RESEARCH DIGEST ▪ 1ST QUARTER 2021

CRYPTOCURRENCIES

Prices of major cryptocurrencies have soared to new heights in recent months. The price of bitcoin, the largest cryptocurrency by market capitalization, briefly topped $60,000 per coin for the first time in March, bringing its trailing 12-month gain to over 800%! What is behind the rapid rise in prices? To an extent, bitcoin and other major cryptocurrencies have been one of the biggest beneficiaries of the post-pandemic macro environment (e.g., supportive monetary and fiscal policies, low interest rates, the rise in excess savings, and elevated government debt levels), and the speculative mania that has swept across markets. Cryptos have also been buoyed by several high-profile endorsements and a growing acceptance among businesses and institutional investors. Some believe crypto is on the verge of going mainstream. However, opinions on cryptocurrencies within the financial industry remain decidedly split. Supporters argue cryptos are a new "digital gold" and stores of wealth that offer protection against a potential rise in inflation, whereas detractors view cryptos as little more than a "digital tulip," a reference to the 17th century Dutch tulip bulb bubble.

Considering this debate, the first quarter 2021 edition of Research Digest features three papers discussing cryptocurrencies.

- The first paper puts forth several supply/demand–based indicators that investors can leverage to better assess bitcoin's intrinsic value;
- the second paper considers the impact of adding a small allocation to bitcoin on a traditional 60/40 portfolio and finds it improves returns on both an absolute and risk-adjusted basis; and
- the third paper explores bitcoin's viability as a store of wealth, concluding that while it does share some of the attributes of traditional stores of wealth, for now, bitcoin feels more like an option on a potential store of wealth given its high degree of volatility, regulatory uncertainty, and operational constraints.

VALUING BITCOIN

Phil Bonello, Grayscale Investments, August 2020

Investor interest in bitcoin has soared as demand for alternative stores of wealth has grown as global monetary inflation has accelerated. But, bitcoin is highly volatile, and its unique characteristics and its lack of cash flows make it difficult for investment professionals to value. In this article, Grayscale Investments (the world's largest digital currency asset manager) looks to address this issue by outlining a series of supply/demand indicators to help investors better assess bitcoin's intrinsic value.

According to the author, bitcoin has an important role to play in the current environment, as investors search for alternative money–like assets to protect against the risk of inflation amid unprecedented monetary and fiscal stimulus. The author argues that because of bitcoin's unique qualities—such as its verifiable scarcity and a supply that cannot be controlled by a central authority—it can serve as a store of value to protect against inflation. Yet, bitcoin's unique qualities, and its general lack of cash flows, also make it difficult to value as an investment. But, the author suggests investors can use several key supply/demand indicators to better understand bitcoin's value.

The balance between supply/demand and shifts in market structure are at the core of many valuation exercises. Supply-side dynamics play an especially important role in determining bitcoin's price. Bitcoin's protocol limits its supply—there will only ever be 21 million bitcoin—but not all bitcoin have been mined and not all bitcoin are actively used or traded. Because of these dynamics, the are several supply-based indicators that are useful for valuing bitcoin. One such indicator involves identifying coins by age. Coins that have not moved for one to three years belong to "holders," while coins that have moved in the last 90 days belong to "speculators." An increase in holder coins relative to speculator coins is likely a bullish signal denoting a backup in supply and possible subsequent price increase. Another indicator is the market capitalization to realized capitalization ratio (MVRV). Realized capitalization, the price of each bitcoin at its last on-chain movement, is a measure of the aggregate cost basis of all bitcoin ever moved. It is a more accurate measure of total market value than market capitalization as it places less weight on older coins that may be lost. Historically, a MVRV near one has been a support level for bitcoin and acted as a bullish signal.

Demand-based indicators are also important determinates in valuation, especially as bitcoin becomes more integrated into traditional business transactions. Daily active addresses (DAA) is an indicator of changes in demand for bitcoin. DAA measures the total number of unique bitcoin addresses that transact on a given day. Although this metric doesn't include all users, it does give investors an understanding of network growth. A spike in DAA may show increased usage and signal the beginning of a new market cycle. Additionally, the Whale Index can be a useful demand-side indicator. The Whale Index represents the number of unique addresses with more than 1,000 bitcoins and is a signal of increased accumulation and demand. Historically, an increase in the Whale Index has corresponded to increases in the price of bitcoin.

Like most assets, no one single metric is fully predictive or explanatory of bitcoin price movements. This is especially true for an asset such as bitcoin that does not produce cash flows and is highly dependent on investor sentiment. However, by studying the market structure and using the supply/demand indicators outlined in this paper, the author believes investors can gain insight into valuing bitcoin investment opportunities.

CRYPTOASSETS: THE GUIDE TO BITCOIN, BLOCKCHAIN AND CRYPTOCURRENCY FOR INVESTMENT PROFESSIONALS, PART IV: CRYPTO IN A PORTFOLIO SETTING

Matt Hougan and David Lawant, CFA Institute Research Foundation, 2021

In this section of the CFA's research brief, the authors analyze bitcoin's historical performance characteristics and consider what role, if any, it should play in an institutional portfolio. Since its introduction in 2009, bitcoin has been highly volatile, but it has also demonstrated high returns and low correlations with traditional assets. The authors find that adding bitcoin to a traditional 60/40 portfolio can improve returns in absolute terms and on a risk-adjusted basis. While risks remain, they believe bitcoin and other cryptocurrencies retain future upside potential as market awareness and investor adoption grows.

Bitcoin's historical performance is characterized by three main attributes: high returns, high volatility, and low correlations with traditional assets. Since its launch, bitcoin has been one of the best-performing investments, posting triple-digit or greater returns in six of the 11 calendar years since it has had traded prices. But, its strong performance is accompanied by high volatility. Bitcoin prices have gone through six different peak-to-trough drawdowns of more than 70%. Also, while bitcoin volatility is trending down, it remains substantially more volatile than other risk assets, such as equities and gold. However, bitcoin prices have demonstrated consistently low correlations with traditional assets. This is in part due to bitcoin's unique return drivers, which include market adoption, network security, supply changes, liquidity, regulatory, and technological developments, in addition to other factors.

Given its unique characteristics, the authors consider whether bitcoin can add value to a traditional portfolio. To achieve this, they examine the impact of adding bitcoin to a traditional 60/40 portfolio of global stocks and bonds. Using data from first quarter 2014 to third quarter 2020, the authors found that the addition of bitcoin had a significant positive impact on total portfolio returns. Over the full period, a quarterly rebalanced 2.5% allocation to bitcoin would have improved portfolio returns by 23.9 percentage points, with only a modest increase to portfolio volatility—the Sharpe ratio increased from 0.54 to 0.75. The authors attribute bitcoin's diversifying potential to its high volatility and low correlation with other asset classes, as well as its liquidity, which allows for rebalancing with low trading costs. However, bitcoin's impact to portfolio risk increases rapidly at higher allocations; therefore, risk budgeting and rebalancing is important in limiting portfolio drawdowns.

The authors also consider whether bitcoin and other cryptocurrencies' performance characteristics will continue in the future. The authors assert that bitcoin volatility will likely remain high, given they are still in the early stages of their development and major questions remain about their adoption and regulation. Cryptocurrencies' correlation with traditional assets is also expected to remain low because of fundamentally different return drivers. Therefore, the question at hand is cryptocurrencies' future return potential. There are plenty of differing views on this front. Bulls argue that historically high returns will persist as crypto has yet to go mainstream and institutional investors largely remain on the sidelines, while bears contend that cryptos are highly overvalued and amid one of the largest bubbles in modern history. The authors note that while elevated valuations and other risks remain, so does the upside potential. They feel cryptocurrencies have significant room to run as market adoption and institutional investor interest continues to grow, especially if current capital in adjacent asset classes gets reallocated to cryptocurrencies.

OUR THOUGHTS ON BITCOIN: A LOOK AT THE PATH FOR BITCOIN IF IT IS TO BECOME AN ALTERNATIVE STOREHOLD OF WEALTH

Khia Kurtenbach, Rebecca Patterson, Ross Tan, Dina Tsarapkina, Bridgewater, 2021

Over the past year, bitcoin has skyrocketed in value and generated a significant amount of coverage and discussion over its place in investors' portfolios. The authors explore bitcoin's viability as a store of wealth by investigating the factors behind its unprecedented price return and addressing the prospects and challenges that face bitcoin. Although bitcoin has some attractive features, for now, the authors do not see it as a viable store of wealth for large institutional investors, thanks mainly to a high degree of volatility, regulatory uncertainty, and operational constraints.

Bitcoin surged more than 400% in 2020 and it is once again attracting attention for it potential to serve as a "digital gold"—an alternative store of wealth and potential inflation hedge for portfolios. Bitcoin does share some of the attributes of traditional stores of wealth. Like gold, bitcoin offers stable and limited issuance that cannot be devalued by central bank printing. Bitcoin has a hard-coded total supply of 21 million bitcoins, with an issuance rate that automatically halves every few years. Additionally, bitcoin is easily exchangeable and accessible. In fact, compared to other traditional stores of wealth, bitcoin is much more easily exchangeable given its digital nature, much more so than physical cash. Although the portability of bitcoin has always been an advantage, it is now becoming more accessible and easier to exchange globally, with more than 80 countries now having at least one bitcoin ATM. Bitcoin, like gold, may look especially attractive in today's low interest rate environment given neither pay a yield, which can lead to a significant opportunity cost to holding either asset when interest rates are higher.

While recognizing its appealing attributes, the authors point out that it is still unclear if bitcoin is a viable store of wealth or provides portfolio diversification as advocates claim. Like gold, bitcoin is rarely used as a medium for directly exchanging goods and services, and compared to other traditional stores of wealth, bitcoin is not yet widely used as a savings vehicle or reserve asset. Rather, a large share of investors still appears to be using bitcoin for shorter-term speculative trading, as opposed to an actual longer-term savings vehicle. The authors found that long-term holders of bitcoin make up only 15% of the market share. Bitcoin's speculative nature is one of the reasons its price volatility has been significantly higher than other risky assets, like equities, let alone traditional stores of wealth. The authors acknowledge that greater acceptance by large institutional investors could pull bitcoin's volatility lower, but they suggest this hinges on a highly uncertain regulatory outlook. They believe governments will either try to deter the growth of bitcoin due to fears of undermining traditional currencies or they will try to foster an environment with more trust and transparency. The latter will be key in attracting more institutional participants, but it could lead to heightened volatility in the interim. For those claiming bitcoin offers portfolio diversification and inflation protection, bitcoin has had an inconsistent relationship with gold and inflation expectations over its decade-long history. Perhaps more importantly, unlike gold, bitcoin has not reliably supported returns during periods when 60/40 portfolios experienced significant drawdown.

The authors conclude that bitcoin shares some but not yet all the qualities of a traditional store of wealth. It also has the potential to provide diversification, but so far, this is more theoretical than realized. At the same time, bitcoin is highly volatile and faces a wide range of potential outcomes in terms of its future purchasing power. Even ignoring its high volatility, the regulatory uncertainties alone make bitcoin a high-risk investment. Bitcoin may prove to preserve value in the future, and become a more mainstream digital means of exchange, but for the authors, bitcoin currently feels more like an option on a potential store of wealth. ■