6 February 2025

Understanding Bitcoin (Part II/II): The value of Bitcoin

Looking back, it is every investor's dream to participate in the performance of Bitcoin. From its first documented price of USD 0.06 in 2010 to its all-time high, Bitcoin recorded an impressive increase in value of around 1.8 million percent. In other words, an investment of 100 US dollars would have multiplied to 1.8 million US dollars in the meantime. After looking at the technology behind Bitcoin in the first part, in the second and final part of our Bitcoin mini-series we want to address the question of whether and how this unprecedented performance can be explained and evaluated from a financial theory perspective and what portfolio characteristics Bitcoin has.

Use and advantages of Bitcoin

With the growing popularity of Bitcoin, discussions and controversial opinions on the financial markets are also increasing. After all, Bitcoin is essentially a digital protocol technology that enables units of value to be transferred directly worldwide without an intermediary. While supporters point to Bitcoin's characteristics as a secure, decentralized and scarce digital asset, there are also prominent critics who question its intrinsic value. Even if Bitcoin's original purpose as a means of payment has not prevailed, it is increasingly viewed as an investment asset. However, while Bitcoin plays less of a role for nations with stable monetary systems, it is a proven alternative for actors in countries with dysfunctional monetary systems such as Nigeria, Venezuela and Zimbabwe to hedge against crises, hyperinflation, internal political instability and censorship, for example, and thus protect their assets. Bitcoin was introduced as an official means of payment in El Salvador, for example, but has failed to gain widespread acceptance and is currently only used by around three percent of the population in everyday life.

Bitcoin is primarily used as an investment and store of value and is developing from a niche area into a serious component for institutional investors and banks.

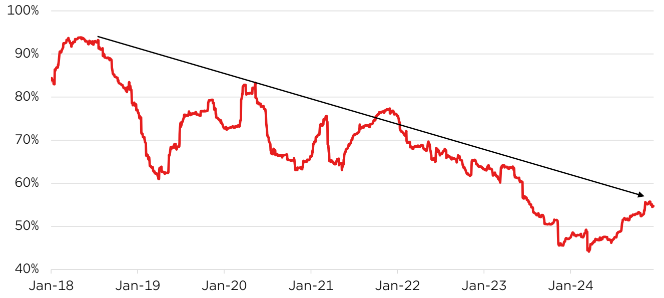
How can the value of Bitcoin be explained?

While the prices of shares and bonds are ¬ very simplified ¬ based on the present value of expected future cash flows, the current price of Bitcoin cannot be explained using the same models. Bitcoin is not backed by collateral, and holding the cryptocurrency is not associated with any returns - such as interest payments for bonds or dividends for stocks. It is therefore difficult to determine where the fair value of a cryptocurrency lies and which criteria and factors can be used for a valuation. For this reason, other price-influencing factors must be identified.

The first starting point is to look at the supply side. This is determined by the production costs and the scarcity of Bitcoin. The production costs can be broken down into the components of energy and hardware costs. In combination with Bitcoin's inherent reward system, this results in an increasing demand for energy and hardware, as the Bitcoin network rewards miners for providing computing power. As this reward is reduced in the course of halvings, the production costs for each additional Bitcoin increase. This leads to a scarcity caused by higher marginal costs for generating new bitcoins. However, this scarcity in conjunction with higher production costs is no guarantee for the value of a good that tends to have a low utility value. Therefore, the following section will focus more on the demand side and the main functions of Bitcoin as a means of payment and store of value.

Overall, the period under review is crucial in explaining the price because Bitcoin has undergone several paradigm shifts in recent years and various factors have been responsible for price formation over time. In addition, not only does the influence vary, but new explanatory factors also emerge time and again that remain largely unknown, at least at the beginning, but whose influence then develops. Between 2015 and 2018, for example, the technical difficulty of mining and concerns about system security were the most relevant price drivers. However, they gradually lost importance and will fade completely into the background from 2021.

Since 2021, the relevance of public attention for price formation has increased significantly and remains a driving factor to this day. Public attention due to crypto-specific demand stimuli is primarily a short-term price driver. Even individual social media activities can lead to sharp price jumps. For example, a strong positive correlation was found between the social media activity of influential Bitcoin opinion leaders and a rise in the price of Bitcoin. In addition, current investor confidence in Bitcoin is a strong price driver in both the short and long term. For example, announcements of regulatory changes, changes in the acceptance of cryptocurrencies and political news relating to Bitcoin can be strong short-term drivers. Most recently, a price rally was triggered by Donald Trump's election victory and the associated expectation of more “crypto-friendly” policies. These short-term drivers make a fundamental valuation difficult and tend to argue in favor of a view as a higher-risk investment, as many factors are not quantifiable and are subject to a high degree of subjectivity. The high demand for Bitcoin is based on investors' long-term confidence in its intrinsic value. Current events point to growing confidence in Bitcoin: More and more institutional investors, but also states that want to build up Bitcoin as a state reserve, are showing an increasing interest in the cryptocurrency. The approval of ETFs that invest directly in Bitcoin and other cryptocurrencies is further professionalizing the market and facilitating investments. In addition, the security of Bitcoin is increasing thanks to more mature regulation in terms of investor protection. With increasing acceptance and professionalization, volatility is also decreasing and is expected to decrease further in the future.

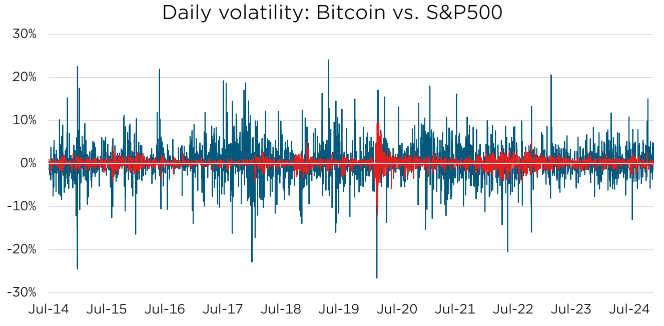


Source: Own calculations, Refinitiv Datastream

Bitcoin as part of an investment portfolio

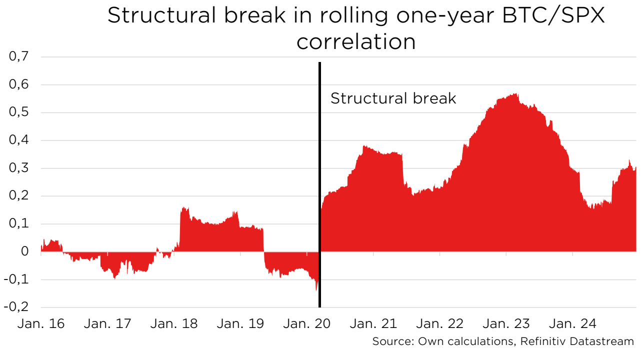
In contrast to established asset classes such as equities and bonds, fundamental data is much less suitable for explaining the causes of the development of the Bitcoin price. However, bitcoins are not subject to the typical corporate risks and are independent of central control due to their decentralized nature. These characteristics can lead to risk and return factors that are fundamentally different from those of traditional asset classes and can therefore contribute to potential diversification. Furthermore, similar to gold, for example, Bitcoin is less susceptible to technological disruptions that could threaten traditional companies and their market values, as it is primarily a digital store of value.

Even though volatility has fallen due to its establishment among a broader group of investors, Bitcoin remains a very risky investment and is only suitable for investors who are able to cope with large price fluctuations. In fact, Bitcoin's volatility is five times higher than that of the S&P 500 over the period from 2014 to 2024. Nevertheless, the annual Sharpe ratio is higher than in any other traditional asset class due to the enormous price increases. From a portfolio perspective, Bitcoin can have a diversifying effect on portfolios with a limited allocation, depending on the existing portfolio structure, while with larger positions the increased individual volatility begins to have a significant impact on increasing portfolio risk.



Source: Own calculations, Refinitiv Datastream

However, historical values and experiences should be treated with caution. Firstly, it is not possible to draw direct conclusions about the future from the past. Secondly, a clear structural break in the correlation characteristics of Bitcoin can be seen from March 2020. While before March 2020 the correlation between Bitcoin and the S&P 500 was close to zero and Bitcoin was considered a "universal diversifier", the correlation after this date is consistently positive.



The trading behavior of small investors in particular has had a decisive influence on the correlation. This increases sharply, especially in times of extreme market movements. The correlation between the price development of Bitcoin and technology and growth stocks, which are frequently traded by retail investors, is particularly striking. The extent to which this influence of retail investors on the correlation will decrease with the entry of institutional investors into the crypto market is not yet foreseeable.

Due to its characteristics and dynamics, Bitcoin cannot be clearly classified as a "risk-on" or "risk-off" asset, but rather plays an ambivalent role. The classification depends heavily on the period under review and the specific market environment.

It can therefore be argued that Bitcoin belongs in a classic multi-asset portfolio. However, its previous status as a "universal diversifier" needs to be reconsidered. It must be examined whether Bitcoin can still be considered a suitable instrument from a diversification theory perspective. Gold, for example, has shown a significantly lower correlation to the S&P 500 over the last three years, even if the return was significantly lower.

Bitcoin's volatility therefore makes it less attractive for risk-averse investors, while it can be an interesting addition for risk-tolerant investors.

Conclusion

The rapid rise of cryptocurrencies from an obscure technology to a multi-billion dollar market was followed by rapid legitimization: established hedge funds, prominent investors and private investors have included them in their portfolios. Cryptocurrencies are therefore no longer a marginal phenomenon. They are an expression of a fundamental change in the financial world that is putting traditional structures to the test. Nevertheless, the economic mechanisms that determine the price of this new asset class have not yet been fully researched and understood. The original idea is that it is a "risk-off" asset, but in practice it is now traded more as a "risk-on" asset. Banks and investors are faced with the challenge of developing sound valuation standards that take into account both technological innovations and risks. The inclusion of cryptocurrencies requires careful consideration of risk affinity and loss-bearing capacity and is therefore not suitable for every investor, but one thing can be said with certainty: due to its volatility, this asset class is only suitable for investors with an affinity for risk. And even these should only include Bitcoin as a small addition to an already well-diversified portfolio. However, due to the structural break, which has shown that the correlation properties of Bitcoin have changed, it must be regularly reassessed whether and to what extent Bitcoin can contribute to diversification. In summary, Bitcoin has developed into an exciting new liquid asset class alongside established asset classes such as precious metals, commodities, real estate, equities and bonds. As an innovative asset, it allows investors to further diversify their portfolios while benefiting from the opportunities of an increasingly professionalized market.

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Market data

Aktienmärkte	Stand 07.02.2025 13:21	Veränderung zum 31.01.2025 -1 Woche	06.01.2025 -1 Monat	06.11.2024 -3 Monate	06.02.2024 -12 Monate	31.12.2024 YTD
Dow Jones	44748	0,5%	4,8%	2,3%	16,2%	5,2%
S&P 500	6107	1,1%	2,2%	3,0%	23,3%	3,8%
Nasdaq	19792	0,8%	-0,4%	4,3%	26,8%	2,5%
Russell 2000	2307	0,8%	1,8%	-3,6%	18,1%	3,5%
DAX	21909	0,8%	8,4%	15,1%	28,6%	10,0%
MDAX	27090	1,3%	5,4%	2,9%	4,9%	5,9%
TecDAX	3819	2,5%	9,7%	15,2%	12,6%	11,8%
EuroStoxx 50	5351	1,2%	7,3%	11,5%	14,1%	9,3%
Stoxx 50	4663	1,2%	6,8%	8,3%	9,9%	8,2%
Nikkei 225	38787	-2,0%	-1,3%	-1,8%	7,3%	-2,8%
MSCI Welt	3864	0,7%	2,7%	3,0%	19,1%	4,2%
MSCI Welt SRI	3551	0,9%	-1,2%	-1,3%	12,8%	1,4%
MSCI Emerging Markets	1102	0,8%	2,2%	-2,6%	10,2%	2,5%
Zinsen und Rentenmärkte						
Bund-Future	133,41	89	115	168	-83	-3
Bobl-Future	117,79	36	63	-62	26	-7
Schatz-Future	106,88	6	16	17	110	-11
3 Monats Euribor	2,54	-5	-22	-51	-140	-18
3M Euribor Future, Dez 2025	1,92	-6	-14	-89	-75	3
3 Monats $ Libor	4,34	3	-1	-30	-110	-3
Fed Funds Future, Dez 2025	3,92	2	-2	-59	-29	1
10-jährige US Treasuries	4,44	-11	-18	0	35	-13
10-jährige Bunds	2,37	-6	-8	-3	10	0
10-jährige Staatsanl. Japan	1,30	9	19	32	59	22
10-jährige Staatsanl. Schweiz	0,39	1	2	-2	-51	12
IBOXX AA, €	2,93	-7	-18	-14	-39	-11
IBOXX BBB, €	3,35	-7	-21	-18	-59	-11
ML US High Yield	7,39	-3	-15	-11	-62	-26
Rohstoffmärkte						
Rohöl Brent	74,75	-2,7%	-2,5%	-1,2%	-5,0%	0,0%
Gold	2865,26	2,0%	8,7%	7,4%	40,7%	9,1%
Silber	32,13	2,2%	6,6%	2,9%	43,2%	8,3%
Kupfer	9155,36	2,5%	3,0%	-0,5%	10,4%	5,8%
Eisenerz	106,23	4,6%	6,8%	2,1%	-16,6%	2,5%
Frachtraten Baltic Dry Index	793	7,9%	-24,0%	-44,4%	-47,7%	-20,5%
Devisenmärkte						
EUR/ USD	1,0374	-0,2%	-0,5%	-3,0%	-3,4%	-0,1%
EUR/ GBP	0,8331	-0,4%	0,3%	0,0%	-2,5%	0,8%
EUR/ JPY	157,88	-1,9%	-3,3%	-4,3%	-1,1%	-3,2%
EUR/ CHF	0,9407	-0,4%	0,1%	0,4%	0,4%	-0,1%

Quelle: Refinitiv Datastream

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