Using Bitcoin for Portfolio Diversification

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Abstract

It has been an explosive start to 2024 in terms of the share market performance. Driven by a wave of enthusiasm for tech heavyweights like *Meta* and *Nvidia*, USA's *S&P 500 index* of large American firms is up 5% and has crossed the 5,000 mark for the first time ever. On February 22, Japan's *Nikkei* 225 broke its own record – which it had established in 1989. In Australia, despite some volatility due to speculation on the direction of *Reserve Bank* interest rates, its share market also has boomed. Given such share market performance, this article asks if it is time to think about investing exclusively in shares.

To answer this, the article will consider two fundamental questions that affect investors in capital markets: (1) what is meant by investment risk vs. return, and (2) can investors optimise their risk-return relationship by holding a single asset type (like stocks), or by holding a diversified portfolio of different asset classes? It will also consider a third question:(3) can using cryptocurrencies such as bitcoin help investors to better diversify their portfolio?

Introduction

The core of the financial markets is risk.

However, it may be extremely frustrating for any wealth manager to try and determine exactly what risk is, let alone how much of risk an investor wants to accept and which investment decisions to make based on their risk profile.

Most investors avoid the question of *'risk'* by considering *'volatility'* instead – which has the benefit of being considerably simpler to describe and quantify. Volatility describes the spread of outcomes in a bell-curve-like probability distribution. Outcomes close to the centre are always the most likely; and volatility determines how wide a range counts as being 'close' to the centre. High volatility also increases the likelihood of experiencing an extreme outcome in terms of investments – such as a devastating loss or a huge gain. An investor can gauge a stock's volatility by looking at how wildly it has moved in the past or, alternatively, how expensive it is to insure it against big jumps in the future (Economist, 2024).

Still, there is always the nagging doubt that real-life concerns lack the symmetry of a bell curve—e.g. cross the road carelessly and one risks getting run over and killed; but there is no equally probable and correspondingly wonderful upside to crossing the road carefully.

Modern Portfolio Theory

If investors ignore these 'real-life" concerns and assume that volatility represents risk, they can develop a whole theory of investing that enables anyone to create portfolios that maximise profits in accordance with their level of their so called 'risk-attitude'. Economist *Harry Markowitz* accomplished this in 1952 by developing 'Modern Portfolio Theory' (MPT); and went on to win the *Nobel Prize* for it (Markowitz, 1952).

MPT refers to an investment theory that allows investors to assemble an asset portfolio that maximizes expected return for a given level of risk. Most wealth managers are most likely utilising this as the foundation of their decisions to convert their clients' *risk tolerances* into a portfolio of investments.

However, the problem is that three academics are claiming that *MPT is broken*. Thay say that a fundamental assumption of MPT – the assumption that taking greater risk will result in a higher expected return – turns out to be, according to their research, completely *false*. They illustrate this in the recently updated *Global Investment Returns Yearbook* (Dimson, et. al, 2023).

After classifying the American and British share prices by volatility and computing the actual performance of each segment of the distribution, they look at the prices of American shares since 1963 and British shares since 1984. For supporters of MPT, the results are unsatisfactory at medium and low volatilities – returns are clustered, and volatility hardly makes a difference. Things are considerably worse when it comes to the riskiest stocks. They did noticeably worse than the rest, far from providing disproportionate profits.

The Yearbook's authors are too thorough to present such results without caveats. The riskiest equities in both nations typically belonged to business minnows, which made up only 7% of the overall market value on average. On the other hand, the corporations that posed the least risk were disproportionately large, making up 41% and 58% of the market value in America and Britain, respectively. This defeats any chance of pairing a big, long position in low-volatility stocks with a matching short position in high-volatility ones – which would have been the obvious trading strategy for profiting from the anomaly and arbitraging it away. In any event, it would be difficult to convince investors to short the market's most volatile equities because short positions are by nature riskier than long ones (Dimson, et. al, 2023).

The authors make it clear that no rational investor ought to be buying such volatile stocks, given they can expect to be punished, not rewarded, for taking more risk. Nor is the fact that as their risk was only obvious in hindsight, it is unlikely that the illiquid shares of small firms vulnerable to competition and economic headwinds ever looked a great deal safer. Meanwhile, lower down the risk spectrum, the surprise is that more people do not realise that the least volatile stocks yield similar returns for less risk and therefore actively seek them out.

The final conclusion of the study – that investors are not wholly rational after all – might not surprise readers. However, this bring us to the second question: *Can investors optimise their risk-return relationship by holding a diversified portfolio?*

If pairing a big, long position in low-volatility stocks with a matching short position in high-volatility ones will not work to reduce risk, can a diversified portfolio reduce volatility and achieve a similar outcome?

Holding a Diversified Portfolios

Diversification is an investment strategy that lowers one's portfolio's risk and helps investors get more stable returns. Investors diversify by investing their money across different asset classes.

However, the recent performance of share markets has reignited an age-old argument: *should investors invest exclusively in shares?*

Prior research suggests that investing in a *mix of stocks and bonds with long holding periods* is an extremely attractive option for investors and institutions (Fama & French, 2018). However, more recently a central tenet of investing – that investors should diversify across stocks and bonds – has been questioned. A recent study showed that an even mix of 50% domestic stocks and 50% international stocks held throughout one's lifetime vastly outperforms age-based, stock-bond strategies in building wealth, supporting retirement consumption, preserving capital, and generating bequests (Anarkulova, et. al, 2023).

However, there are those who take the opposing side in this debate and contend that for investors with access to leverage, it is preferable to first select a diversified portfolio that offers the optimal mix of risk and return, then take out a loan to increase the amount invested in it. Depending on how much risk investors are willing to assume, they argue that a 100% stock allocation may not provide the optimum return, even for individuals who find it difficult to obtain loans.

The issue with choosing between a stock allocation of 60%, 100%, or even 200% is the brief history of financial markets. Both sides base their arguments, whether directly or indirectly, on assessments of the long-term performance of stocks and other assets.

What does this mean for young investors?

In the housing market, it is normal for young investors to borrow money to purchase a house. Similar strategies are promoted by some in the share market. Young people have the least amount of money to invest, but they stand to benefit the most from the long-term compounding effect of capital growth. Therefore, a study by two Yale University professors contend that young people should borrow money to purchase equities early in their working life, then later in life, they should deleverage and diversify. Unfortunately, there is an unsatisfyingly thin amount of data in these studies for a young investor thinking about how to invest for the rest of their working life —roughly fifty years.

Whilst financial history offers many justifications for being steadfast, when markets are experiencing a rally such as that experienced globally in the first quarter of 2024, diversification proponents find it challenging to maintain their position since being cautious can come out as weak. This can be quite a challenge when new forms of investment, such as Bitcoin are experiencing stratospheric rises by almost 150% in the first quarter of 2024.

Including Bitcoin in a Diversified Portfolio

If investing in a *mix of stocks and bonds with long holding periods* is an extremely attractive option for investors and institutions – what about including a *cryptocurrency* (e.g. Bitcoin) as one of the assets in one's diversified portfolio?

The *Economist magazine* introduced us recently to the *'cockroach theory of crypto'* by stating that:

"Chopping off their heads does not work: cockroaches can live without one for as long as a week. Whacking them is no guarantee either: their flexible exoskeletons can bend to accommodate as much as 900 times their body weight. Nor is flushing them down the toilet a solution: some breeds can hold their breath for more than half an hour. To most, roaches are an unwelcome pest. Their presence is made all the worse because they are indestructible (Economist, 2023)."

Many authorities and financiers would characterise the cryptocurrency business as an unwanted pest. To launder money, criminals employ cryptocurrencies. They are used by terrorists. Bitcoin is the ransom that hackers demand. A lot of cryptocurrency currencies are made just to make profit for their creators.

However, it also seems that the industry is unbreakable. In 2022, rising interest rates devastated the price of cryptocurrencies. The leaders of the sector have been removed. *Sam Bankman-Fried*, who once ran one of the world's biggest cryptocurrency exchanges and is facing decades in jail. *Changpeng Zhao* pleaded guilty in November in a Seattle federal court to failing to maintain an effective anti-money laundering program at the company. Authorities are taking more action.

Despite this, not only has cryptocurrency endured, but it is also rising once more: on March 12, 2024, Bitcoin reached its highest price ever, blasting past US$72,000 for the first time in its history (Tangermann, 2024).

What is happening?

According to the Economist magazine, the technology is inherently indestructible; and since cryptocurrencies like 'Ether' and 'Bitcoin' are not companies, they cannot fail and shut down. They use blockchains, which keep track of transactions in a database. Their lists are verified by a decentralised network of computers that are incentivised to keep maintaining them by the promise of new tokens. Only if the tokens fall to zero does the whole architecture collapse; and the Economist magazine believes that there are lots of reasons to believe some crypto tokens are worth more than zero (Economist, 2023).

The first reason is that investing in cryptocurrency is a wager on a world where the technology is widely used. For example, *Stablecoins*, or tokens tethered to a real currency like the dollar, are already used by citizens of autocratic nations to deposit savings and occasionally make payments. These might find broader application.

Another example of wider use is that *non-fungible tokens (NFTs)* are still being made or collected by artists and museums. So are those who want to sell their image. *Donald Trump* is selling his police mugshot for $99 apiece. He also intends to have the suit he was booked-in broken up and turned into cards, which he would then offer to gamblers who purchase at least 47 NFTs in a single transaction.

Clearly, the cryptocurrency business raised a lot of capital and employed many talented developers during its boom years. The ones that are left are developing new programmes, such as play-to-earn games or social media apps. It is possible that these will not be widely used. However, on the slim possibility that things will work out it is still considered worthwhile by some.

The second reason that the Economist believes some crypto tokens are worth more than zero is that it is becoming increasingly obvious with each boom and collapse cycle that cryptocurrency is not a bubble – unlike the *tulip mania* of the 1630s or the *Beanie Baby craze* of the 1990s. Despite being a volatile asset, bitcoin's price history resembles a mountain range rather than a single peak, and it seems to be strongly associated with tech companies.

It must be remembered that when the *Economist Magazine* states that *"cryptocurrencies cannot fail and shut down"*, it is talking about well-established cryptocurrencies like *'Ether'* and *'Bitcoin'*. In fact, when considering the entire cryptocurrencies market, coin-failure is the norm.

Cryptocurrency has been around for over a decade now, and it has already had its fair share of ups and downs. The cryptocurrency market was hit hard in 2022, losing over $2 trillion in value since reaching its height in 2021. After the crypto market reached its then height of $3 trillion in November 2021, it dropped by close to 75% in 2022 (just over a year). This decline is a big reason why numerous crypto funds, exchanges, and crypto billionaires like Sam Bankman-Fried went bankrupt.

According to *CoinKickoff*, (a website providing information about crypto currencies) in the 10-year period from 2013 to 2022, there were **2,383 crypto coin failures**. The average lifespan of a cryptocurrency is 15 months and older coins are more likely to fail than new ones. The biggest reason coins fail is lack of demand and the second biggest is fraud (Chang, 2023).

Many of these coins were created without a clear use case or utility, which led to low demand and ultimately failure. These coins that were abandoned made up two-thirds of all failures.

Unfortunately, the second biggest reason for failure was due to fraudulent or scam projects that deceived investors. These types of projects offer high returns or promise to revolutionize the industry, but in reality, they are just Ponzi schemes. One example of this is *OneCoin*, which was pitched as an alternative to Bitcoin and claimed to have a market capitalization of 50% of Bitcoin. It turned out to be a scam, and investors lost $4 billion dollars.

Year	Abandoned or No Volume	Scam or Other Issues	Failed ICOs or Short-Lived	Joke or No purpose	% of Dead Coins Compared to New Coins
2013	9	0	0	0	66.67%
2014	277	20	5	2	76.54%
2015	223	27	1	2	68.42%
2016	152	22	4	5	60.87%
2017	169	71	46	6	57.14%
2018	390	237	112	12	27.62%
2019	203	73	51	2	4.74%
2020	77	19	9	0	1.03%
2021	34	36	2	2	0.59%
2022	50	23	8	2	0.06%
Total	**1,584 (66.5%)**	**528 (22.2%)**	**238 (10%)**	**33 (1.4%)**	
ICO = Initial Coin Offerings					
Data source: https://coinkickoff.com/dead-crypto-coins/					

One cannot calculate the ratio of failures to total coins available as at any point in time, however, as it is virtually impossible (pun-intended) to give an exact number of how many cryptocurrencies exist. With new ones being introduced to the market almost daily, it is safe to say that the number is constantly changing.

According to CoinMarketBase, there are 24,378 as of this writing, to be exact. However, CoinMarketBase only tracks 9,754 of them. Crypto.com tracks 16,303 coins, Investing.com tracks 9,430, and Statista's data shows there are nearly 9,000. With so many currently out there and new ones popping up every day, it is important for investors to do their research before investing.

One of the primary reasons why are there are so many cryptocurrencies is the growing simplicity of creating new cryptos. Smart contract blockchains such as *Ethereum* and *Solana (SOL*) offer users the ability to develop decentralized apps (dApps) utilizing digital tokens.

In addition, platforms like *OpenSea* and *Rarible* are making it possible for those without any coding expertise to create *Non-fungible Tokens (NFTs).* With these advancements, cryptocurrencies are opening up new avenues for developers, artists, and investors alike (Chang, 2023)
It is the investors that are of interest to this article.

Bitcoin and the Share market

Interestingly, the correlation between established cryptocurrencies like Bitcoin and the overall share market is moderate (Kim, 2023). This makes it interesting for investors because an asset that swings up and down but is not moving in parallel with other assets people might have in a portfolio, can be a useful to include to diversify one's portfolio.

Source: Kim (2023)

The reason for this recent spike appears to be the fact that bitcoin has established itself as a serious asset. In August 2023, an American court ruled that the *Securities and Exchange Commission*, America's main markets regulator, had been "arbitrary and capricious" when rejecting an effort by *Grayscale*, an investment firm, to convert a $17bn trust invested entirely in bitcoin into an *Exchange-Traded Fund* (ETF). Doing so would make investing in bitcoin easier for the average punter (Economist, 2023).

The court upheld its decision in October 2023, essentially directing the SEC to yield. The largest investment managers, including *Fidelity* and *BlackRock*, have now submitted applications to start ETFs in cryptocurrencies. As such, there may be a rush of money into bitcoin as even prudent investors may consider diversifying their portfolios or pension funds by placing small amounts in cryptocurrencies.

Warren Buffett, on the other hand, is not touching cryptocurrencies. He has made his dislike for Bitcoin known over the years. *"In terms of cryptocurrencies, generally, I can say with almost certainty that they will come to a bad ending,"* he said in 2018. At the time, Bitcoin was priced at about US$15,000.

Today (March 2024), Bitcoin's value has soared above US$70,000. Yet Buffett has not changed his tune. In a recent interview he said that even if someone offered him all the Bitcoin in the world for US$25, he would not take it. *"Because what would I do with it?"* he asked. *"I'll have to sell it back to you one way or another. It isn't going to do anything."*

Essentially, Buffet is saying that Bitcoin's price is rising as Bitcoin holders are just trading with each other. This is known as the *'greater fool'* approach to investment. With each round one hopes that a greater fool than you would buy your asset for a greater price that what you paid for it.

Summary

There is strong evidence that 'volatility' is not the same as 'risk', and that investors are not wholly rational as they avoid extremely volatile stock, even though there is a promise of higher return. This is because the potential 'downside' loss is far more painful than the 'upside' gain.

As such the best risk-reduction investment is to have a diversified portfolio of different asset classes.

However, the recent astronomical gains in the share market have raised questions as to investing exclusively in shares. A recent study showed that holding only international stocks throughout one's lifetime vastly outperforms age-based, stock-bond strategies. This is food for thought for young investors who might even consider taking a substantial loan to buy-and-hold shares rather than buy real estate.

The ideal asset to bring into a portfolio to obtain diversification is one that moves against the market, or at least does not have any significant correlation with the market. This article argues that Bitcoin is just such an asset, although some questions have been raised by the like of Warren Buffet if cryptocurrencies are indeed investment assets at all.

In conclusion, given the evidence that larger stocks perform as well as if not better than small riskier ones, it might be best to diversify mainly across the bigger ones. Also, should an investor want to diversify into very risky cryptos then this should comprise only a small part of their portfolio – no more than 5% – so that their losses will be minimised if a greater fool does not emerge, and they are the last fool standing.

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