

## Finance &amp; economics

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## Buttonwood

## Why it is wise to add bitcoin to an investment portfolio

It is a Nobel prize-winning diversification strategy



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“Diversification is both observed and sensible; a rule of behaviour which does not imply the superiority of diversification must be rejected both as a hypothesis and as a maxim,” wrote Harry Markowitz, a prodigiously talented young economist, in the *Journal of Finance* in 1952. The paper, which helped him win the Nobel prize in 1990, laid the foundations for “modern portfolio theory”, a mathematical framework for choosing an optimal spread of assets.

The theory posits that a rational investor should maximise his or her returns relative to the risk (the volatility in returns) they are taking. It follows, naturally, that assets with high and dependable returns should feature heavily in a sensible portfolio. But Mr Markowitz's genius was in showing that diversification can reduce volatility without sacrificing returns. Diversification is the financial version of the idiom "the whole is greater than the sum of its parts."

An investor seeking high returns without volatility might not gravitate towards cryptocurrencies, like bitcoin, given that they often plunge and soar in value. (Indeed, while Buttonwood was penning this column, that is exactly what bitcoin did, falling 15% then bouncing back.) But the insight Mr Markowitz revealed was that it was not necessarily an asset's own riskiness that is important to an investor, so much as the contribution it makes to the volatility of the overall portfolio—and that is primarily a question of the correlation between all of the assets within it. An investor holding two assets that are weakly correlated or uncorrelated can rest easier knowing that if one plunges in value the other might hold its ground.

Consider the mix of assets a sensible investor might hold: geographically diverse stock indexes; bonds; a listed real-estate fund; and perhaps a precious metal, like gold. The assets that yield the juiciest returns—stocks and real estate—also tend to move in the same direction at the same time. The correlation between stocks and bonds is weak (around 0.2-0.3 over the past ten years), yielding the potential to diversify, but bonds have also tended to lag behind when it comes to returns. Investors can reduce volatility by adding bonds but they tend to lead to lower returns as well.

This is where bitcoin has an edge. The cryptocurrency might be highly volatile, but during its short life it also has had high average returns. Importantly, it also tends to move independently of other assets: since 2018 the correlation between bitcoin and stocks of all geographies has been between 0.2-0.3. Over longer time horizons it is even weaker. Its correlation with real estate and bonds is similarly weak. This makes it an excellent potential source of diversification.

This might explain its appeal to some big investors. Paul Tudor Jones, a hedge-fund manager, has said he aims to hold about 5% of his portfolio in bitcoin. This allocation looks sensible as part of a highly diversified portfolio. Across the four time periods during the past decade that Buttonwood randomly selected to test, an optimal portfolio contained a bitcoin allocation of 1-5%. This is not just because cryptocurrencies rocketed: even if one cherry-picks a particularly volatile couple of years for bitcoin, say January 2018 to December 2019 (when it fell steeply), a portfolio with a 1% allocation to bitcoin still displayed better risk-reward characteristics than one without it.

Of course, not all calculations about which assets to choose are straightforward. Many investors seek not only to do well with their investments, but also to do good: bitcoin is not environmentally friendly. Moreover, to select a portfolio, an investor needs to amass relevant information about how the securities might behave. Expected returns and future volatility are usually gauged by observing how an asset has performed in the past. But this

method has some obvious flaws. Past performance does not always indicate future returns. And the history of cryptocurrencies is short.

Though Mr Markowitz laid out how investors should optimise asset choices, he wrote that “we have not considered the first stage: the formation of the relevant beliefs.” The return from investing in equities is a share of firms’ profits; from bonds the risk-free rate plus credit risk. It is not clear what drives bitcoin’s returns other than speculation. It would be reasonable to believe it might yield no returns in future. And many investors hold fierce philosophical beliefs about bitcoin—that it is either salvation or damnation. Neither side is likely to hold 1% of their assets in it.

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