What Kinds of Crypto Assets Serve as the Most Effective Hedges Against Inflation, If Any?

Drew Laake, 2023

Using five years of price data for 34 crypto assets, this report finds generally moderate positive associations between cryptos, generally weak negative correlations between cryptos and inflation, and no cryptos that perform particularly well against inflation. Surprisingly, supply-capped cryptos perform worse during inflation than those whose supply is uncapped. Moreover, there is no clear relationship between any type of cryptos and traditional assets. Ultimately, cryptos are unique but highly speculative assets that lack properties found in established assets and currencies.

I. Background

The role of crypto as an inflation hedge is controversial. Generally, proponents of crypto as an inflation hedge make their claim on theory rather than empirically. Smales's 2022 report analyzes the top cryptos against gold to answer this question [1]. The paper finds a positive relationship between top crypto returns and changes in inflation expectations in the short run, but this property of cryptos fails when actual inflation or inflation expectations exceed 2%, falling short of gold in this respect. Choi and Shin, in their 2021 paper [2], employ a Vector Autoregression (VAR) framework and observe that Bitcoin *does* appreciate in response to inflation expectation shocks, suggesting its potential as an inflation hedge. The same report also cautions against the extension to Bitcoin being a safe-haven asset like gold: results indicate that Bitcoin prices sharply decline in response to a one standard deviation increase in VIX (CBOE volatility index). Matkovskyy and Jalan [3] later that year used a Quantile-on-Quantile regression to show that the USD Bitcoin market actually performs worse with inflation, although

bullish UK, Euro and Japanese Bitcoin markets facilitate hedging against inflation by offering higher returns. Another 2021 report by the quantitative hedge fund Two Sigma assesses Bitcoin's inflation sensitivity and its correlation to other crypto assets, fiat currencies, and commodities, similar to and serving as inspiration for some of the outcomes of this paper [4]. The paper finds that Bitcoin's "univariate beta to 10-year inflation breakevens (which serve as a measure for the market's expectations for inflation) was 0.76 over the same period with a correlation of 15%." Although this seems unremarkable, Two Sigma finds that gold experienced a correlation of 9% over the same period—"the two assets (Bitcoin and gold) may be on par with regard to 'inflation hedging.'" In summary, although Bitcoin and top cryptos have shown evidence of mild inflation performance in some statistical frameworks, the property is far from well-defined.

Even though work exists evaluating crypto as an inflation hedge relative to other assets, it's always purposeful to see if former results or patterns are changing, just to check whether the theorists' prophecies are realizing. Moreover, the current high inflation makes this question especially worth reconsideration now. Finally, reports commonly look at the top few cryptocurrencies or BTC in particular, but rarely distinguish between fixed-supply (scarce) coins and unfixed-supply coins, as this paper will.

The data set of this paper contains the following for the last five years: prices of all cryptocurrencies with >$1 Billion market capitalization [5], monthly Core CPI numbers [6], prices of gold and crude oil [7], the S&P 500 and Nasdaq composite indices [7], and the Vanguard Real Estate index fund [7]. Data sets are averaged over the month, a frequency that aligns with the CPI data frequency. From here, a simple MOM return variable is created for all data frames:

(Asset Price - Previous Month's Asset Price) / Previous Month's Asset Price

Although the process of collating assets and averaging over time frames becomes complex, the premise is simple and can be summarized in a few sequential questions: How do crypto returns compare to each other? How do crypto returns compare to inflation? Is there a difference between supply-capped cryptos (a disinflationary feature of many currency-oriented cryptos) and uncapped-supply cryptos in their role as a hedge against inflation?[1] Are there other distinctions between cryptos which serve as a more powerful explanation for inflation-hedging?

This paper further extends into analyzing crypto returns associated with various traditional assets: gold, crude oil, S&P 500 index, Nasdaq composite index, and Vanguard Real Estate index fund. Specifically, the returns of these traditional assets will be analyzed against a time-varying-market-cap-weighted-average return of all cryptos, and corresponding average returns for a finite-supply group and non-finite-supply group of cryptos. This is to investigate whether *cryptocurrencies*, despite their name, are treated by investors more as assets rather than currencies, and moreover to examine whether the finite-supply coins have a stronger association with finite-supply assets like gold and oil than the uncapped coins.

II. Comparing Crypto Asset Returns to Each Other

Table 1 displays a Pearson correlation matrix between monthly returns of all crypto assets with >$1 Billion Market Cap.[2] This table and the following crypto data in this paper exclude stablecoins. Stablecoins backed by any fiat currency or cryptocurrency associate with other cryptos, inflation, or assets through other channels and, therefore, demonstrate the same association as the fiat currency or cryptocurrency by which they are backed, or demonstrate no association whatsoever. For example, Tether (which fixes its coin price at 1 USD) theoretically has zero variance in its price and, consequently, correlations with other cryptos, inflation, or

[1] A coin's max supply is analogous to the fully diluted shares in the stock market.
[2] As of October 2, 2023

Table 1	Correlation Among Crypto Asset Returns August 1 September																
	Bitcoin	Ethereum	Binance	XRP	Solana	Cardano	Dogecoin	TRON	Toncoin	Polygon	Polkadot	Litecoin	Bitcoin Cash	Chainlink	Shiba_Inu	UNUS SED LEO	Avalanche
Bitcoin	NA	0.80	0.49	0.42	0.49	0.65	0.41	0.39	0.12	0.40	0.83	0.78	0.67	0.60	0.20	0.28	0.64
Ethereum	0.80	NA	0.52	0.48	0.68	0.72	0.55	0.53	0.31	0.50	0.85	0.82	0.71	0.67	0.54	0.32	0.74
Binance	0.49	0.52	NA	0.55	0.67	0.77	0.74	0.60	0.57	0.67	0.63	0.54	0.42	0.40	0.46	-0.12	0.72
XRP	0.42	0.48	0.55	NA	0.54	0.39	0.54	0.76	0.04	0.29	0.28	0.53	0.52	0.43	0.58	0.23	0.29
Solana	0.49	0.68	0.67	0.54	NA	0.66	0.62	0.63	0.18	0.53	0.77	0.53	0.52	0.76	0.52	0.26	0.85
Cardano	0.65	0.72	0.77	0.39	0.66	NA	0.70	0.46	0.01	0.61	0.85	0.63	0.55	0.48	0.39	0.15	0.86
Dogecoin	0.41	0.55	0.74	0.54	0.62	0.70	NA	0.52	0.13	0.59	0.70	0.46	0.45	0.33	0.79	0.02	0.69
TRON	0.39	0.53	0.60	0.76	0.63	0.46	0.52	NA	0.12	0.28	0.40	0.53	0.48	0.47	0.64	0.30	0.40
Toncoin	0.12	0.31	0.57	0.04	0.18	0.01	0.13	0.12	NA	0.24	0.28	0.40	0.05	0.28	0.10	-0.54	0.45
Polygon	0.40	0.50	0.67	0.29	0.53	0.61	0.59	0.28	0.24	NA	0.52	0.38	0.36	0.39	0.53	-0.21	0.56
Polkadot	0.83	0.85	0.63	0.28	0.77	0.85	0.70	0.40	0.28	0.52	NA	0.72	0.58	0.85	0.36	0.22	0.90
Litecoin	0.78	0.82	0.54	0.53	0.53	0.63	0.46	0.53	0.40	0.38	0.72	NA	0.77	0.59	0.38	0.02	0.58
Bitcoin Cash	0.67	0.71	0.42	0.52	0.52	0.55	0.45	0.48	0.05	0.36	0.58	0.77	NA	0.49	0.51	0.60	0.47
Chainlink	0.60	0.67	0.40	0.43	0.76	0.48	0.33	0.47	0.28	0.39	0.85	0.59	0.49	NA	0.44	0.31	0.77
Shiba_Inu	0.20	0.54	0.46	0.58	0.52	0.39	0.79	0.64	0.10	0.53	0.36	0.38	0.51	0.44	NA	-0.03	0.28
UNUS SED LEO	0.28	0.32	-0.12	0.23	0.26	0.15	0.02	0.30	-0.54	-0.21	0.22	0.02	0.60	0.31	-0.03	NA	0.12
Avalanche	0.64	0.74	0.72	0.29	0.85	0.86	0.69	0.40	0.45	0.56	0.90	0.58	0.47	0.77	0.28	0.12	NA
Stellar	0.76	0.78	0.55	0.60	0.55	0.76	0.60	0.49	0.04	0.37	0.78	0.74	0.72	0.54	0.40	0.53	0.65
Cosmos	0.46	0.54	0.68	0.43	0.82	0.71	0.54	0.47	0.03	0.49	0.72	0.51	0.34	0.55	0.24	-0.24	0.82
Monero	0.67	0.66	0.61	0.68	0.57	0.58	0.49	0.62	0.00	0.39	0.46	0.73	0.74	0.53	0.47	0.18	0.42
Uniswap	0.69	0.76	0.72	0.28	0.72	0.88	0.78	0.39	-0.04	0.65	0.91	0.62	0.53	0.79	0.40	0.29	0.84
OKB	0.42	0.53	0.57	0.39	0.49	0.52	0.43	0.38	0.31	0.46	0.55	0.53	0.45	0.40	0.32	-0.18	0.61
Ethereum Classic	0.29	0.59	0.41	0.50	0.37	0.46	0.56	0.42	0.06	0.53	0.25	0.49	0.61	0.30	0.76	0.41	0.25
Hedera	0.50	0.57	0.48	0.25	0.65	0.56	0.35	0.36	0.13	0.48	0.78	0.50	0.36	0.49	0.32	-0.01	0.67
Filecoin	0.43	0.42	0.55	0.58	0.49	0.53	0.36	0.62	0.05	0.38	0.40	0.42	0.46	0.37	0.46	0.14	0.33
Internet Computer	0.72	0.79	0.74	0.75	0.57	0.80	0.66	0.64	0.17	0.56	0.82	0.78	0.60	0.87	0.11	0.04	0.71
Maker	0.54	0.72	0.55	0.41	0.59	0.67	0.67	0.47	0.21	0.44	0.79	0.57	0.59	0.49	0.58	0.37	0.72
Aptos	0.76	0.78	0.55	0.22	0.83	0.74	-0.09	0.56	-0.07	0.58	0.78	0.39	0.20	0.35	0.73	-0.28	0.87
Cronos	0.26	0.26	0.39	0.12	0.42	0.33	0.12	0.14	0.88	0.27	0.40	0.36	0.27	0.17	0.11	0.21	0.47
VeChain	0.54	0.61	0.54	0.58	0.58	0.66	0.57	0.63	0.35	0.38	0.67	0.60	0.56	0.45	0.69	0.08	0.52
Arbitrum	0.90	0.87	0.44	0.95	0.83	0.75	0.89	-0.03	-0.49	0.80	0.96	0.83	0.62	0.75	0.51	0.72	0.95
NEAR Protocol	0.66	0.66	0.53	0.29	0.81	0.72	0.44	0.36	0.17	0.44	0.81	0.55	0.43	0.73	0.18	0.12	0.82
Optimism	0.60	0.80	0.83	0.13	0.57	0.67	0.40	0.35	0.33	0.71	0.87	0.63	0.33	0.68	0.85	-0.06	0.85
Aave	0.55	0.44	-0.01	-0.03	0.02	0.26	0.20	0.00	-0.24	-0.06	0.40	0.44	0.23	0.19	0.11	-0.20	0.18
Average Absolute	0.54	0.62	0.55	0.43	0.58	0.59	0.50	0.44	0.22	0.46	0.64	0.56	0.49	0.51	0.42	0.24	0.61

Table 1 Continued																	
	Stellar	Cosmos	Monero	Uniswap	OKB	Ethereum Classic	Hedera	Filecoin	Internet Computer	Maker	Aptos	Cronos	VeChain	Arbitrum	NEAR Protocol	Optimism	Aave
Bitcoin	0.76	0.46	0.67	0.69	0.42	0.29	0.50	0.43	0.72	0.54	0.76	0.26	0.54	0.90	0.66	0.60	0.55
Ethereum	0.78	0.54	0.66	0.76	0.53	0.59	0.57	0.42	0.79	0.72	0.78	0.26	0.61	0.87	0.66	0.80	0.44
Binance	0.55	0.68	0.61	0.72	0.57	0.41	0.48	0.55	0.74	0.55	0.55	0.39	0.54	0.44	0.53	0.83	-0.01
XRP	0.60	0.43	0.68	0.28	0.39	0.50	0.25	0.58	0.75	0.41	0.22	0.12	0.58	0.95	0.29	0.13	-0.03
Solana	0.55	0.82	0.57	0.72	0.49	0.37	0.65	0.49	0.57	0.59	0.83	0.42	0.58	0.83	0.81	0.57	0.02
Cardano	0.76	0.71	0.58	0.88	0.52	0.46	0.56	0.53	0.80	0.67	0.74	0.33	0.66	0.75	0.72	0.67	0.26
Dogecoin	0.60	0.54	0.49	0.78	0.43	0.56	0.35	0.36	0.66	0.67	-0.09	0.12	0.57	0.89	0.44	0.40	0.20
TRON	0.49	0.47	0.62	0.39	0.38	0.42	0.36	0.62	0.64	0.47	0.56	0.14	0.63	-0.03	0.36	0.35	0.00
Toncoin	0.04	0.03	0.00	-0.04	0.31	0.06	0.13	0.05	0.17	0.21	-0.07	0.88	0.35	-0.49	0.17	0.33	-0.24
Polygon	0.37	0.49	0.39	0.65	0.46	0.53	0.48	0.38	0.56	0.44	0.58	0.27	0.38	0.80	0.44	0.71	-0.06
Polkadot	0.78	0.72	0.46	0.91	0.55	0.25	0.78	0.40	0.82	0.79	0.78	0.40	0.67	0.96	0.81	0.87	0.40
Litecoin	0.74	0.51	0.73	0.62	0.53	0.49	0.50	0.42	0.78	0.57	0.39	0.36	0.60	0.83	0.55	0.63	0.44
Bitcoin Cash	0.72	0.34	0.74	0.53	0.45	0.61	0.36	0.46	0.60	0.59	0.20	0.27	0.56	0.62	0.43	0.33	0.23
Chainlink	0.54	0.55	0.53	0.79	0.40	0.30	0.49	0.37	0.87	0.49	0.35	0.17	0.45	0.75	0.73	0.68	0.19
Shiba_Inu	0.40	0.24	0.47	0.40	0.32	0.76	0.32	0.46	0.11	0.58	0.73	0.11	0.69	0.51	0.18	0.85	0.11
UNUS SED LEO	0.53	-0.24	0.18	0.29	-0.18	0.41	-0.01	0.14	0.04	0.37	-0.28	0.21	0.08	0.72	0.12	-0.06	-0.20
Avalanche	0.65	0.82	0.42	0.84	0.61	0.25	0.67	0.33	0.71	0.72	0.87	0.47	0.52	0.95	0.82	0.85	0.18
Stellar	NA	0.55	0.67	0.75	0.44	0.44	0.47	0.44	0.72	0.72	0.28	0.30	0.67	0.87	0.59	0.27	0.42
Cosmos	0.55	NA	0.50	0.68	0.37	0.28	0.39	0.43	0.64	0.49	0.93	0.31	0.48	0.78	0.82	0.67	0.06
Monero	0.67	0.50	NA	0.43	0.54	0.57	0.40	0.62	0.79	0.45	0.56	0.25	0.64	0.87	0.54	0.67	0.13
Uniswap	0.75	0.68	0.43	NA	0.60	0.32	0.73	0.37	0.80	0.81	0.58	0.31	0.63	0.83	0.66	0.54	0.36
OKB	0.44	0.37	0.54	0.60	NA	0.46	0.64	0.40	0.81	0.42	0.75	0.41	0.43	0.50	0.53	0.89	-0.06
Ethereum Classic	0.44	0.28	0.57	0.32	0.46	NA	0.18	0.33	0.70	0.45	0.81	0.10	0.43	0.89	0.18	0.77	-0.07
Hedera	0.47	0.39	0.40	0.73	0.64	0.18	NA	0.44	0.71	0.43	0.73	0.41	0.43	0.57	0.76	0.77	0.24
Filecoin	0.44	0.43	0.62	0.37	0.40	0.33	0.44	NA	0.84	0.35	0.75	0.32	0.79	0.86	0.52	0.89	0.02
Internet Computer	0.72	0.64	0.79	0.80	0.81	0.70	0.71	0.84	NA	0.58	0.86	0.32	0.86	0.79	0.69	0.80	-0.14
Maker	0.72	0.49	0.45	0.81	0.42	0.45	0.43	0.35	0.58	NA	0.32	0.30	0.57	0.42	0.49	0.24	0.35
Aptos	0.28	0.93	0.56	0.58	0.75	0.81	0.73	0.75	0.86	0.32	NA	0.83	0.75	0.86	0.92	0.84	0.10
Cronos	0.30	0.31	0.25	0.31	0.41	0.10	0.41	0.32	0.32	0.30	0.83	NA	0.39	0.81	0.47	0.75	-0.12
VeChain	0.67	0.48	0.64	0.63	0.43	0.43	0.43	0.79	0.86	0.57	0.75	0.39	NA	0.72	0.59	0.85	0.25
Arbitrum	0.87	0.78	0.87	0.83	0.50	0.89	0.57	0.86	0.79	0.42	0.86	0.81	0.72	NA	0.83	0.54	-0.65
NEAR Protocol	0.59	0.82	0.54	0.66	0.53	0.18	0.76	0.52	0.69	0.49	0.92	0.47	0.59	0.83	NA	0.83	0.17
Optimism	0.27	0.67	0.67	0.54	0.89	0.77	0.77	0.89	0.80	0.24	0.84	0.75	0.85	0.54	0.83	NA	-0.21
Aave	0.42	0.06	0.13	0.36	-0.06	-0.07	0.24	0.02	-0.14	0.35	0.10	-0.12	0.25	-0.65	0.17	-0.21	NA
Average Absolute	0.56	0.51	0.53	0.60	0.48	0.43	0.48	0.47	0.65	0.51	0.59	0.35	0.56	0.73	0.56	0.61	0.21

Source CoinMarketCap

assets are undefined—similar to a random variable's correlation with a constant. Wrapped Bitcoin, a stablecoin pegged one-to-one with Bitcoin for use on the Ethereum blockchain, would have the same correlations as Bitcoin. A stablecoin which *would* warrant consideration, if it were to break $1 Billion market cap, would be some crypto backed by a weighted formula of different assets, although this would serve the same purpose to investors as various Bitcoin ETFs or mutual funds, in practice.

Perhaps the main takeaway from the table is that most cryptos have a moderate to strong correlation with each other (0.4 to 0.8, light green), with relatively few cryptos showing a very strong (>0.8, dark green) correlation with each other. Looking at the average of the absolute values for each crypto, Arbitrum has the most polarized association with the others at a 0.73 average absolute correlation. Especially weak associations include Toncoin, UNUS SED LEO ("LEO"), and Aave, which has the most inverse association in the chart: a -0.65 correlation with Arbitrum.

Also notable is Dogecoin, which had relatively unique associations with other crypto assets as of April 2021 (per Two Sigma) but, as of September 2023, appears to be similar to many other cryptos. This is presumably a result of the time passed between the Elon-Musk-Twitter fueled volatility for the meme coin such that its long-term averages are falling in line with other cryptos. An additional explanation for the more moderate correlations is the increased sample size of this study compared to Two Sigma's, as this one contains coins with smaller market caps that are naturally more speculative in nature, like the hyper-speculative Dogecoin.

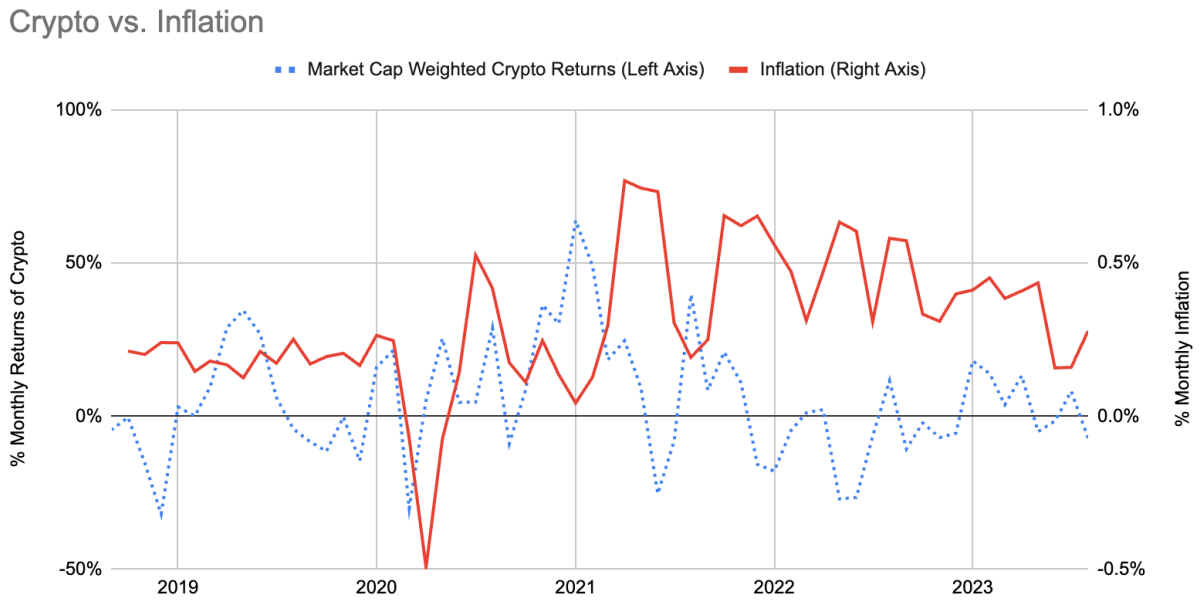
As Two Sigma observes, there is a notably high correlation (even higher over this more recent time frame, continuing with the long-term trend of increasing correlation) between Bitcoin and Ethereum, despite their different use cases. The authors note:

> *While BTC's original intended use case was to serve as a decentralized medium of exchange, its primary function today is to serve as a store of value. ETH has that use case as well, but it expands on that by representing a platform on which to build applications using its cryptocurrency, ether. Some investors that are considering entering the crypto space might initially "get their feet wet" with BTC given its relatively long price history and market size. And while ETH still offers a decently large market, it is a slightly more complex entry into crypto, as it can be considered not only as a "store of value" like BTC, but might also serve as a proxy for DeFi (or decentralized finance) exposure.*

Later, this paper will expand on the differences between Bitcoin and Ethereum, particularly the former being supply-capped and the latter being uncapped, which fundamentally lends itself to different inflationary characteristics. At any rate, this table is a representation of differences between peoples' interest in cryptocurrencies for (countless) underlying reasons, setting up a further investigation into characteristics that make some better inflation hedges than others.

III. Crypto as an Inflation-Hedge

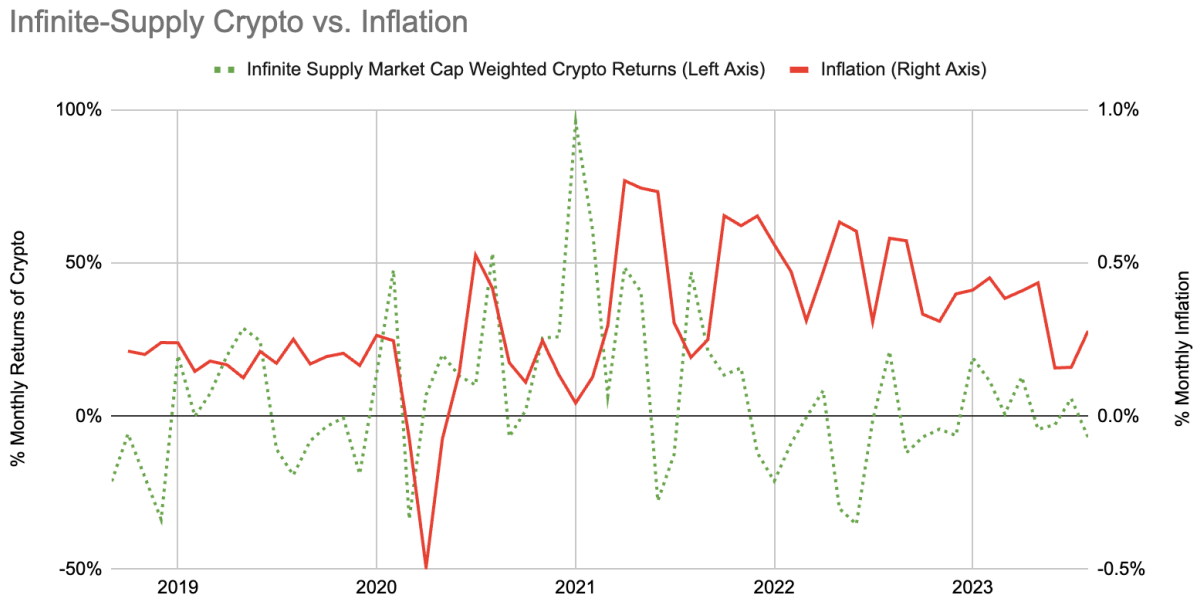
Perhaps one of the reasons why Bitcoin and other coins are so volatile is its proposition as a solution to consumers' pet peeve: inflation. It makes sense that as inflation increases, the demand for Bitcoin may increase as people seek an alternative to the fiat currencies currently in use, particularly one with a finite supply (like gold, etc.) creating disinflationary properties. But is this what we actually see?



Correlation: -0.21

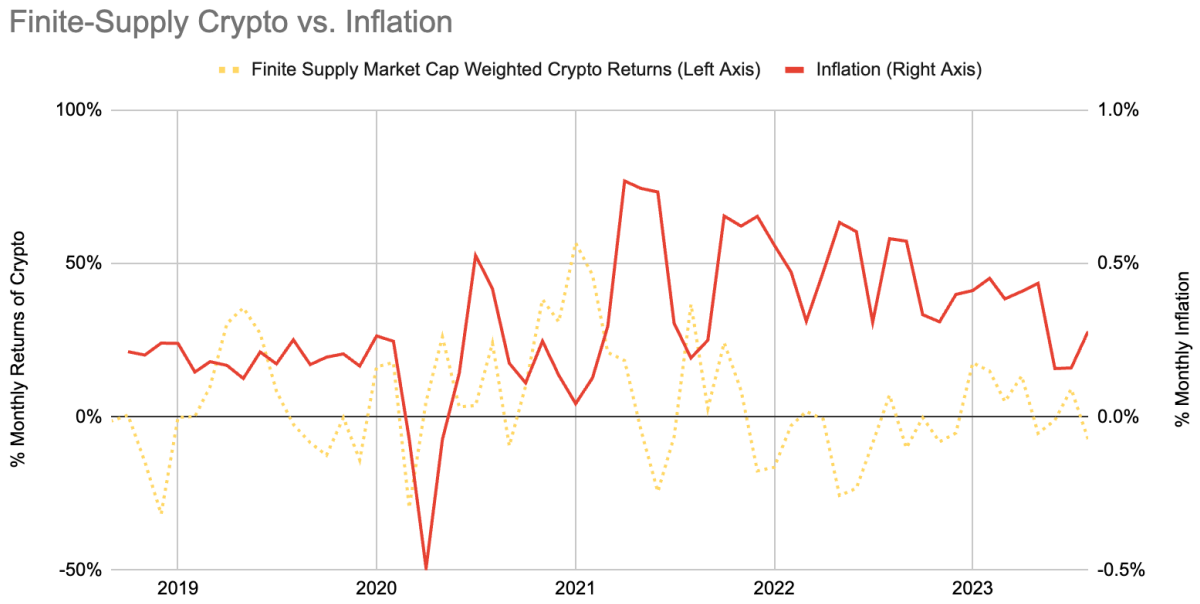
This chart shows that the time-variable-market-cap-weighted-average-returns of cryptocurrency are not directly associated with inflation, and in spots even appear to be clearly inversely associated with inflation. Indeed, producing a Pearson correlation between the two variables indicates a weak-negative relationship.

Does this pattern change upon separating supply-capped and uncapped-supply cryptos? It is first important to note that the correlation between the supply-capped and uncapped-supply crypto averages is 0.86—a strong positive association—so there is not much variation between the two groups. Looking at the subset of uncapped-supply cryptos (led by Ethereum):



Correlation: -0.10

The pattern is similar to the complete set of cryptos, albeit with a relatively weaker correlation. Accordingly, there is a relatively stronger inverse relationship between supply-capped cryptos (led by Bitcoin) and inflation:



Correlation: -0.25

Overall, the weighted average returns indicate that crypto not only serves a poor role as a hedge against inflation but further exacerbates inflation losses. Moreover, supply-capped currencies perform *worse* than uncapped-supply currencies—the opposite of the prediction.

It is important to note that there are inflation-combating mechanisms incorporated into some cryptos apart from a maximum supply, which may confound the inflation-hedging capabilities of each category and provide reason to look at individual correlations between cryptos and inflation. Further confounding these results is that some coins, like Tron and Maker, have had periods of max supplies, periods of no max supply, and/or conditional max supplies, either through automated or adjudicated supply control, muddying and perhaps confusing investor's perception of their status.[3] Still others, like Shiba Inu, are supply-capped but intentionally abundant rather than scarce, although this is low on the list of a Shiba Inu investor's concerns: "The SHIBA INU website notes that they locked 50% of the total token supply on Uniswap, and 'threw away the keys!' The remaining 50% was 'burned to Vitalik Buterin.' In response to the 'gift' from the Shiba Inu team, Vitalik Buterin sent 50 trillion SHIB tokens, worth $1 billion in Shiba Inu price at that time, to India's Covid Crypto Relief Fund. Buterin then burned 40% of the total supply to a dead wallet [worth approximately $7 Billion]." No investor has been hardened like a Shiba Inu investor.

[3] For this research, the most recent status of the coin's supply is used (October 2023).

Table 2	Correlations Between Cryptos and Inflation August 2018 - September 2023
	CPI
Bitcoin	-0.31
Ethereum	-0.11
Binance	-0.09
XRP	0.07
Solana	-0.14
Cardano	-0.21
Dogecoin	0.01
TRON	0.06
Toncoin	0.28
Polygon	-0.03
Polkadot	-0.49
Litecoin	-0.15

Table 2 (continued)	Correlations Between Cryptos and Inflation August 2018 - September 2023
	CPI
Bitcoin Cash	-0.13
Chainlink	-0.20
Shiba_Inu	0.25
UNUS SED LEO	-0.60
Avalanche	-0.45
Stellar	-0.22
Cosmos	-0.13
Monero	-0.10
Uniswap	-0.49
OKB	-0.09
Ethereum Classic	0.21
Hedera	-0.19

Table 2 (continued)	Correlations Between Cryptos and Inflation August 2018 - September 2023
	CPI
Filecoin	-0.18
Internet Computer	-0.44
Maker	-0.15
Aptos	0.32
Cronos	-0.08
VeChain	-0.02
Arbitrum	-0.16
NEAR Protocol	-0.44
Optimism	0.12
Aave	-0.53
Average	-0.09
Sources: CoinMarketCap, Federal Reserve Bank of St. Louis	

As shown in Table 2, most cryptos *decrease* with inflation. The large majority of coin owners, rather than mitigating inflation losses, are exacerbating them—*caveat emptor*! Even a token like Solana, which is not supply-capped but rather possesses a fixed inflation rate YOY, is shown to have a negative correlation with inflation. As for the mechanism behind these inverse relationships, it could be that periods of high inflation coincided with periods of crypto declines, unrelatedly, in the overall roller-coaster of crypto interest and speculation. A more causal explanation might assert that investors have come to recognize that crypto serves as a poor holding during inflation, and so they move their wealth (or income previously deemed recreational) from crypto to other assets during periods of high inflation. But what are these other, inflation-proof assets? And what makes them different from crypto?

IV. Crypto vs. Traditional Assets

Table 3	Correlations Between Crypto Averages and Assets							
	All Cryptos	Capped Cryptos	Uncapped Cryptos	Gold	Oil	S&P500	Nasdaq Composite	Vanguard RE
Crypto Average	NA	0.99	0.92	-0.15	0.15	0.03	0.03	0.13
Capped Cryptos	0.99	NA	0.86	-0.12	0.14	0.05	0.05	0.14
Uncapped Cryptos	0.92	0.86	NA	-0.21	0.12	-0.05	-0.03	0.04
Gold	-0.15	-0.12	-0.21	NA	-0.06	0.20	0.20	0.18
Oil	0.15	0.14	0.12	-0.06	NA	0.38	0.33	0.29
S&P500	0.03	0.05	-0.05	0.20	0.38	NA	0.94	0.83
Nasdaq Composite	0.03	0.05	-0.03	0.20	0.33	0.94	NA	0.72
Vanguard RE	0.13	0.14	0.04	0.18	0.29	0.83	0.72	NA
Sources: CoinMarketCap, Federal Reserve Bank of St. Louis, Yahoo Finance (through R's quantmod package)								

Table 3 shows a correlation matrix including the market-cap-weighted-average returns used in the last section, gold and oil commodity prices, the S&P 500 and Nasdaq composite indices, and the Vanguard Real Estate Index.

Notably, gold has a weak negative association with all crypto averages. It is slightly higher with the finite-supply cryptos, but not much more can be said. If investors treat Bitcoin or other limited-supply cryptos similar to gold, those investors are few. Gold also shows a very weak association with oil over this period. There is evidence that in the long-run oil and gold are directly correlated [8], but their relationship at any time is rather inconsistent [9]. Significant to note is that gold returns have a near-zero correlation with inflation over this period. Thus, gold investors, unlike crypto investors, are not exacerbating their inflation losses over this time. This is consistent with the traditional notion of gold as a mild inflation hedge and safe haven asset through a 5-year period that contained a substantial amount of volatility.

Across the board, there is little association between crypto averages and public equity indices. Moreover, the tech-heavy Nasdaq composite index doesn't associate with crypto averages more directly than the other indices. As shown, the reason for this lies in the very direct relationships between these indices. In particular, the S&P 500-Nasdaq correlation is especially strong.

Overall, it is clear that investors do not view cryptos through the same lens as other traditional asset classes. Of these traditional assets, perhaps the most speculative in nature is oil, which does show a weak positive correlation with cryptos. Still, oil is better correlated with stock market indices, including real estate. Crypto assets are discernibly non-traditional.

V. Conclusion

Section III provides evidence that cryptocurrency demand during high inflation (presumably as an alternative to centralized finance) does *not* increase. Nor do investors interact with cryptos like traditional equity and commodity assets, as evidenced by section IV. Cryptos also do not show a stronger association with the tech-focused stock exchange index, Nasdaq. At this point, the only thing which cryptos seem to have a significant relationship with is other cryptos. Investment in crypto is best viewed through a lens of speculation; not as an inflation hedge, safe haven, or other means of protection/insurance.

The separation of finite-supply and infinite-supply cryptos did not substantiate any of the plausible and meaningful differences predicted. That is, finite-supply cryptos' disinflationary nature does not give them inflation-hedging properties over infinite-supply cryptos. Nor do finite-supply cryptos correlate strongly with limited-supply assets like gold and oil. This is thematically represented by the strong and increasing correlation between BTC and ETH despite their different structure and use cases. As a rule, the price action of the top few cryptos sets the price action for the trailing masses, with few exceptions.

Going forward, the price characteristics of cryptocurrencies will continue to be monitored by academics, governments, banks, investors, merchants, miners, and users. It will be interesting to see if patterns change over time, and what sorts of assets that cryptos begin to resemble or differ from. Continued mainstream adoption could provide more stability and characteristics generally associated with traditional assets. But even gradual exit is sure to leave a legacy of revolutionary blockchain technology, financial inclusion, and democratization.

VI. References

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