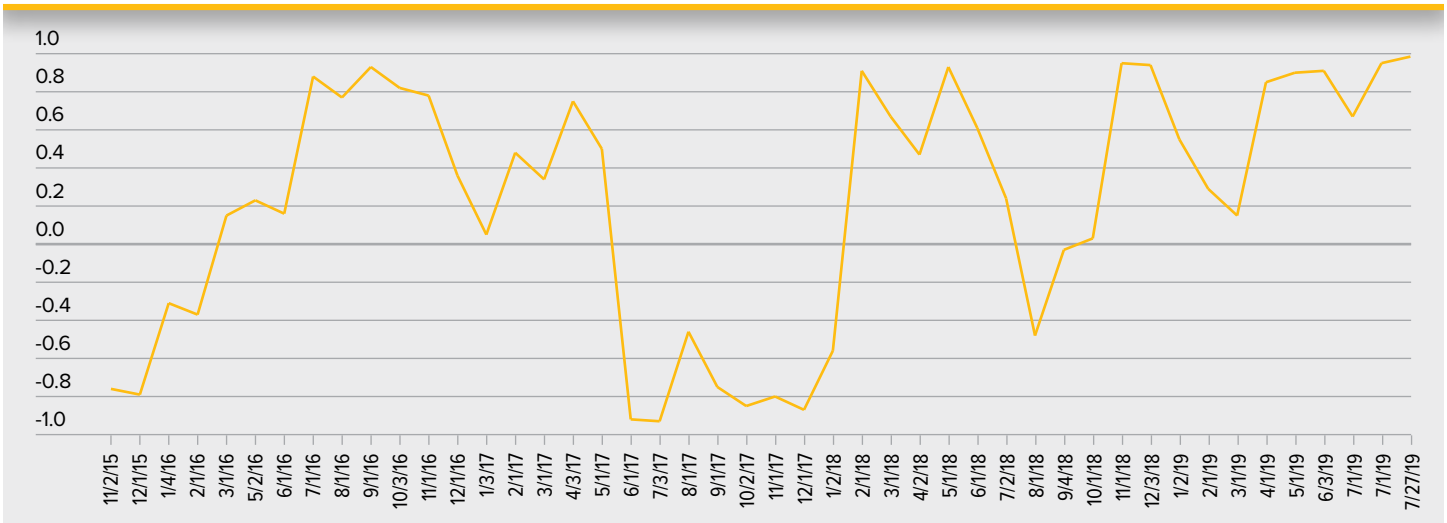
Source: Bloomberg, CoinDesk BPI

Figure 2. BTC-SNP monthly returns, 90-day correlation



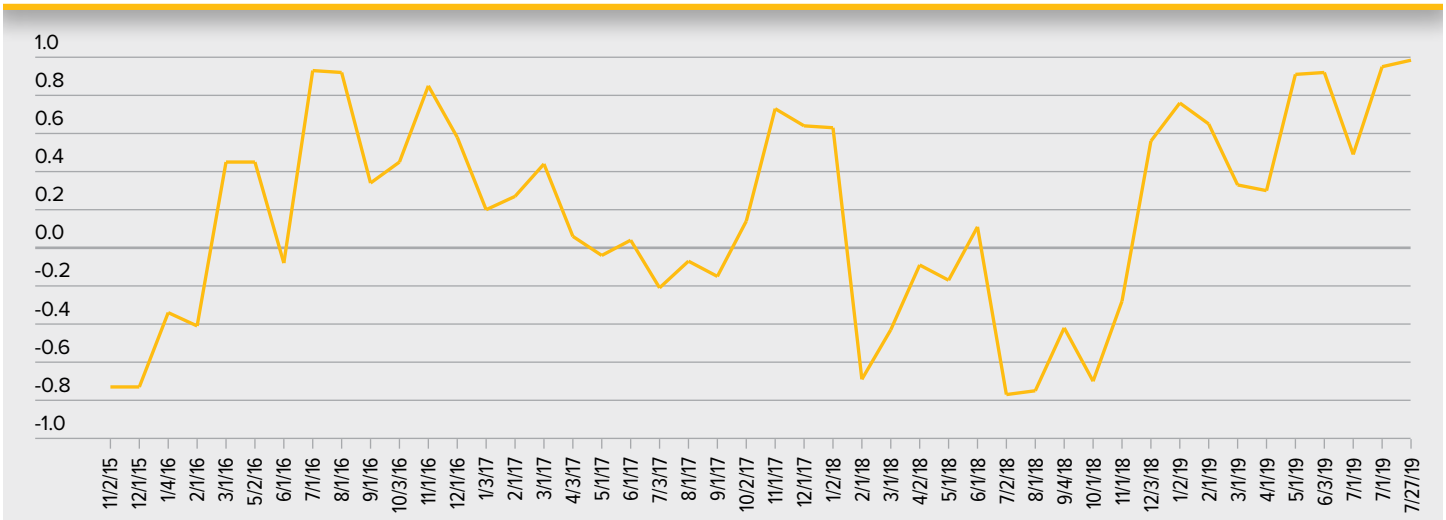
Source: Bloomberg, CoinDesk BPI

Figure 3. BTC-USD/CNY monthly returns, 90-day correlation



Source: Bloomberg, CoinDesk BPI

Figure 4. BTC-VIX monthly returns, 90-day correlation



Source: Bloomberg, CoinDesk BPI

The charts on the preceding pages underscore how those looking for macro indicators in crypto assets will have a frustrating search ahead of them. However, investors willing to read tea leaves may discern an uptick in the first half of 2019 in correlations between the bitcoin price and risk-off trades:

- **Gold:** Those intent on crowning bitcoin as gold 2.0 may find some encouraging data in four months of strong positive correlation between bitcoin and gold's 30-day returns. However, bitcoin's strongest rally, in May, was just as strong in its negative correlation with gold.
- **US stocks:** Bitcoin and U.S. stocks are both up this year, but correlations bounce between weak to strong negatives. Over the long-term, bitcoin returns have historically shown almost no correlation to U.S. equities.[10]
- **The Chinese yuan:** The chart measures correlation between bitcoin's price and the USD/CNY rate, i.e., how many yuan it costs to buy a dollar. Bitcoin has tended to show strong positive correlations with a weakening yuan, at all times except the 2017 bull market, when an explosion of ICOs brought hundreds of other crypto assets into the Chinese market.
- **The Volatility Index:** Known as the U.S. stock markets' "fear gauge," the VIX has been on a steady downward journey since the stock market selloff in Q4 2018. Its drop has coincided with a bitcoin rally, but month-over-month changes in the VIX have shown a steady positive correlation with changes in bitcoin prices. There's some evidence here that bitcoin prices go up with fear on Wall Street.

10 Moore and Acheson, 2019

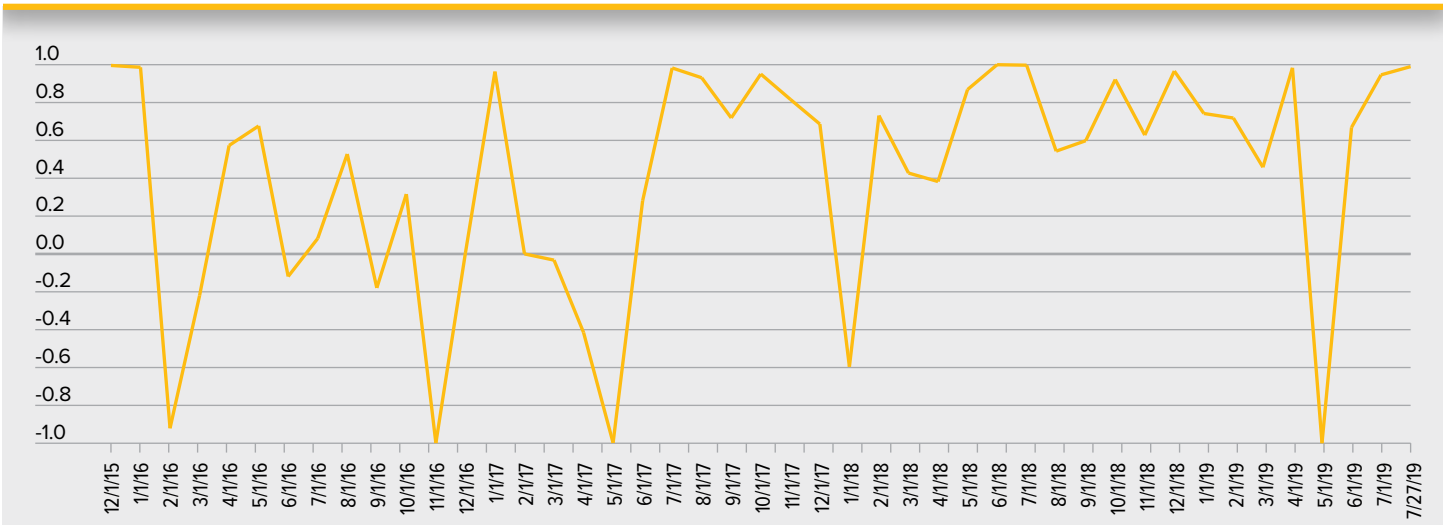
Decoupling from other cryptocurrencies

Data supporting bitcoin's correlation with traditional assets are far from conclusive. Another place to look is within the crypto asset category. Historically, bitcoin and other crypto assets have moved in tandem. If bitcoin is emerging as "digital gold," and investors are treating it as a safety asset, it should start to behave quite differently from newer, riskier coins that are more like venture capital bets on new networks and technology in information and finance.

To test that idea, I compared bitcoin against the top three "altcoins" – crypto assets that came after bitcoin, promising improvements or twists on the features and value proposition of the original crypto asset. I chose ethereum (ETH), ripple (XRP) and litecoin (LTC), which as of the end of July occupied the number two through four spots on a ranking of cryptocurrencies by implied market cap.[11] I used the same method as before: a 90-day (three-month) correlation of month-over-month returns taken on the first of each month. The charts below show while bitcoin pulled away during its May rally, it quickly returned to near-total, positive correlation with these assets. That spike away reflects a correlation pattern these assets have followed since the most recent of them, ethereum, was launched in Q2 2015.

Outside of repeated volatility spikes, bitcoin remains tightly coupled with a strong positive correlation to other crypto assets. If there's any evidence that investors are starting to treat it more like a haven, and less like a risky bet, that's not shown in these charts, where it still moves mostly in tandem with riskier, newer crypto assets.

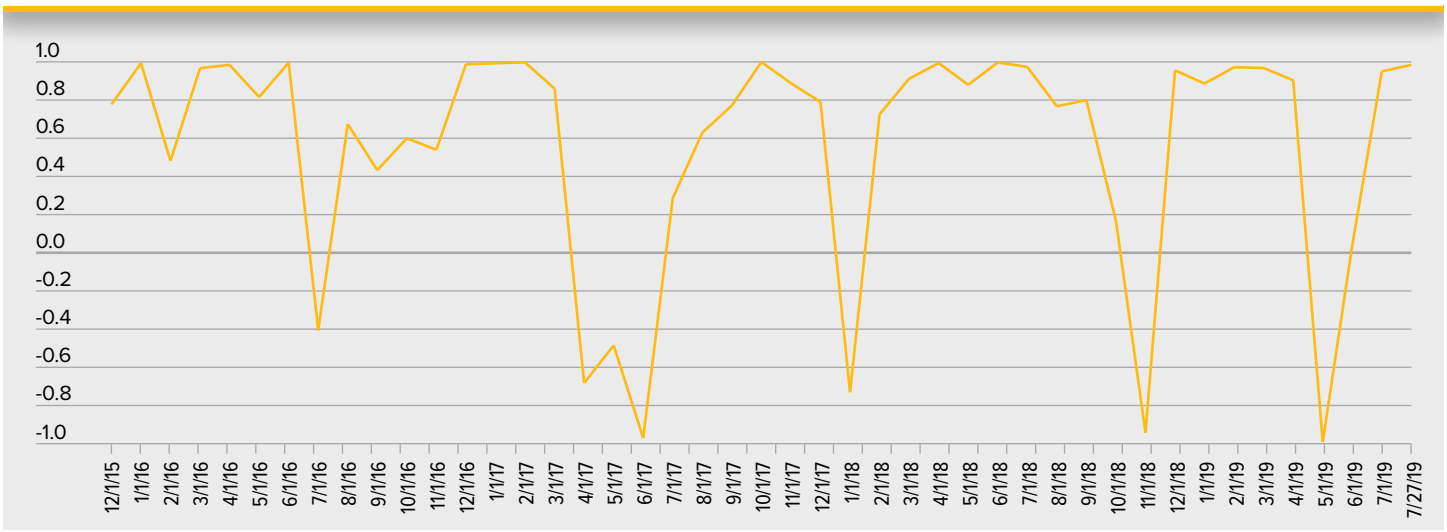
Figure 5. BTC vs. ETH monthly returns, 90-day correlation



Source: nomics.com, CoinDesk BPI

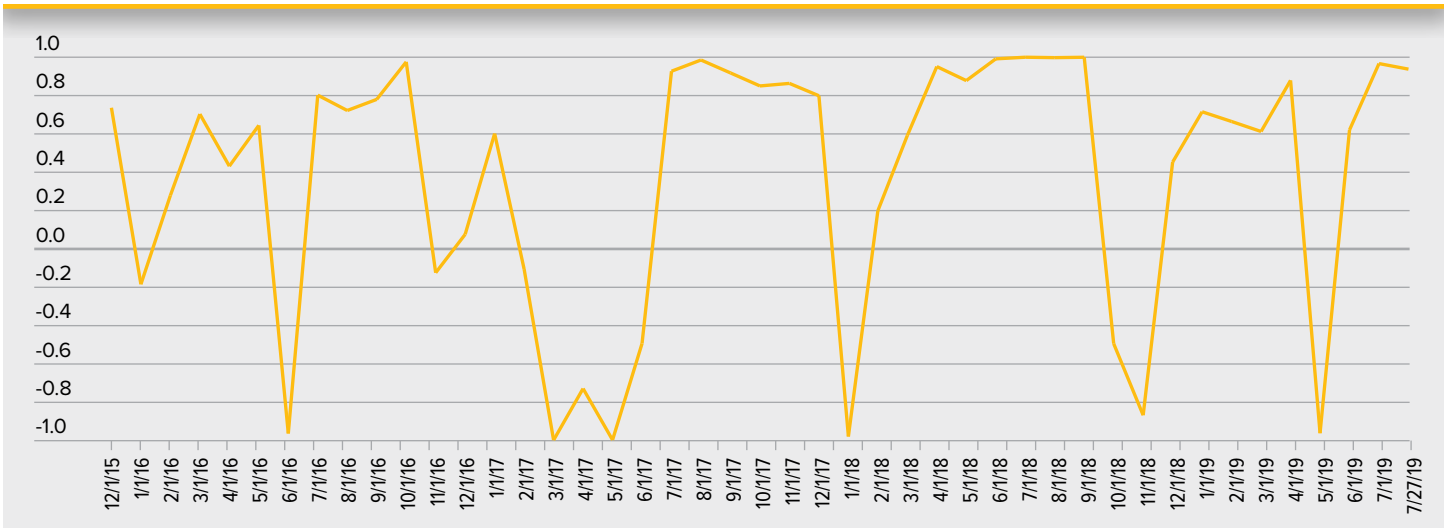
11 Source: nomics.com, retrieved July 28, 2019)

Figure 6. BTC vs. LTC monthly returns, 90-day correlation



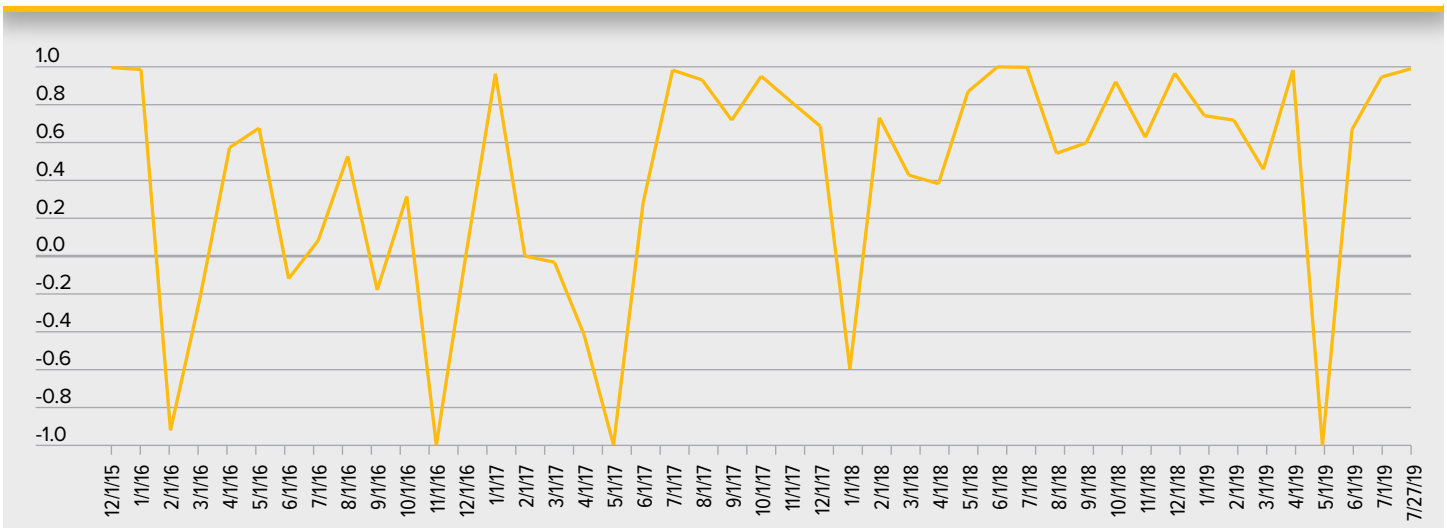
Source: nomics.com, CoinDesk BPI

Figure 7. BTC vs. XRP monthly returns, 90-day correlation



Source: nomics.com, CoinDesk BPI

Figure 8. BTC vs. ETH monthly returns, 90-day correlation

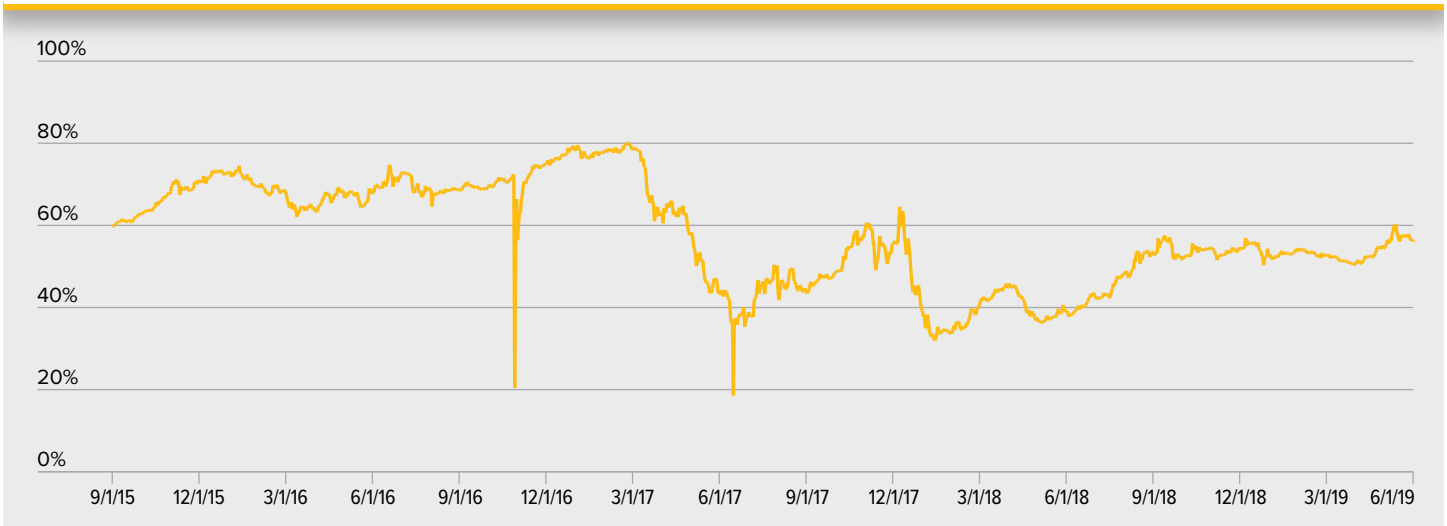


Source: nomics.com, CoinDesk BPI

Bitcoin dominance

A data point that is frequently discussed by crypto analysts is bitcoin dominance. This is the implied market cap of bitcoin as a percentage of the implied market cap of all crypto assets, combined. The chart below shows bitcoin's Q2 2019 run-up has brought bitcoin dominance to new 52-week highs. It still hasn't recovered the all-time high of 80.2 percent, reached in February 2017, just before the ICO market took off, taking ethereum on a run that brought it the closest it has ever been to surpassing bitcoin in implied market cap.

Figure 8. BTC Dominance



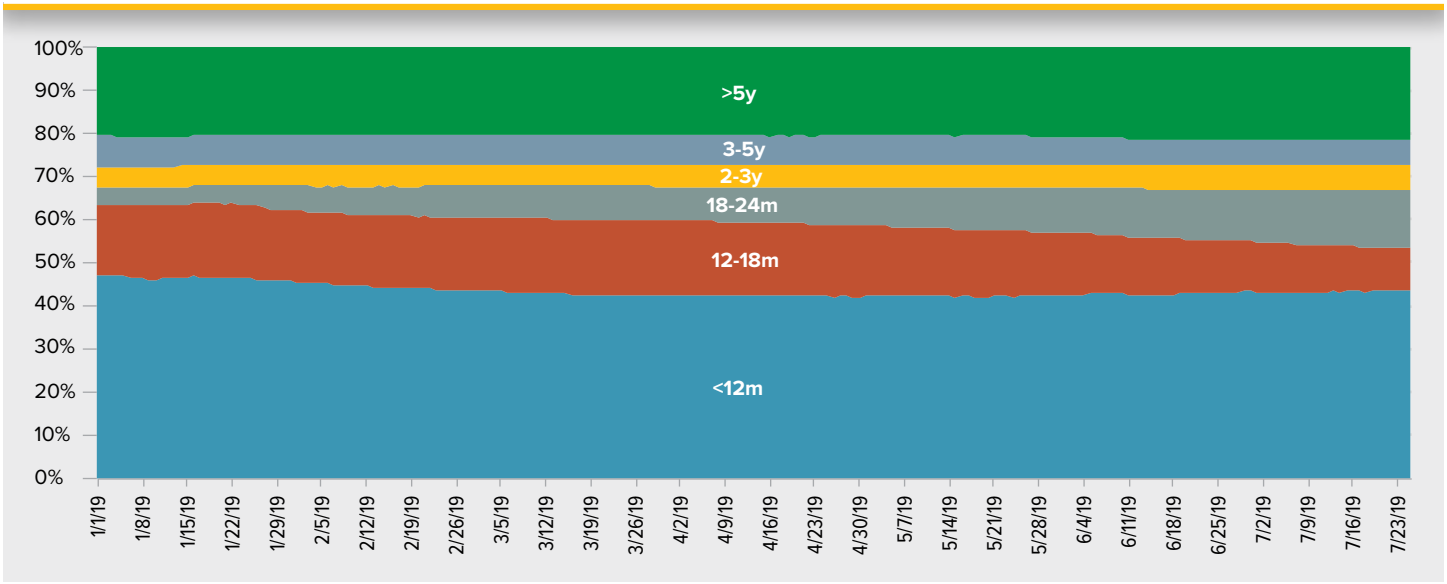
Source: nomics.com, CoinDesk BPI

Hodlwaves

A global macro downturn could test the determination of buy-and-hold investors. Crypto-focused funds that hold bitcoin may have difficulty raising new vehicles in a risk-off environment. Retail bitcoin holders who work in the tech sector may find their resolve tested in a macro downturn that affects their income by curtailing technology investment.

Bitcoin has some unique properties that make it possible to glean early signals as to the behavior of these buy-and-hold investors in bear and bull markets. Each bitcoin transaction record is time-stamped, making it possible to measure how long a specific bitcoin balance has been held. Investors at Unchained Capital, a crypto asset custody and lending firm, took this data and developed a metric called "hodlwaves," which measures the amount of bitcoin held for set bands of time. ("Hodl" is a play on "hold," a bit of typo humor that originates in online message boards.) To understand better the movements of investors through the bear market of 2018 and into the run-up of Q2 2019, here is a small slice of the hodlwaves data.[12]

Figure 9. Hodlwaves – bitcoin by length of time held, 2019 YTD



Source: Unchained Capital

Some things to look for in this chart:

- The blue band at the bottom of the chart is bitcoin balances held less than one year. It has held steady, beginning at 47%, dropping down to 42% mid-period and recovering to 44% at the end. It reflects balances that are moved, spent, transferred or traded on a frequent basis.
- The green band on the top of the chart is bitcoin balances that have not moved in more than five years. Most analysts assume the bulk of these bitcoins are lost or otherwise inaccessible.
- The most interesting part of this hodlwaves segment are the bands for bitcoin balances held 12 to 18 months and 18 to 24 months. At the left side of the chart, 12 to 18 months reflects holders who bought bitcoin in 2H 2017, during crypto assets' run-up to an all-time high. The decrease there (17% to 10%), and the corresponding increase (4% to 13%) in 18-to-24-month holdings, shows that many of those holders continued to hold through the Q2 run-up.

12 Dhruv Bansal, "Bitcoin Data Science (Pt. 1): Hodl Waves," Unchained Capital blog, April 17, 2018, retrieved July 29, 2019

First-time, unsophisticated buyers in troubled economies

It's important to acknowledge that not everyone sees the world or the dollar through the eyes of a tech employee in Silicon Valley. When threats of banking crises and domestic default become imminent, bitcoin presents a ready path around capital controls. Data from LocalBitcoins.com, a peer-to-peer fiat-to-bitcoin exchange, illuminates some of these tendencies.

LocalBitcoins.com is not a venue for traders or sophisticated bitcoin investors. Activity there likely reflects first-time or near-first-time buying by individuals who are new to bitcoin. The table below is a list of countries that experienced all-time peaks in LocalBitcoins activity during the fourth quarter of 2018, a time when people elsewhere were talking about a "bitcoin mining death spiral."[13]

Currency	Country	USD Equivalent
VES	Venezuela	$81,233,016
COP	Colombia	$31,818,469
PEN	Panama	$11,308,442
CLP	Chile	$3,004,438
BYN	Belarus	$2,697,421
ARS	Argentina	$2,477,795
KZT	Kazakhstan	$880,096
EGP	Egypt	$331,829
JPY	Japan	$200,097
KWD	Kuwait	$196,014

Source: Matt Ahlborg, "Nuanced Analysis of LocalBitcoins Data Suggests Bitcoin is Working as Satoshi Intended," February 8, 2019, retrieved July 29, 2019

The table isn't presented here to forecast likely future demand from any of these countries. It does not represent a significant share of the global bitcoin trading volume. It does show that other factors beyond risk-on speculative investing can motivate buyers of bitcoin in specific countries. The list of countries here include some that experienced economic and political uncertainty during the period in question. In a global recession, how many other countries might see similar upticks in first-time bitcoin buying activity?

13 Arjun Balaji, "The 'Bitcoin Mining Death Spiral' Debate Explained," The Block, December 4, 2018, retrieved July 29, 2019

CONCLUSIONS

Jerome Powell, chairman of the US Federal Reserve, said it well in recent testimony before the US Congress: people are using bitcoin as a "speculative store of value."[14] For many, buying bitcoin is a speculative bet that bitcoin will become digital gold.

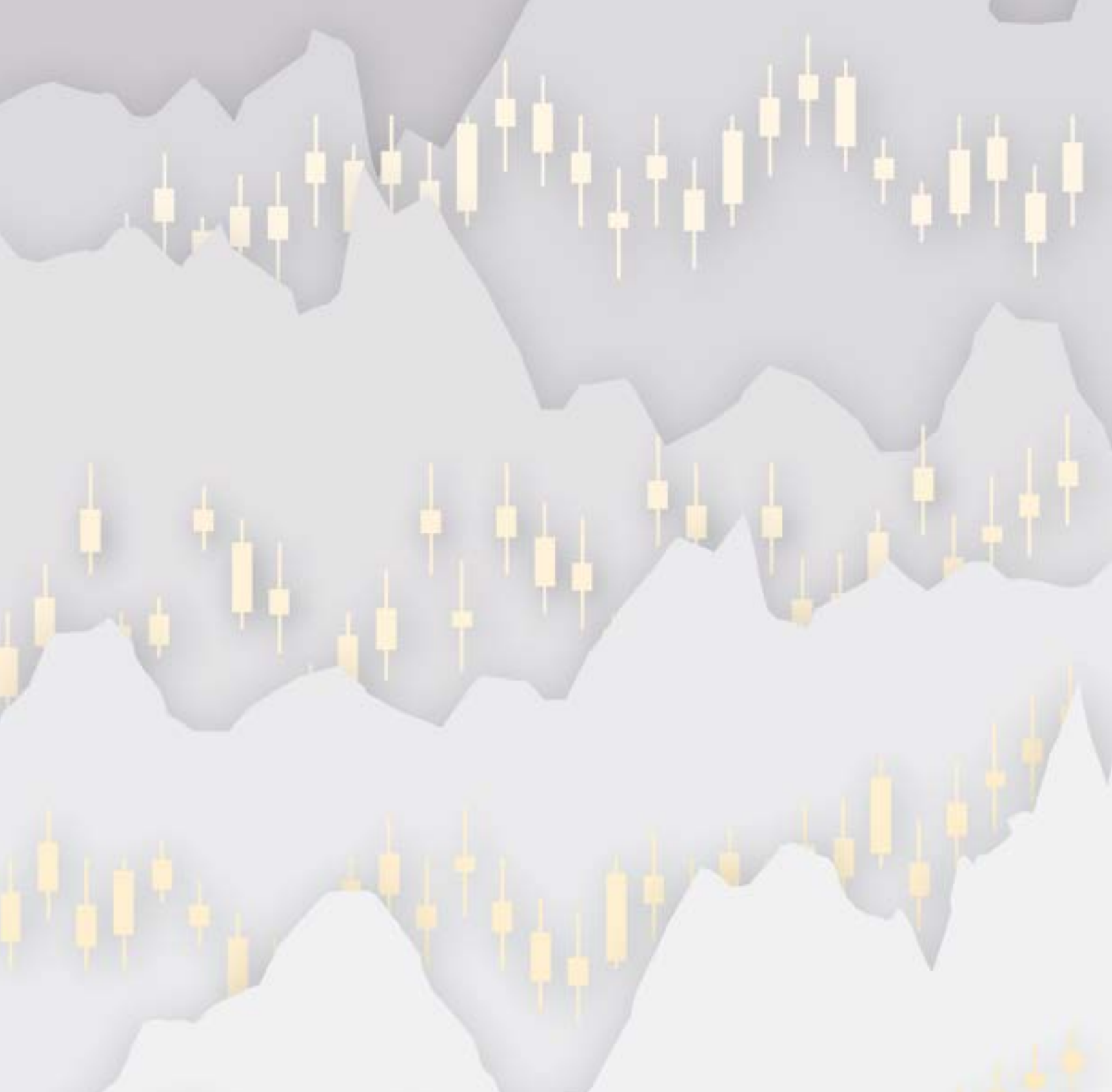
What it means to "become gold" is tricky. Gold has no cash flows that respond in a specific way to macroeconomic changes. It is a safe haven and a store of value because people believe it is. In other words, gold's safe haven status is a myth. Investors who buy gold in a downturn believe the myth will hold up, mostly because it has, for thousands of years.

Bitcoin, in shorter time, has done some myth-building of its own: the story of its creation by a pseudonymous founder(s); its cryptographic proof against intervention by capitalists or governments. Will those myths hold up in a crisis? More specific, and useful, questions are emerging; this paper provides a guide to some of them. If bitcoin holders in more stable economies view bitcoin as a risk-on asset, will they capitulate in a recession? If economic actors in more fragile economies view bitcoin as a haven, will they accumulate it in a crisis? Which way will the balance of these buy-and-sell pressures tip the scales in the next downturn? What about the one after that?

This myth has a way to become fact. If enough investors believe bitcoin will become a store of value, then it will, like gold, become a store of value. Evidence of that today is available, but not necessarily conclusive. The next downturn may bring clarity, and the one after that even more so. Whatever evidence those events bring, expect it to emerge quickly.

Please look for that evidence in future editions of this paper and others in this series, at: coindesk.com/intro-to-crypto-investment. Contact the author at galen@coindesk.com.

14 Daniel Kuhn, "Fed Chairman Jerome Powell Compares Bitcoin to Gold," CoinDesk, July 11, 2019, retrieved July 29, 2019



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