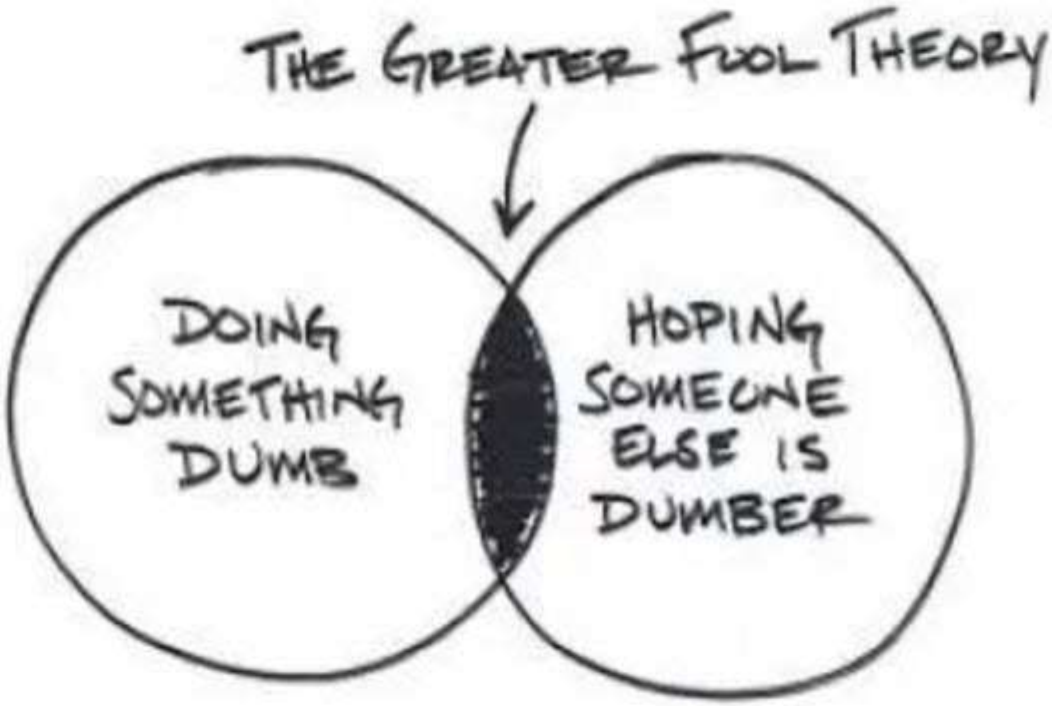
"What's your view on cryptocurrency?"

The above question came from a client on May 8th. Before sharing the resulting emails, our "view" should already be clear, as we have covered Greater Fool Theory speculative vehicles, including cryptocurrencies, repeatedly:



My response: My view is that crypto is a speculative bubble and a rollercoaster to be avoided. While crypto does have some value, it is extremely hard to justify these current prices. Bubbles throughout history always have an element of "If only I had gotten in at the beginning, look where I'd be now." There is no way to predict whether many of the cryptos will crash and burn over the coming year or so, or soar even more."

Client: So interesting. I was talking with a friend at lunch today that bought $500.00 worth of doge coin, her value currently is $3500.00. She is all excited for SNL tonight because Elon Musk is hosting and will be in a skit promoting doge coin - she thinks after tonight it'll skyrocket. Right now it's 67 cents a coin. We're sticking with you ;)

My response: It could very well do that. Or that expectation could already be built into the price. Or it could flop. And even if it does explode upwards even more, knowing when to get out would be impossible to predict. A lot of things have to go right in order to time a bubble correctly, and unfortunately good timing is far more a product of luck.

Unlike Bitcoin, Dogecoin was created as a joke. The red arrow on graph below marks when the above question was asked. At the moment it is selling under $0.29:

From the front page of Thursday's WSJ:

Bitcoin, Dogecoin Plummet in Selloff

*By **Paul Vigna, Alexander Osipovich** and **Anna Hirtenstein***

Bitcoin, the volatile digital currency that briefly became a trillion-dollar market, plunged Wednesday as its monthlong slide morphed into a frenzied selloff.

Cryptocurrencies have surged over the past year on a wave of speculative excitement, spurred by famous backers as varied as Elon Musk, Paul Tudor Jones and Snoop Dogg.

That gave the small but growing crowd of bulls a feeling of inevitability that crypto-currencies would mature into a significant asset class in their own right. Bitcoin, they wagered, might even fulfill its initial vision and become a legitimate alternative currency.

But the same momentum that drove prices higher is now sending them relentlessly lower.

Bitcoin, which traded around $7,000 at the beginning of 2020, peaked at $64,829 in mid-April. Since then, it has fallen 41% to $38,390 as of 5 p.m. ET Wednesday and earlier in the day dropped as low as $30,202.

“Many people have been tempted to invest purely because it has gone up in value and they have a fear of missing out,” said Rick Eling, investment director at wealth management firm Quilter. “Bitcoin is a volatile asset, and as we have seen so often in financial markets, boom is almost always followed by bust.”

Some of the stock market's charge has stalled as well. Many of the momentum stocks, such as Tesla and GameStop that investors piled into betting they could only go up, have run out of steam as investors worry about an eventual tapering of the Federal Reserve's easy-money policies. ...

The selloff extended to other digital currencies as well. Dogecoin fell 27% to about 35 cents, after earlier plunging as low as about 22 cents. ...

Since early Tuesday, the total value of the cryptocurrency market has declined by more than $470 billion to about $1.66 trillion, according to CoinMarketCap. Bitcoin's share has fallen to $721 billion.

Those losses are partially a result of how the market is structured. Crypto markets trade 24 hours a day seven days a week on hundreds of exchanges around the world. Once momentum accelerates in either direction there is no closing bell or circuit breaker to slow trading.

Moreover, the downturn fits a recurring pattern in digital currency's short history. In 2017, Bitcoin's price rose from $1,000 to nearly $20,000, peaking on the very day that exchange giant CME Group opened its much-awaited bitcoin futures market. At the time, that debut seemed like a sign of crypto's arrival. Instead, it marked the end of the rally.

This year, bitcoin peaked April 14, coinciding with the stock-market debut of Coinbase Global, the largest U.S. bit-coin exchange and the first significant player in the industry to go public. Much like the CME launch, in retrospect it seems to have marked the end of a rally.

At the time, that day felt like a victory lap for cryptocurrencies, said Oanda analyst Edward Moya. Coinbase fetched a mammoth $85 billion valuation, making it bigger than most companies in the S& P 500. Now, however, that day feels like a different kind of turning point, he said. Coinbase's stock has declined 41% from its opening price that day, including Wednesday's 5.9% drop.

The selloff wreaked havoc across crypto markets. As of Wednesday afternoon in New York, about $9 billion of liquidations of leveraged bets had taken place in the previous 24 hours, according to data provider Bybt. The majority were of long positions in which traders bet on an increase in the price of bitcoin or another cryptocurrency. Such liquidations take place when the market moves against a trader who isn't able to exit from the trade or post enough additional funds to meet the exchange's margin requirements.

Some crypto exchanges reported glitches during the selloff, adding to the chaos. Coinbase said it was having intermittent downtime and some users were experiencing delays while trying to make withdrawals. Kraken, another U.S. exchange, reported users were having difficulty connecting to its app and website amid very heavy traffic.

Although bitcoin bulls credit much of the digital currency's momentum over the past year to a rush of institutional investors into the market, data suggest their influence wasn't as significant as predicted. Between September and February, about $11 billion of investments in bitcoin came from professional investors, both corporations and individuals, JPMorgan Chase & Co. analyst Nikolaos Panigirtzoglou estimated.

In that period, bitcoin added about $800 billion in market value. Mr. Panigirtzoglou argued that the relatively small amount of professional money didn't drive the rally itself but inspired individual investors, who rushed in and pushed the price higher.

Perhaps one of the biggest buy signals they embraced was Tesla's February announcement that it purchased $1.5 billion of bitcoin. Mr. Musk, Tesla's chief executive, has emerged as one of the biggest influencers on the wild price swings.

And after months of bullish comments about bitcoin, dogecoin and other digital currencies, Mr. Musk has seemingly become a bitcoin antagonist, some investors are arguing on social media.

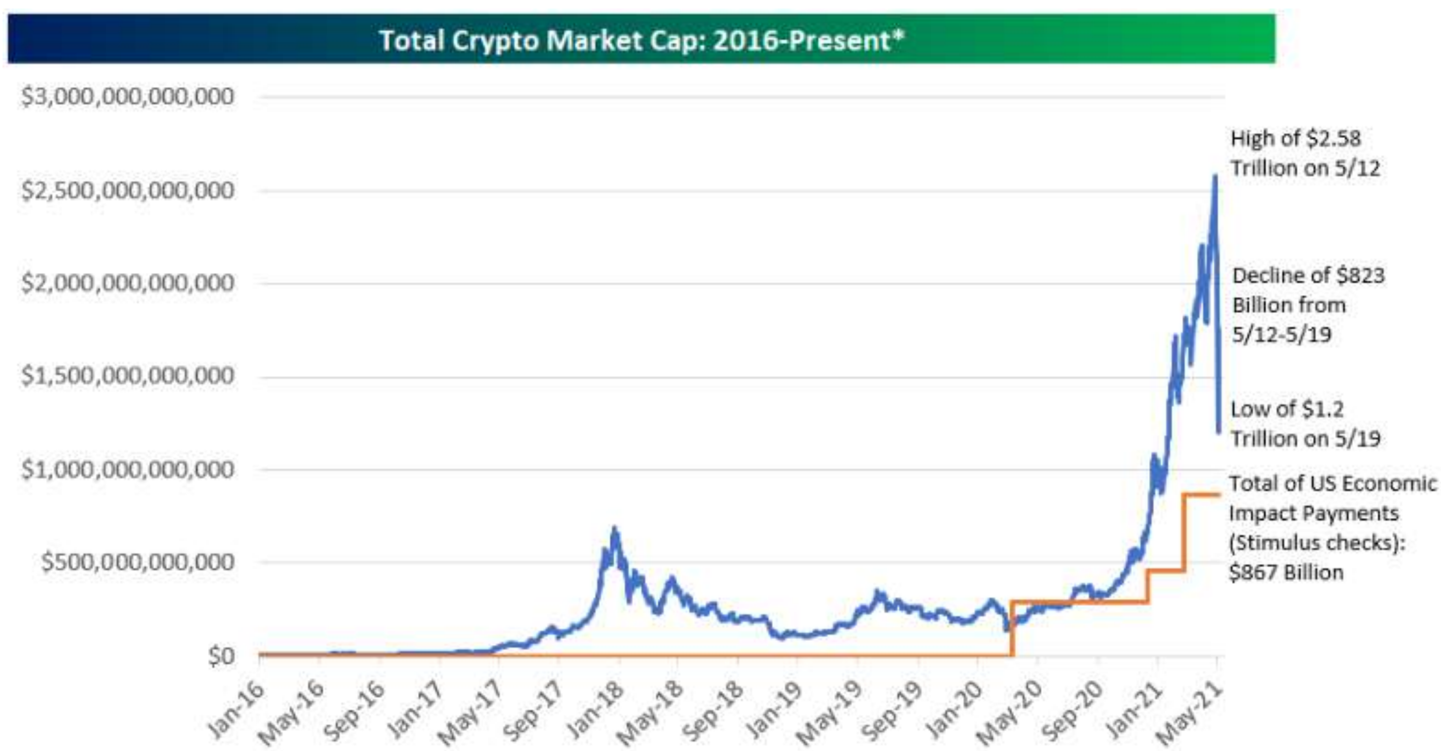
Last week, he said Tesla would cease accepting bitcoin as a payment option for its electric cars, pointing to environmental concerns. At one point, it appeared he suggested Tesla would sell its bitcoin holdings, comments that sent its price sharply lower. He later clarified that the company wasn't doing so and tweeted Wednesday morning using emojis that Tesla has diamond hands, a catch phrase among individual investors regarding their ability to hold on to risky bets for long periods.

More important, though, it appears that the overall institutional inflows are shifting away from bitcoin and back into traditional gold, Mr. Panigirtzoglou said in a recent research report.

The average flow of capital into bitcoin funds—measured as a four-week rolling average— has been declining since late January when it peaked at $600 million, he said. In May, the funds had net outflows of about $100 million, the first downdraft since at least January 2020, he said.

From Bespoke on Saturday:

Bespoke's *Number of the Week* is **$1,370,000,000,000**. That's the amount of money that was wiped out in the cryptocurrency market from its high on May 12th through its recent low on May 19th. At the start of 2021, total crypto market cap was just $759 billion, so it lost nearly double that in the week from 5/12-5/19! Total crypto market cap got up to a record $2.58 trillion earlier this month. At the low on Wednesday, it had crashed by more than 50% down to just $1.2 trillion. ...



As shown above, crypto market cap (along with plenty of other speculative asset classes) took off in late March/early April 2020 when the first round of COVID Economic Impact Payments (stimulus checks) were distributed. The total amount of stimulus payments that have been distributed so far is $867 billion, which is ironically about the same as the amount that has been lost in crypto since its highs.

From Friday's WSJ:

STREETWISE | By James Mackintosh

Bitcoin Shows It Is Far Away From Being the Digital Gold

Crypto trading creates perhaps the most irregular of all verbs. I invest rationally, you speculate wildly, she lost the keys to her bitcoin wallet, we launched a new joke coin, they paid a penalty to settle a probe.

Regular readers might be surprised that I think Wednesday’s gigantic swings in the price of bitcoin and other cryptocurrencies support both the first two interpretations: rational price action and wild speculation. After all, I pointed out that bitcoin is worth virtually nothing if treated as a currency back in 2017, and I have frequently referred to the fact that it has no fundamentals to base rational valuations on.

The rational case for bitcoin is that it will become digital gold, something I used to think unlikely and is now clearly more plausible, but still unlikely. If bitcoin were to replace gold as the world’s backstop store of value independent of governments, it would be worth a lot more, as large numbers of institutional buyers would switch over.

If it doesn’t, it is worth close to zero. Its actual utility as a currency involves little more than hackers’ blackmail payments and drug dealing, thanks to slow and expensive transactions. There is zero chance of bitcoin achieving the aims of pseudonymous founder Satoshi Nakamoto, who wanted it used as a currency for small online payments, although there are other digital currencies—including those being considered by central banks—that might solve this problem.

Wednesday’s 30% drop in the price and rapid rebound to some extent fits the model of bitcoin being priced for either digital gold or the failure of being a cryptocriminal currency. Markets find it hard to price binary outcomes, which is why startup biotechnology stocks—which typically either go the moon or vanish—are so volatile. Small changes in the probability of success or failure are amplified into large changes in the price.

The first piece of news was China’s tightening restrictions on cryptocurrency use by banks on Tuesday. In itself that doesn’t matter much, because as I said, bitcoin isn’t of any use as a currency. But it is a sign of the direction of travel: There is a higher probability that government restrictions on bitcoin will prevent its adoption as digital gold, so it should be worth less.

The second piece of news was Tesla Technoking Elon Musk’s tweet on Wednesday showing the emojis for diamond hands, implying the car company wouldn’t be selling its bitcoin stash, which by then was worth less than the $1.5 billion it paid. The rational interpretation is that this raised the probability that bitcoin will gain institutional and corporate adoption—Mr. Musk does run several companies, albeit unconventionally—and so the price soared again.

OK, OK. I don’t think this is all that was going on. Bitcoin and other cryptocurrencies have become a gambler’s paradise. Rapid software development has focused on new ways to allow speculation, producing options, futures, repos, pegged tokens and automated lending. Some is about arbitraging different markets within crypto, but there is very little that overlaps into real-world uses, and most of this innovative programming is about satisfying those trying to get rich quick.

It isn’t a criticism of a financial market that it attracts gamblers—part of what makes markets work for long-term investors is that short-term speculators provide a constant stream of buyers and sellers, known as liquidity.

Still, Wednesday’s fall was much more about bitcoin owners looking at each other and at the price and not liking what they saw than it was about Tuesday’s news from China. The scale of the rebound, the opposite.

What is interesting about the speculation is that it could become either self-fulfilling or self-defeating. Big banks that profit from speculators are already being drawn in, giving crypto both a veneer of respectability and the institutional- level services that make it easier to attract serious investors.

On the other hand, something that can rise or fall—or, as on Wednesday, both—by a third in a matter of hours is inherently hard to pitch as an alternative to gold as a store of value. Institutional investors are very sensitive to volatility.

The constant launch of new coins helps increase the popularity of cryptocurrencies in general. It also undermines the case for any one of them being the eventual winner. Bitcoin has a clear lead, but if institutions settled on something else as digital gold, that thing would become digital gold. Mr. Musk’s tweets about dogecoin, created as a joke, boosted its value by billions of dollars; sadly he never tweeted about WSJCoin.

Bitcoin is a long way from becoming digital gold, and its price doesn’t yet behave as a store of value the way gold mostly does. Like gold, its price isn’t driven by fundamentals. But for those speculating about whether it will succeed, there are rational ways to respond to news, which lead to giant swings in the price even before the pure momentum-chasing gamblers pile on.

From Friday's Global Investment Strategy:

The Crypto Impossibility Theorem

Cryptos: Can’t Have It All

Investors who track the cryptocurrency market might be aware of the “blockchain trilemma.” It posits that cryptocurrencies can possess only two of the following three attributes: decentralization, security, and scalability.

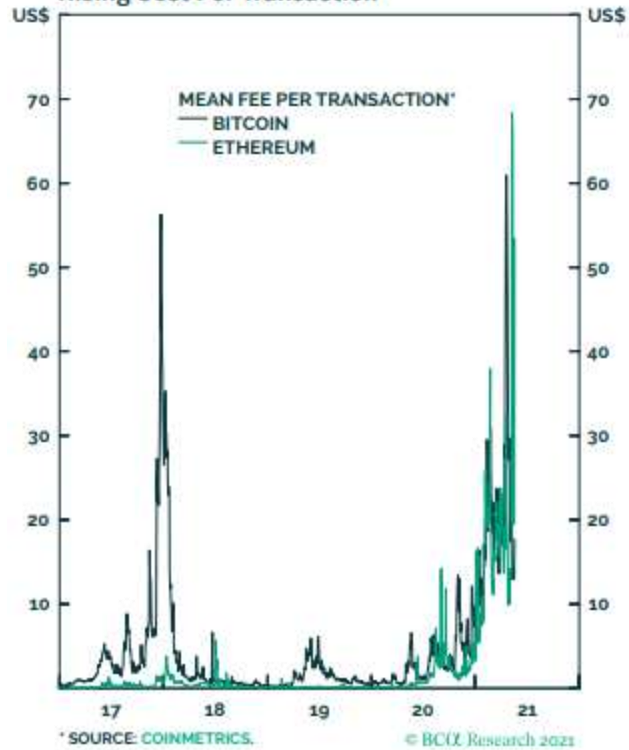
Bitcoin is both highly decentralized and reasonably secure. However, because control of the Bitcoin blockchain is distributed across thousands of individual computer nodes, it is also very slow.

The Bitcoin network can barely process five transactions per second, compared to over 20,000 for the Visa network.

The average fee for a Bitcoin transaction is around $30, a number that has risen over the past few years (**Chart 2**).

The elaborate puzzles that the Bitcoin algorithm must solve to verify transactions are extremely energy intensive. Bitcoin mining consumes more energy than entire countries such as Sweden, Argentina, and Pakistan (**Chart 3**). About two-thirds of Bitcoin mining currently takes place in China, often using electricity generated by burning coal.

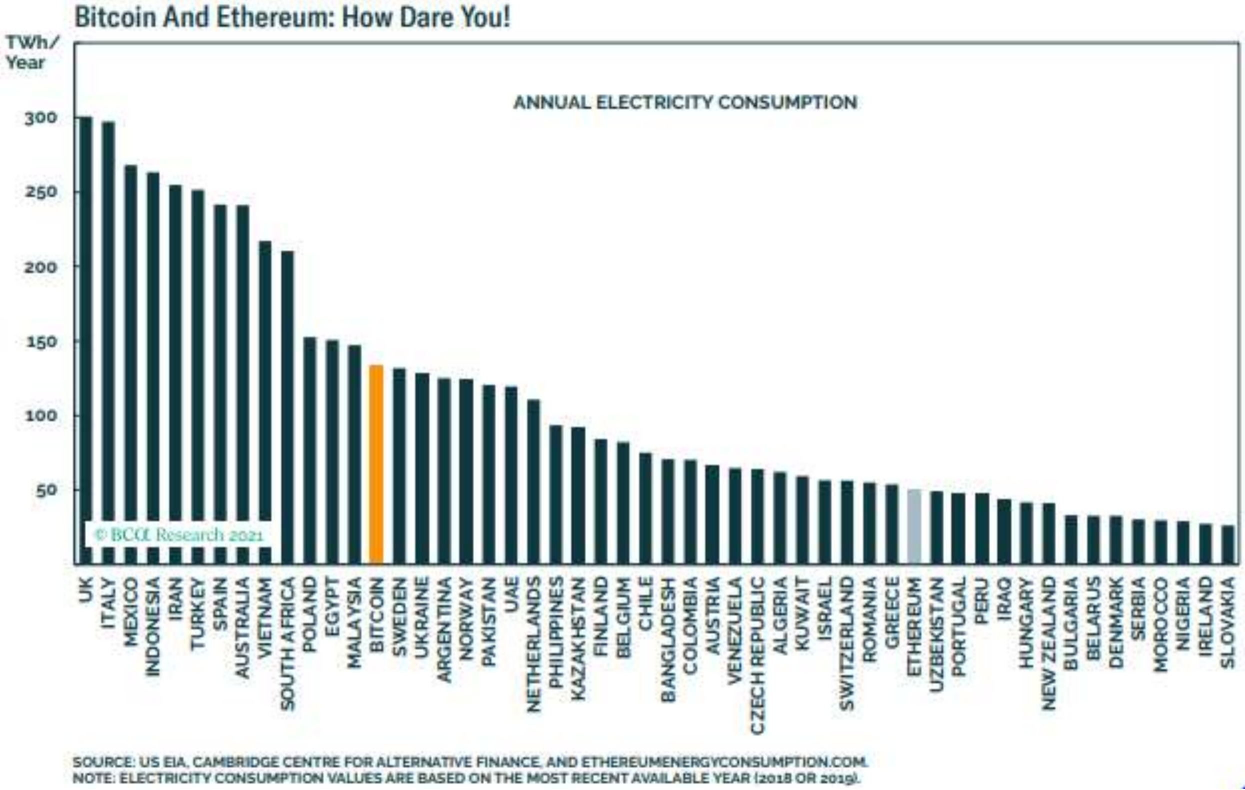
CHART 2
Rising Cost Per Transaction



Some claim that Bitcoin and other cryptocurrencies are shifting to renewable energy sources, a trend that will continue in the years ahead. However, this argument misses the point, which is that the "proof of work" mechanism that underpins Bitcoin requires that real resources be expended.

Suppose that all Bitcoin mining could be performed entirely for free using solar energy. This would reduce the cost of running a "mining rig," incentivizing more mining. The Bitcoin algorithm operates in such a way that the difficulty of mining coins increases as the total computational power of all miners grows. In this computational rat race, miners would need to purchase more servers with ever more powerful specifications to keep up with their competitors. And semiconductors do not grow on trees. It takes real resources to produce them. As this recent Bloomberg article pointed out, Taiwan Semiconductor generates almost 50% more greenhouse emissions than General Motors. ...

CHART 3
Bitcoin And Ethereum: How Dare You!



The Crypto Impossibility Theorem

We will not delve any further into the technical nature of the blockchain trilemma other than to note that it poses a serious challenge to the entire cryptocurrency project. Instead, let us highlight another obstacle that has received less attention – one that could be even more damaging for the prospects of cryptocurrencies in the long run.

Let us hyperbolically call it the "Crypto Impossibility Theorem." The Crypto Impossibility Theorem states that a cryptocurrency will be viable only if it offers a higher return than equities. As we discuss below, the assumption that cryptos can generate a return in excess of equities is almost certain to be false since it would require that cryptocurrency holdings rise more quickly than income in perpetuity. This implies that the value that investors currently attach to cryptos will turn out to be illusory.

To see the theorem in action, recall that money serves three functions: As a unit of account, as a medium of exchange, and as a store of value. It is doubtful that anyone seriously thinks that the price tag on a box of cereal will ever be displayed in units of Bitcoin, ether, or any of the various dog coins currently in vogue. Thus, we can scratch "unit of account" off the list of possible crypto uses.

What about medium of exchange? One can imagine a scenario where the prices of goods and services are still listed in dollars, but one may transfer the equivalent in cryptocurrencies to purchase them. However, this raises an obvious question: Why would anyone choose to hold a cryptocurrency if wages and prices are denominated in fiat currencies such as US dollars or euros? The only possible answer is that people must see cryptocurrencies as fulfilling the third function of money, namely being a store of value.

Would people be willing to hold cryptocurrencies if their prices generally moved sideways? It is doubtful. Cryptocurrencies are risky. Cryptocurrency accounts are not subject to deposit insurance. Crypto prices are also extremely volatile. During the pandemic, the S&P 500 fell by 34%, but the price of Bitcoin sank by an even greater 53%. Other cryptocurrencies fared even worse. In contrast, the trade-weighted US dollar strengthened by about 4% while gold prices only fell marginally.

Thus, to incentivize people to hold cryptos, the prospective capital gain has to be large enough to offset the inherent volatility in owning these currencies.

This is where the Crypto Impossibility Theorem comes in. Unlike dividend-paying stocks, cryptocurrencies do not provide any income to their holders. Thus, even if cryptos were just as risky as stocks, the price of cryptos would still need to rise more than the price of stocks in order to ensure that investors remain indifferent between

TABLE 1
Equity Returns And GDP Growth

	S&P EARNINGS* (ANNUALIZED GROWTH)	S&P DIVIDEND YIELD* (AVERAGE)	S&P EARNINGS* (ANNUALIZED GROWTH) + S&P DIVIDEND YIELD* (AVERAGE)	S&P TOTAL RETURN* (ANNUALIZED GROWTH)	US NOMINAL GDP (ANNUALIZED GROWTH)
1950-2000	6.3%	3.7%	10.0%	13.5%	7.5%
1950-1980	6.4%	4.0%	10.4%	10.8%	8.0%
1980-2000	6.1%	3.3%	9.4%	17.6%	6.7%
2000-2020	3.2%	2.0%	5.2%	6.6%	3.8%

* SOURCE: ROBERT SHILLER.

the two asset classes. In practice, as the experience of the pandemic demonstrates, cryptos are even riskier than stocks. Thus, the expected return on cryptos has to exceed the expected increase in stock prices by more than the dividend yield.

The problem for crypto holders is that this is not mathematically possible. Even if one controls for the rise in price-earnings multiples over time, equity returns have generally exceeded nominal GDP growth (**Table 1**). Hence, if cryptos need to offer superior returns to equities, and if the return on equities is at least equal to nominal GDP growth, then the market capitalization of cryptocurrencies will not only end up rising faster than for stocks, it will rise faster than aggregate national income. In a digital world where people need ever-less money to facilitate transactions, there is no good reason to expect this to happen.

A Fashion Choice

Crypto-optimists might argue that the required rate of return to holding cryptos will decline as the market matures. This is wishful thinking. Equities derive their value from the fundamentals of a company's business. In contrast, cryptocurrencies have no intrinsic value. Their value is whatever others are willing to pay for them.

Not only does this make cryptocurrencies inherently more risky than equities, it also makes them highly susceptible to fashion trends. It is not surprising that many upstart cryptocurrencies have crafted ties with celebrities and other "influencers." The whole point is to get enough people interested in a cryptocurrency to generate a feedback loop of wider adoption, thus allowing the currency's early backers to cash out.

In this sense, cryptocurrencies are even more vulnerable to affinity scams than other assets such as precious metals. While apocalyptic warnings of "currency debasement" have long been used to sell bullion, at least with gold and silver, you truly do get something that is in short supply. In the case of cryptocurrencies, while the supply of any individual cryptocurrency may be limited, the overall supply is unbounded. This means that the average price of each currency is likely to rise much less than the aggregate value of all cryptocurrencies, making the entire asset class even less viable over time.

Cryptogeddon

The drubbing that cryptocurrencies have received over the past two weeks is just a taste of things to come. As Matt Gertken and Guy Russell discuss in this week's Geopolitical Strategy report, crypto markets will continue to face tighter regulation (**Table 2**). Just this week, China reiterated its ban on financial companies offering cryptocurrency services. As part of its broader effort to crack down on tax evasion, the US Treasury Department also announced that it will require any cryptocurrency transfer worth $10,000 or more to be reported to the IRS.

The blockchain trilemma will make it impossible for cryptos to overcome ESG concerns, while the Crypto Impossibility Theorem will prevent cryptocurrencies from ever being stable stores of value.

In the meantime, an ebbing of input price inflation will take some of the wind out of the sails from the argument that cryptos are an indispensable hedge against the "inevitable" debasement of fiat monies. **Chart 5** shows that DRAM prices have rolled over. Lumber prices have dropped 11% so far this week. Corn, soybean, and steel prices have also backed off their highs.

Cryptos are like sharks; they need to move forward or they will sink. Back when they were unknown to most investors, a speculative case could have been made for buying cryptos. However, that case vanished earlier this year when the aggregate value of cryptocurrencies briefly surpassed the entire stock of US dollars in circulation

TABLE 2

Regulation Of Cryptos: What Can And Cannot Be Done

COUNTRY POSITIONS ON CRYPTOCURRENCIES					
COUNTRY	CRYPTOCURRENCIES			CRYPTO-EXCHANGES	INITIAL COIN OFFERINGS (ICOs)
	LEGAL TENDER?	TRADING PERMITTED?	OWNERSHIP PERMITTED?		
CANADA	NO, BUT PARTIALLY ACCEPTED	YES	YES	LEGAL, REGULATION VARIES BY PROVINCE	REGULATED
CHINA	NO	NO	YES	ILLEGAL	BANNED
INDIA	NO	YES	YES	LEGAL	BANNED
JAPAN	NO, BUT WIDELY ACCEPTED	YES	YES	LEGAL, REGULATED BY PSA	REGULATED
RUSSIA	NO	NO	YES	ILLEGAL	GREY AREA
SWITZERLAND	NO, BUT WIDELY ACCEPTED	YES	YES	LEGAL, REGULATED BY SFTA AND FINMA	REGULATED
UK	NO, BUT PARTIALLY ACCEPTED	YES	YES	LEGAL, REGISTER WITH THE FCA	GREY AREA
US	NO, BUT PARTIALLY ACCEPTED	YES	YES	LEGAL, REGULATION VARIES BY STATE	REGULATED

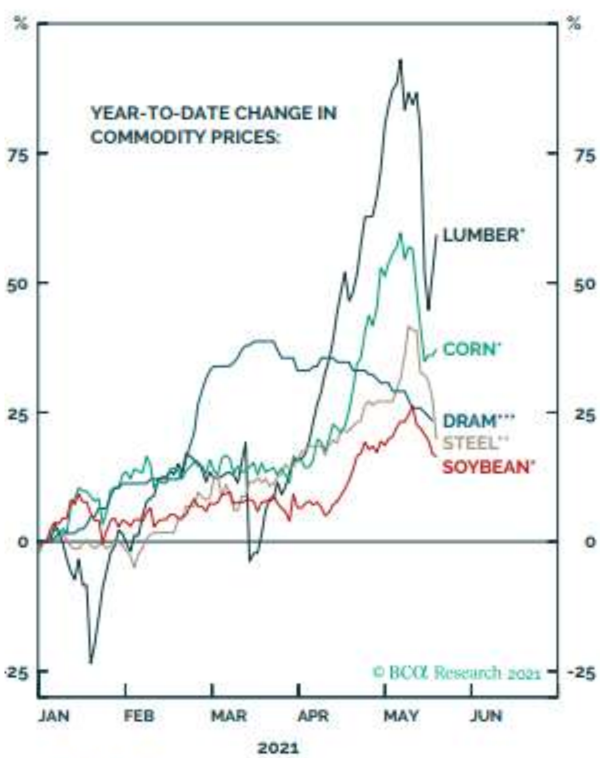
SOURCE: VISUALCAPITALIST, CHAIN ANALYSIS, COMPLY ADVANTAGE, AND THE SEC.

(**Chart 6**). Even with the recent correction, there are 17 cryptocurrencies with market capitalizations above $10 billion.

What will the ongoing crypto collapse mean for the broader investment landscape? In the near term, the pain in

CHART 5

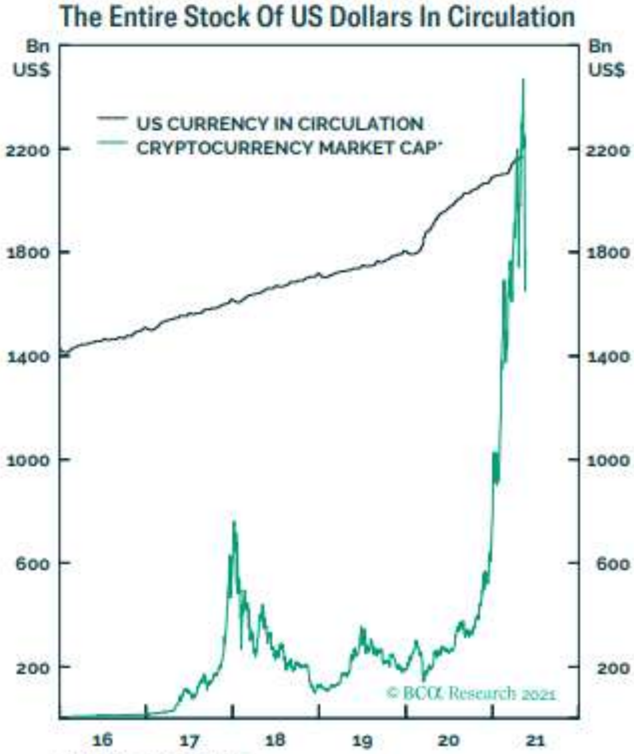
To The Moon And Back?



* SOURCE: CME.
** STEEL REBAR FUTURES PRICE. SOURCE: SHANGHAI FUTURES EXCHANGE.
*** DRAMX DDR3 1GB 128Mx8 CHIP PRICE. SOURCE: DRAMEXCHANGE.
NOTE: DATA SHOWN AS PERCENT CHANGE SINCE BEGINNING OF 2021.

CHART 6

Aggregate Value Of Cryptos Briefly Surpassed The Entire Stock Of US Dollars In Circulation



* SOURCE: COIN DANCE.

crypto markets could drag down other speculative assets such as tech stocks. In the long term, diminished investor interest in cryptos will benefit the stock market, as investor attention focuses back on equities.

For the broader economy, the impact of a crypto bear market will be limited. The banking system has very little exposure to cryptos. There will be a modest adverse wealth effect from falling crypto prices. However, the inability of a few laser-eyed crypto traders to buy their Lambos is hardly going to matter much against the backdrop of strong stimulus-fueled consumption growth in the US and a number of other economies.

Investors should continue to overweight stocks in a global asset portfolio, favoring value over growth, cyclicals over defensives, and non-US stocks over their US peers.