Education

Risk-friendly ways to consider a Bitcoin allocation

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Executive summary

The rapid development of institutional grade financial infrastructure such as exchanges and custody arrangements has made digital assets such as Bitcoin more accessible to traditional asset managers, ETF issuers and other investment institutions. However, questions of how to think about allocation to digital assets and the mitigation of risk are not widely considered.

Bitcoin risks: an allocation analysis

Compared to traditional assets such as equities and fixed income, digital assets are highly volatile with deep drawdowns frequently observed. However, they typically have a very low return correlation with other assets. For example, since the beginning of 2015 the average rolling 12-month historical volatility of Bitcoin has been approximately 73% with a maximum drawdown of 83%, whilst the Russell 1000 (large and mid-market capitalization sized US Equities), had a volatility of 18.5% and a maximum drawdown of nearly 35% over the same period. The 12-month rolling return correlation of Bitcoin to the Russell 1000 over this period has been on average 0.06. More recently, since the beginning of 2020, correlation has been higher (~0.26) as a consequence of COVID 19-induced market conditions. Nevertheless, despite the drawdown, Bitcoin has returned ~80% per annum since 2015, significantly greater than the ~11% per annum return of the Russell 1000.

How then can the risks associated with Bitcoin be managed to permit a portfolio allocation? The key is to utilize diversification and control volatility in the portfolio construction. There are many sophisticated techniques to facilitate this, which make use of forecasting and optimization, however, such complexity is not necessary. In this short note, three simple and accessible approaches are explored, which can aid the incorporation of Bitcoin and other digital assets into an existing portfolio.

The first is to apply a volatility control mechanism to reduce the volatility of Bitcoin to a level comparable to stocks. A simple approach is to combine Bitcoin with a low volatility asset such as cash. Rebalanced daily, a 50% equal weighting of Bitcoin and cash will almost halve volatility over the 2015-2020 period from 72% to 36% — see Exhibit 1. This in turn helps reduce the maximum drawn down from 80% to 55%.

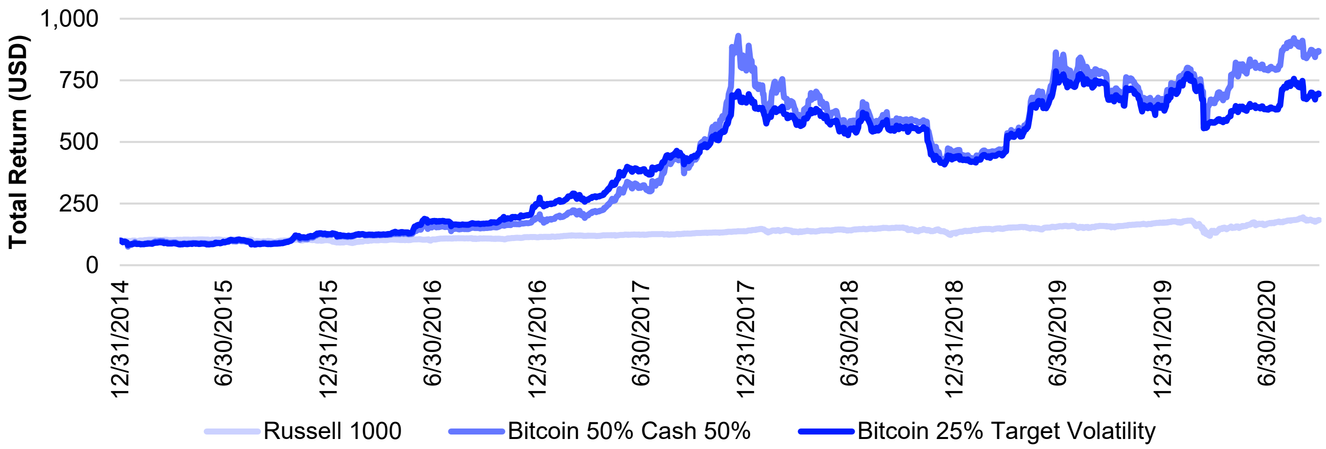
A more sophisticated method is to adjust the weighting of the cash component based on the current level of Bitcoin volatility, thereby controlling volatility to achieve a target level on average, for example 25%. There are several ways this can be achieved, one being the FTSE Russell Target Volatility methodology, which on average has around 45% allocated to Bitcoin and 55% allocated to cash when targeting 25% volatility. However, whilst this results in significant mitigation of risk in the cash and Bitcoin portfolio, performance is dampened and it essentially represents an all or nothing exposure to the digital asset. The performance resulting from applying the FTSE Russell Target Volatility methodology with a 25% volatility target and a 50% Bitcoin, 50% cash portfolio is presented in Exhibit 1 and Exhibit 2 below.

Exhibit 1: Summary statistics
Summary Statistics from 31/12/2014 to 30/09/2020 (FTSE Russell Data)

	Russell 1000	Bitcoin	Bitcoin 50% Cash 50%	Bitcoin 25% Target Volatility	Russell 1000 2.5% Bitcoin	Russell 1000 5% Bitcoin	Russell 1000 Bitcoin Boost 25%/5%
Return p.a. (%)	10.71	80.59	43.75	38.49	13.31	15.87	12.41
Volatility p.a. (%)	18.49	72.86	36.43	24.39	18.46	18.72	17.78
Risk/reward ratio	0.58	1.11	1.20	1.58	0.72	0.85	0.70
Max. drawdown (%)	-34.58	-83.00	-55.22	-42.07	-34.54	-34.63	-33.92
Excess return (%)		69.89	33.04	27.78	2.60	5.16	1.70

Source: FTSE Russell as of September 30, 2020. Past performance is no guarantee of future results. Data for Bitcoin indices represents hypothetical, historical data. Please see the end for important legal disclosures.

Exhibit 2: Volatility and drawn downs can be mitigated by mixing Bitcoin and cash

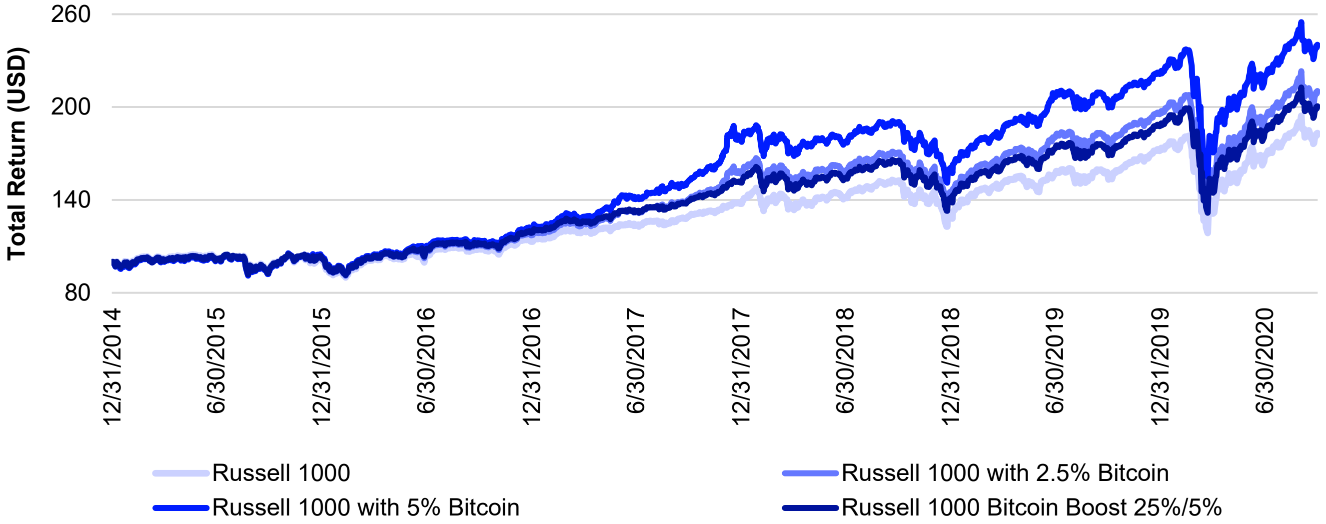


Source: FTSE Russell. Past performance is no guarantee of future results. Data for Bitcoin indices represents hypothetical, historical data. Please see the end for important legal disclosures.

How about diversification? Greater diversification can be achieved by increasing the number of holdings in a portfolio and/or by choosing assets with low correlation to Bitcoin. As mentioned above, Bitcoin generally has a low return correlation with equities. This aids diversification since equity returns and Bitcoin returns are more asynchronous and drawn downs consequently are more likely to occur in different periods. This provides the second mechanism to mitigate risk associated with Bitcoin.

For example, allocating 2.5% to Bitcoin and the remaining 97.5% to the Russell 1000 and rebalancing the allocations on a quarterly basis ensures exposure to Bitcoin is limited and overall portfolio risk is mitigated through diversification across large number of stocks in the Russell 1000. The volatility and maximum drawn down are comparable to those of the Russell 1000, however an excess return of 2.6% per annum was realized. An increased allocation of 5% to Bitcoin enhanced the performance further, whilst volatility and drawdowns were virtually identical to those of the Russell 1000. Exhibit 3 and Exhibit 1 provide an illustration of the simulated history and summary statistics.

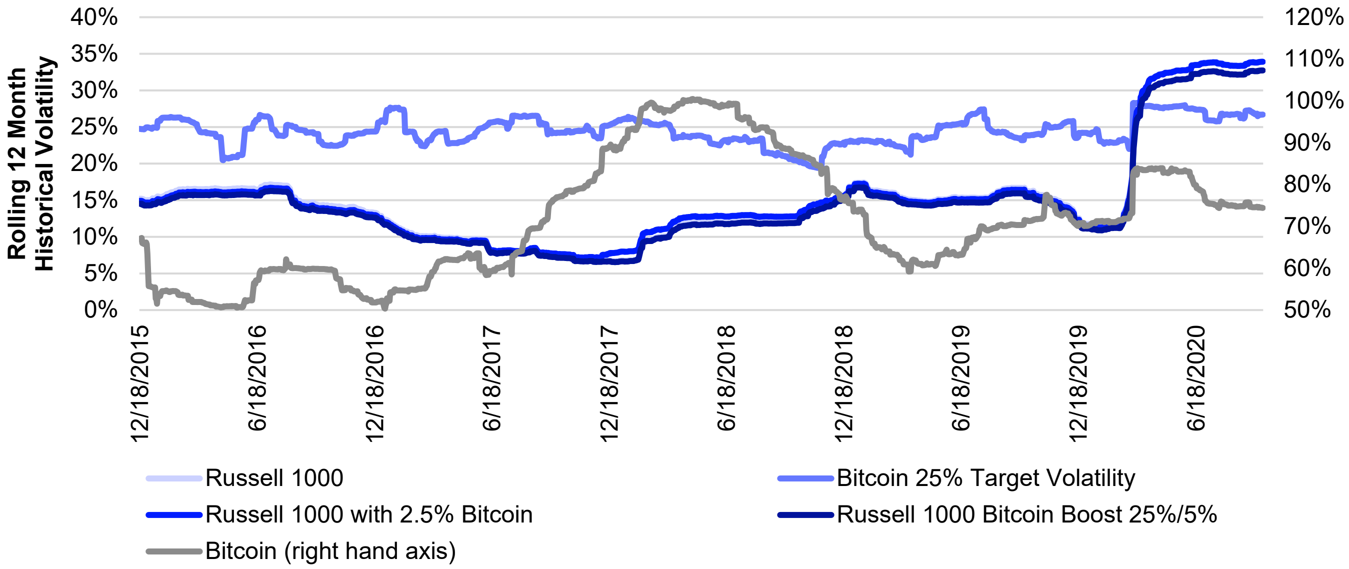
Exhibit 3: A small allocation of Bitcoin can provide enhanced performance, additionally indexes with Bitcoin exposure have an almost identical risk profile to the underlying Russell 1000



Source: FTSE Russell. Past performance is no guarantee of future results. Data for Bitcoin indices represents hypothetical, historical data. Please see the end for important legal disclosures.

The final approach combines these two ideas. The benefit of doing this can be seen in Exhibit 4, which illustrates the rolling 12-month volatility of the portfolios discussed. A 5% allocation of a 25% target volatility Bitcoin portfolio, with the remainder being allocated to the Russell 1000 is used to create the Russell 1000 Bitcoin Boost 25%/5% Index. This results in marginally lower realized volatility during the high volatility periods of later 2017 and in 2020. The performance is presented in Exhibit 3 with summary statistics in Exhibit 1.

Exhibit 4: The rolling 12-month historical volatility of different portfolios



Source: FTSE Russell. Past performance is no guarantee of future results. Data for Bitcoin indices represents hypothetical, historical data. Please see the end for important legal disclosures.

Conclusion

In summary, utilizing relatively straightforward portfolio construction techniques, it is feasible to mitigate some of the perceived risks of Bitcoin and other digital assets by reducing volatility and taking advantage of their low correlation to traditional asset classes and diversification through portfolio weighting. In doing so, a risk controlled Bitcoin portfolio can be integrated into equity (or other asset class) portfolios, thereby gaining exposure to Bitcoin as a natural extension to the portfolio construction process.

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