The Role of Bitcoin as a Diversifier (April 2024 Update)

We have argued in the past that Bitcoin can play an important role as a diversifier in a portfolio of "traditional" assets. Back in 2020, we shared evidence with our investors supporting that idea. A year later we decided to communicate a shorter version of that research with the wider public (https://www.tyr.capital/the-role-of-bitcoin-as-a-diversifier-in-a-traditional-portfolio) and in 2022 we revisited and refreshed our data sets and findings (https://www.tyr.capital/the-role-of-bitcoin-as-a-diversifier-2022-update). The results show that Bitcoin continues to provide important diversification benefits.

Although in theory, allocation to Bitcoin made sense, in practice, the idea was proving more complicated than initially thought. The lack of familiarity with blockchain technology and cryptocurrencies, the mechanics of self-custody, and multiple horror stories involving some of the bigger names in the industry (Celsius, Terra/Luna and FTX), acted as a barrier to entry for both retail and institutional investors.

The recent launch of Bitcoin ETPs in the US, the most highly regulated and liquid capital market in the world, is the catalyst that is lowering the barriers to entry, especially for the retail market. We're now seeing multibillion inflows into BTC among some of those newly listed products. With the current context in mind and the fact it has been two years since our last "refresh", we have decided to update our dataset and revisit previous research to align it with the modern state of Bitcoin.

We have used the same layout we employed before, updating the same graphs and tables from our previous update. This is important for continuity and consistency in our approach. It also appears that this approach has since been adopted by other individual as well as institutional market participants.

We are using four instruments in our analysis: the Vanguard Total Stock Market ETF (VTI) as our stock market proxy, the iShares 20+ Year Treasury Bond ETF (TLT) as our government bond market proxy and the SPDR Gold Shares ETF (GLD) as our gold market proxy. Bitcoin is represented by its spot price. Our updated dataset now covers the period from August the 5th 2016 to April the 3rd, 2024. We obtained our ETF data from Yahoo Finance and our Bitcoin prices from Tiingo.

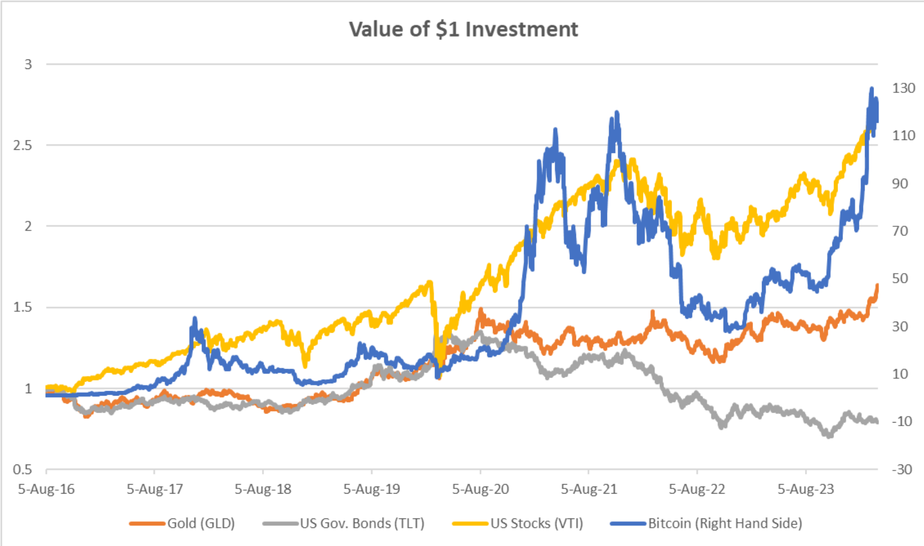
Below is a table of summary statistics, covering the period of interest:

	Bitcoin	**Gold (GLD)**	**US Gov. Bonds (TLT)**	**US Stocks (VTI)**
Annualized Return	86%	7%	-3%	14%
Annualized Risk (Std. Dev.)	72%	14%	16%	19%
Ann. Sharpe Ratio (Rf = 0%)	1.2	0.49	-0.19	0.72

From the 5th of August 2016 to the 3rd of April 2024

Our key takeaways from the above are a) Bitcoin remains the best performer throughout this period, both in absolute as well as in risk-adjusted terms, b) US government bonds remain the worst performer, having been negatively affected by the end of a multiyear near-zero interest rate policy and the reappearance of inflation.

Let’s now look at the value of a 1$ investment in each of those instruments:



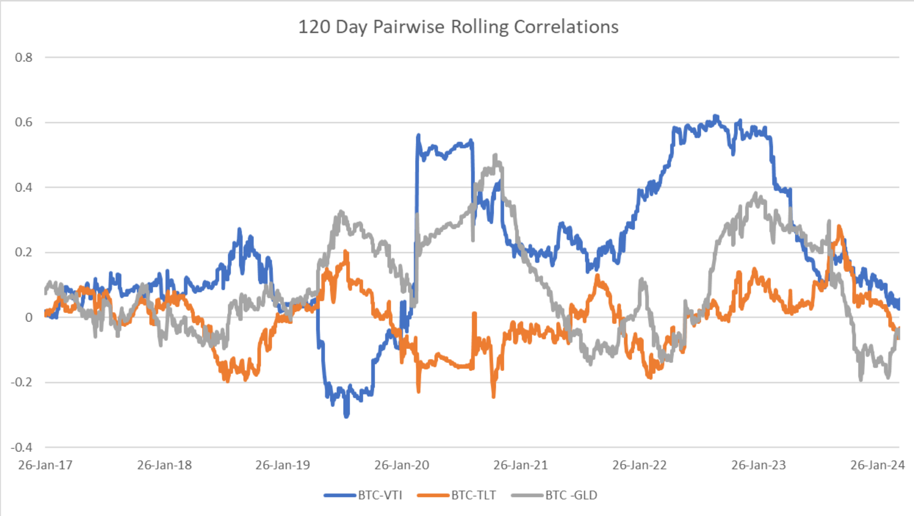
Since our last update, in mid-2022, most instruments have recovered. US government debt is the exception here, being the worst performer over the period.

One of the strongest reasons in favour of constructing a portfolio of assets, is the diversification benefit one gets. This benefit comes from the fact that the various instruments in the portfolio will not all move together. So, to the extent that their returns are less than perfectly correlated, one can increase risk-adjusted performance by simply including additional instruments. Harry Markowitz, the father of modern portfolio theory, reportedly said that this diversification benefit is “the only free lunch” in investing.

So, how do the candidates in our portfolio look, when it comes to correlations? To get an idea we look at correlations from two different angles. We look at average correlations, over the whole period, and to get a sense of how things have evolved, we also looked at rolling correlations over 120 days. We have used both Spearman (non-linear) as well as Pearson (linear) correlations in our analysis.

VTI			
0.2	**BTC**		
0.04	**0.09**	**GLD**	
-0.14	**-0.01**	**0.35**	**TLT**

We see that our instruments have been, on average, relatively uncorrelated. This is very good news, in terms of potential diversification benefits. It is also a finding in line with what we saw in our earlier research notes. Now let’s look at the 120-day rolling correlations between Bitcoin and the other three instruments:



The key takeaways from the above are as follows: a) The correlation between Bitcoin and the US stock market has been mostly positive, however, the relationship between those two instruments appears to be the most volatile. b) Bitcoin is most uncorrelated with US government bonds; this relationship is also the most stable over time. c) The relationship between Bitcoin and gold has been mostly positive, this could be seen as evidence supporting the idea of Bitcoin as "digital gold".

Overall, these findings are not much different from earlier research notes. The correlations between Bitcoin and other major assets seem to have fallen, since our last update in 2022. At this point, Bitcoin appears to be almost uncorrelated with the other three assets. But we do not think one should read too much into this, as the relationships are volatile, as the above plot suggests.

To test the benefits of Bitcoin as a diversifier, we have created four example portfolios. These will be the same as the ones we constructed in earlier research. The instruments and the weights used in each portfolio can be found in the table below:

Portfolio 1	40%VTI + 60%TLT
Portfolio 2	40%VTI + 30%TLT + 30%GLD
Portfolio 3	39%VTI + 59%TLT + 2%BTC
Portfolio 4	39%VTI + 30%TLT + 29%GLD + 2%BTC

What we have, in short, is two "base" portfolios: the first one is invested in equities and government bonds only, and the second one adds gold to the mix. To these two portfolios, we then add a modest allocation in Bitcoin, equal to 2% of total assets. We then calculate summary statistics and present them in the table below:

	Portfolio 1	**Portfolio 2**	**Portfolio 3**	**Portfolio 4**
Annualized Return	4.2%	7.2%	5.9%	8.9%
Annualized Risk (Std. Dev.)	10.8%	10%	11%	10.2%
Ann. Sharpe Ratio (Rf = 0%)	0.39	0.72	0.54	0.87

From the 5th of August 2016 to the 3rd of April 2024

What we see is in line with our observations from our earlier research: a) We notice that a 2% allocation in Bitcoin has not affected the overall riskiness (standard deviation) of our portfolios.
b) However, the effect on both absolute and risk-adjusted returns seems dramatic, particularly when considering the size of the Bitcoin allocation; as far as absolute returns are concerned, we notice a 40% increase in Portfolio 3 vs Portfolio 1 and a 24% increase in Portfolio 4 vs Portfolio 2; as far as risk-adjusted returns are concerned, we notice a 38% increase in Portfolio 3 vs Portfolio 1 and a 21% increase in Portfolio 4 vs Portfolio 2.

Our conclusion, in our 2024 update, is that Bitcoin remains a valuable diversifier in a traditional portfolio and even a modest allocation of 2% remains a "no-brainer" for investors. On the one hand, the investor may benefit from diversification and improved risk-adjusted returns; on the other, even if Bitcoin implodes tomorrow, the investor is facing a maximum drawdown of 2%. We feel that any comparable "long-only" portfolio in traditional assets already exposes the investor to a much higher downside than that of 2%. The increased standard deviation of Bitcoin plays to our advantage, as even a tiny allocation can result in meaningful benefits.