Bitcoin: Future or Fad?

Daniel Tut

1 Introduction

Despite the worldwide attention that Bitcoin (and cryptocurrencies in general) has garnered, there are still significant uncertainties regarding the nature and the role of Bitcoin in an individual's portfolio. This chapter, using monthly data obtained from Coinmarketcap.com, Federal Reserve Bank St. Louis (FRED), and Yahoo finance for the period 2009–2022, examines whether Bitcoin is a commodity, a currency, an investment, a collectible, a store of value, or a cash proxy as well as its potential role in a person's portfolio. It also discusses how the Blockchain technology underpinning Bitcoin's protocol can be used to address some of the challenges in big data.

Bitcoin is a digital currency that uses a blockchain protocol in which digital signatures are cryptographically validated via timestamp, independent of a financial intermediary. A hash function that links transactions of any arbitrary size to a fixed value size is used to chain the timestamped

D. Tut (✉)
Ted Rogers School of Management, Toronto Metropolitan University, Toronto, ON, Canada
e-mail: dtut@ryerson.ca

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blocks together. A hashcash proof-of-work (PoW) algorithm validates all transactions and blocks, creating a verifiable distributed timestamp digital ledger.[1,2] The blockchain technology underlying Bitcoin's protocol has a potentially wide range of applications and has been used to create new digital assets. Blockchain technology also has the potential to address some of the challenges underlying big data. The challenges in managing, collating, and storing big data arise due to size, frequency, complexity, data breaches, and computational needs. Blockchain technology can be used to create immutable protocols which minimize malicious attacks and fraudulent activities (Foley et al., 2019). Furthermore, due to the decentralized nature of blockchain protocols, owners can have control rights over the use of their private data independent of any third party. We provide evidence of how blockchain technology can be used to address some of the big data challenges in the healthcare sector, in the global supply chains, and in the control over access and use of private data.

Bitcoin's initial goal was to be a peer-to-peer electronic cash, a potential replacement and alternative to fiat currency. However, this chapter demonstrates that Bitcoin fails to function as an effective unit of account since transacting parties will always revert to using cash over Bitcoin in a universe in which cash exists. Bitcoin has lower scalability and higher transaction costs than alternative payment processes such as credit cards. Furthermore, because of its inherent price volatility, Bitcoin does not fair better than gold as a store of value, inflation hedge, and currency hedge. Bitcoin has a high Sharpe ratio, and its speculative nature can provide some alpha opportunities for institutional investors and hedge funds. However, given its speculative nature, it is not clear yet what role Bitcoin can serve in a regular person's portfolio.

The rest of this chapter is organized as follows. Section 2 examines whether Bitcoin is the future of payment systems; Sect. 3 discusses whether blockchain technology can address some of the challenges in big data and the potential impact of regulations on the cryptocurrency space; Sect. 4 concludes the chapter.

[1] See Nakamoto (2008), for detailed discussions on Bitcoin's protocol.

[2] Node operators or "miners" are incentivized and rewarded in Bitcoin for every successfully validated block in the chain. This ensures continuity of the Blockchain.

2 Is Bitcoin the Future of Payment Systems?

2.1 Bitcoin as a Cash Proxy

Is Bitcoin "money?" Bitcoin was originally intended to be a "purely peer-to-peer (p2p) version of electronic cash…[to] allow online payments to be sent directly from one party to another without going through a financial institution…. [and] a solution to the double-spending problem using a peer-to-peer network" (Nakamoto, 2008). In order to understand whether Bitcoin can actually function as "money," we need to examine whether it satisfies and meets the criteria for an item or for an object to be considered as such. There are four such attributes of money[3] (1) Medium of exchange, (2) Method of payment, (3) Unit of account, and (4) A store of value.

Bitcoin meets the first two criteria as the Bitcoin protocol allows for transactions using BTC, which is the smallest tradable unit of Bitcoin, to be transferred from one account to another. New transactions are communicated to nodes, and each node collects all transactions into blocks. Once a node finds a proof-of-work (PoW), the block is then communicated to all nodes. The block is only accepted if transactions are verified as having not been already spent. Once transactions are verified and validated, the nodes start working on creating and adding a new block to the chain. Transactions are only considered valid after they are verified through a community consensus; that is, by the majority of the network nodes (Akcora et al., 2018; Song & Aste, 2020). The network rejects any transaction whose referenced output does not exist or has already been spent; such a transaction is not included in the blockchain. In creating the block, a transaction is only added to the wallet if the sum of the block creation fee and transaction fees are greater than the Coinbase value (Easley et al., 2019). Matching transactions are then deleted from the pool before the block is relayed to peers and added as part of the main branch in the chain via a Merkle tree.

Effectively, Bitcoin eliminates double-spending via the use of a digital signature algorithm and a proof-of-work via a hash function, which provides some security and allows users to engage in exchanges (Lipton & Treccani, 2021). Thus, Bitcoin can serve as a medium of exchange and payment method (Yermack, 2015; Almudhaf, 2018; McLeay et al., 2014).

[3] Smithin, 2002; Davies, 2010; Goetzmann & Goetzmann, 2017; Keynes, 2018

Indeed, Fig. 1 shows that the price, volume, and market capitalization reflect the demand and interest in Bitcoin. This figure indicates that Bitcoin satisfies the first two of four attributes.

However, at best, Bitcoin partially meets the third criteria: "Unit of account." For Bitcoin to be a stable and effective unit of account, transacting parties should be able to price goods in Bitcoins. The daily fluctuations in Bitcoin prices, as shown in Fig. 2, suggest that it might neither be in the best interest of the buyer nor the seller if goods are priced in Bitcoin. For example, consider a one-time transaction between a buyer and a seller. If the value of Bitcoin is precipitously falling, the buyer might be willing to exchange their Bitcoin holdings for a basket of goods, while the seller will be unwilling to accept Bitcoin as a form of payment. Moreover, if the value of Bitcoin is on the rise, then buyers will find it difficult to depart with their Bitcoin holdings, yet this is precisely the time during which sellers are more than willing to accept and price goods in Bitcoin.

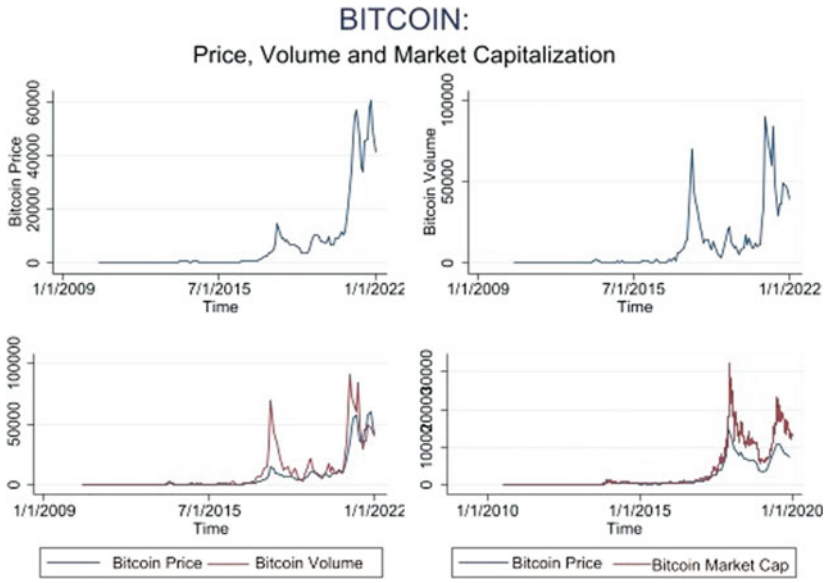

Fig. 1 Price, volume, and market capitalization of Bitcoin

Fig. 2 Price volatility of Bitcoin

This simple example illustrates that transactions are likely to be incomplete when goods are priced in Bitcoin. The inefficiency in Bitcoin transactions becomes even more apparent when considering issues in the labor markets (wages) and the financial markets (earning reports). Because of this inefficiency, it is difficult to make forward-looking valuations and to engage in future contracts when goods are priced in Bitcoin. Relative to alternative forms of payment, such as cash and credit cards, Bitcoin has higher transaction costs, as the mining of tokens is costly, and users have to utilize exchanges to receive tokens before engaging in any transactions (Stoll et al., 2019; Thum, 2018). The exchanges, such as Coinbase and Binance. US, serve as trusted third parties in the network. Additionally, each BTC block is limited to a 1 megabyte (MB) size and cannot handle more than eight transactions per second.[4] This restriction limits the scalability and broader adoption of Bitcoin as a form of payment on a global

[4] Credit cards such as Visa can process about 20,000 transactions per second with significant less energy consumption per transaction.

scale.[5] As a result, in a universe where cash exists, rational employers and employees would likely revert to using cash over Bitcoin.

2.1.1 Stablecoins

One potential solution to the volatility of Bitcoin as a currency is the advent of stablecoins. Stablecoins are digital currencies whose value is pegged to a fiat currency (U.S. dollars) or a basket of currencies. The aim is to use blockchain technology to create a stable, cryptographically secured coin similar to fiat currency that will reduce volatility for investors in the cryptocurrency market. Stablecoins are, therefore, particularly useful for those investors who want to redeem or exit their positions in the market. In order to peg a stablecoin to a fiat currency, the coin can either be backed by cash-equivalent reserves such as Treasury bills or backed by a smart contract on the blockchain. The smart contract ensures that the peg holds by buying or selling the required number of coins once preset conditions are met.[6]

Figures 3 and 4 show that while the tether coin experienced noticeable volatility, it has nevertheless remained stable over recent years. While on average the value of the Tether is highly correlated with the value of the U.S. dollar, the volume is highly dependent on Bitcoin. The correlation between the Tether volume and the Bitcoin volume is about 91%. This correlation suggests that the observed volatility in Bitcoin has real implications for stablecoins. During periods of significant volatility in Bitcoin, redemption risks in stablecoins are likely to increase, leading to potential rollover risk in the cryptocurrency market.[7]

[5] The updated BSV 1.0.7 (released, 2021) has no block size limit and the protocol can handle scalable transactions but it is not yet clear whether this will lead to scalability at the global level (MNP, 2021).

[6] Financial intermediaries can also issue stablecoins. J. P. Morgan uses "JPM Coin" for intra-day repurchase agreements and for liquidity management. But there is still ongoing debate as to whether these types of coins are actually stable coins or digitized alternative forms of payment system (Morgan, 2020).

[7] See: Liao and Caramichael (2022) Gorton and Zhang (2021) for some discussion on stablecoins.

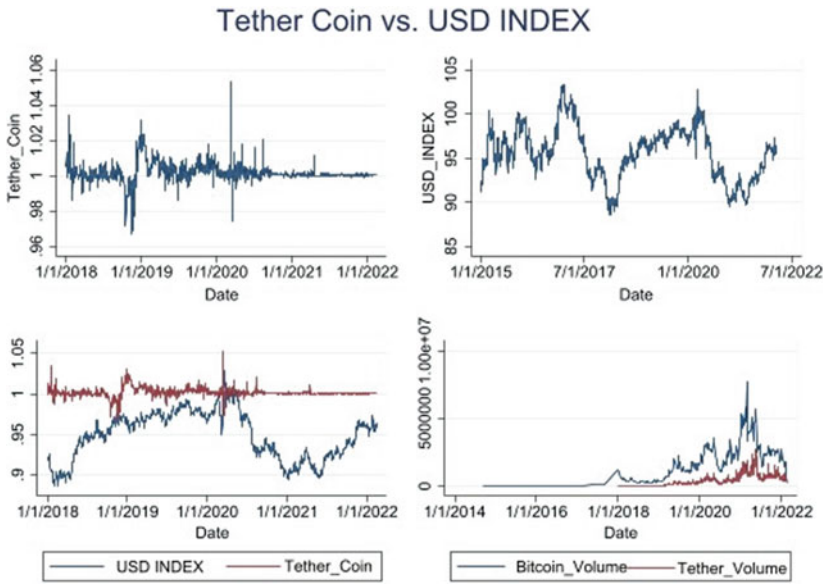

Fig. 3 Tether coin versus U.S. dollar (USD) index

2.2 Bitcoin vs Gold: A Store of Value?

Can Bitcoin replace gold and other precious metals as a store of value and a hedge against inflation? First, for an asset to be considered a store of value, it must meet several requirements: (1) Maintain purchasing power over a long duration of time (2) The asset must be easy to transport and durable, and (3) The asset should have some element of inherent value, either due to historical adoption, government backing or because of economic and industrial use. Gold meets all of these three characteristics. Gold is limited in supply and, as a result, tends to maintain its purchasing power over time, making it a reliable hedge against inflation (Capie et al., 2005). Gold is valued for its aesthetic qualities and does not degrade over time. Gold has also historically been accepted as a store of value (Graeber, 2012; Taleb, 2021; Sargent and Wallace, 1983) and, as a result, provides some protection against regional and national political uncertainties. Gold-backed exchange-traded funds make it easy to transport, trade, and own gold as a store of wealth, and investors do not necessarily need to hold the actual physical gold. Bitcoin is limited in

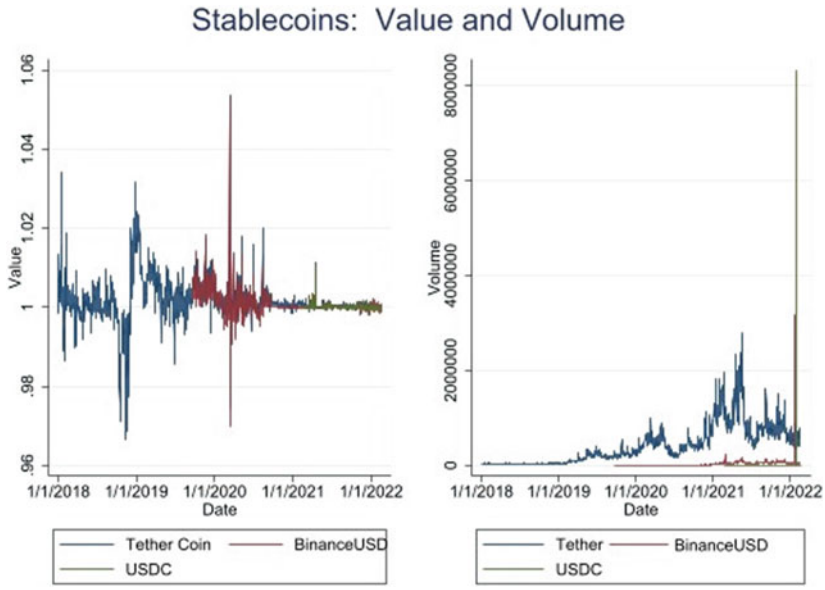

Fig. 4 Value and volume of Stablecoins

supply since there are only 21 million hard-coded coins, and the supply growth is expected to decrease over time due to the deflationary nature of the Bitcoin protocol (Lipton, 2021; Nakamoto, 2008). This supply limit suggests that the value of Bitcoin cannot be devalued by any central authority such as a Central Bank. However, Bitcoin has yet to be globally accepted as a store of wealth, partially because of its high volatility and because it has only existed for a decade. Therefore, the volatility of Bitcoin significantly weakens its ability to be an effective store of value and a diversifier in an individual's portfolio.

Additionally, during the early nineteenth century, gold historically served as an automatic stabilizing mechanism. Most major currencies were backed by or linked to gold, and as a result, gold has historically served as an important asset during market downturns. In particular, investors tend to hold gold when a currency depreciates in value and reduce their gold holdings when a currency appreciates. In this regard, gold has served as an effective exchange rate hedge, both against the decline in domestic currency's purchasing power and against domestic currency's purchasing

power relative to a basket of foreign currencies (Capie et al., 2005). Unlike fiat currency or gold, the demand for Bitcoin is unpredictable and difficult to stabilize as price appreciation encourages hoarding, which could lead to deflation if Bitcoin is the base currency in an economy (Dowd, 2014; Selgin, 2014, Bohme et al., 2015. Thus, it is unclear yet what role Bitcoin would play during periods of significant currency fluctuations and whether Bitcoin can serve as an effective exchange rate hedge. Additionally, Fig. 5 shows that Bitcoin performed poorly as an inflation hedge relative to gold during a market downturn in March 2020.

Unlike gold, Bitcoin is not a homogeneous asset as there exists a continuous stream of competing cryptocurrencies assets, making Bitcoin less suitable as an inflation or a currency hedge for investors. Bitcoin also has no obvious industrial usage. If anything, the cost of Bitcoin mining and its energy consumption is significantly higher than the cost of minting fiat currency (Antonopoulos & Wood, 2018). Figure 6 shows that mining difficulty has been steadily increasing, while block size, the

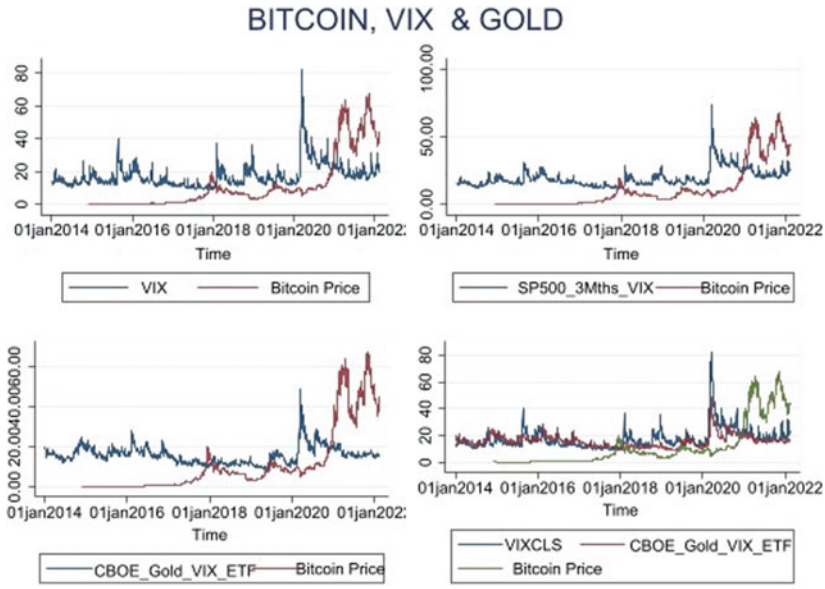

Fig. 5 Comparing the price of Bitcoin, the volatility index (VIX), and the price of gold

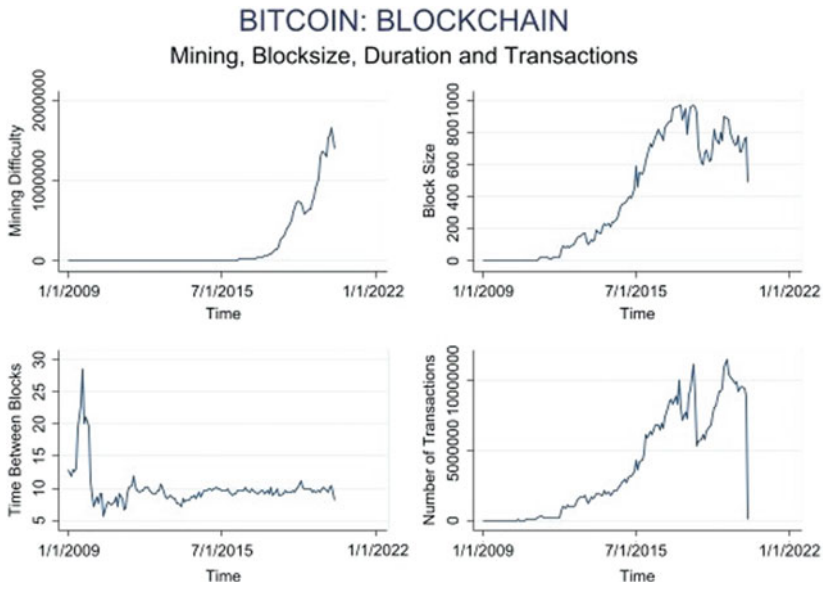

Fig. 6 Blockchain technology mining, blocksize, duration, and transactions time series

time between blocks, and the number of transactions have declined. In 2019, the average transaction in Bitcoin consumed about 0.51 megawatts hours, and Bitcoin protocol energy consumption was about 0.3% of global energy consumption (Lipton, 2021; Feenan et al., 2021). Note that the cost of gold mining, processing, production, and energy consumption is generally already priced in due to its long history of usage. This priced-in mechanism suggests that in order for Bitcoin to replace gold in the near future, its energy consumption cost has to decline significantly. Otherwise, it is not an effective alternative to gold at this stage, and its diversification benefits during a market downturn remain questionable.

2.3 Bitcoin: Investment and Diversification Role

Is Bitcoin an investment? If so, where does it fit in an individual's portfolio? Investors must be able to value an asset to determine its relative impact on their portfolio. An asset is likely to have a diversification role

if it is positively correlated with another asset in the portfolio, and it has a hedging role if it is negatively correlated with an asset in the portfolio (Baur & Lucey, 2010; Chan et al., 2019). Bitcoin has no fundamentals, and therefore it is difficult to value.[8] Since Bitcoin has no intrinsic value or industrial usage, its price can range from zero to infinity. The price can be zero because Bitcoin neither pays out dividends nor has future earnings; therefore, the present value of Bitcoin's price is zero (Taleb, 2021). Moreover, the price of Bitcoin can rise to infinity due to irrational exuberance. In particular, Bitcoin prices are driven mainly by market sentiments and price appreciation (Weber, 2016). The expectation of a continuous increase in prices divorced from any fundamental value can lead to an irrational bubble (Dale et al., 2005; Shiller, 2015). The fluctuations in the price of Bitcoin, as shown in Figs. 1 and 2, provide some opportunities for speculative trading (Cheah & Fry, 2015; Dwyer, 2015; Blanchard & Watson, 1982).

So why is there institutional interest in Bitcoin? First, the price fluctuations in Bitcoin and other cryptocurrencies provide some alpha and profit-making opportunities. Given that other cryptocurrencies are currently priced in Bitcoin, it also provides some arbitrage opportunities. Arbitrage opportunities exist because of price differentials between crypto-linked assets in traditional finance and on-chain products, making Bitcoin potentially valuable in portfolio management (Dyhrberg, 2016; Karniol-Tambour et al., 2022; Makarov & Schoar, 2020; Tully & Lucey, 2017, Briere et al., 2015). Secondly, institutional investors might treat Bitcoin as a long-duration asset and anticipate that there would be future opportunities to offload at a higher price due to its limited supply and potential price appreciation. Thirdly, institutional investors are investing indirectly in Bitcoin and the cryptocurrency space via venture capitals that use blockchain technology, as it aligns well with their investment mandates (Karniol-Tambour et al., 2022, Bouri et al., 2017). In particular, high-frequency trading (HFT) and long-short equity funds that use a cash-and-carry strategy have netted an average return of at least 10% by buying Bitcoin and selling CME futures. Institutional investors are

[8] Theoretical, the value of Bitcoin (as an asset) is approximately the discounted sum of its cash flows, service flow, and some speculative or heterogeneous beliefs regarding the asset.

therefore able to reduce risk exposure from investing in the cryptocurrency space by either investing in the early stages of these exchanges or by using sophisticated trading.[9]

One advantage of investing in Bitcoin is that it provides some protection against inflation as the central bank cannot devalue it. However, this protection comes at the expense of increasing volatility in the portfolio. These speculations in the cryptocurrency space suggest that individuals should be concerned about the level of exposure in their portfolios. Profit-making opportunities for retail traders are likely to decline as institutional investors and hedge funds using sophisticated trading strategies take advantage of the mispricing and other market inefficiencies in the cryptocurrency space. The fact that the hedging and diversification abilities of Bitcoin depend on data frequency,[10]in the long run, can only make Bitcoin less desirable relative to alternative assets. Figures 7a,b show that Bitcoin returns are more volatile than Standard and Poor's 500 (S&P 500) returns over the same duration. Trades per minute have also risen across all exchanges, as can be seen in Fig. 8. Furthermore, liquidity as a proxy of the bid-ask spread, as seen in Fig. 9, has also been steadily increasing, reflecting a growing interest in Bitcoin.

Additionally, the price of Bitcoin remains high, liquidity is low relative to major indices, and there is some evidence of price manipulation in the cryptocurrency space (Griffin & Shams, 2020). These factors could potentially limit and discourage ownership of Bitcoin and related cryptocurrencies. However, the rise of exchange-traded funds (ETFs) in this space provides some opportunities for small and regular investors to have an indirect exposure to the cryptocurrency market.

2.3.1 Bitcoin: Political Uncertainty and Dictatorial Regimes

Is Bitcoin a safe haven? Bitcoin can provide a channel for transferring large funds across international borders independent of any third party or entity. This non-centralization of Bitcoin provides some protection against dictatorial regimes or during periods of political uncertainty. Case in point, Fig. 10 shows that Bitcoin's price and returns increased significantly

[9] Some of these strategies include: tail-risk hedging, factor-based investing, stock-picking, and asymmetric bets using options that leverage the inefficiencies in the crypto-market.

[10] See: Bouri et al. (2017) ;Chan et al. (2019); Stavroyiannis, (2018).

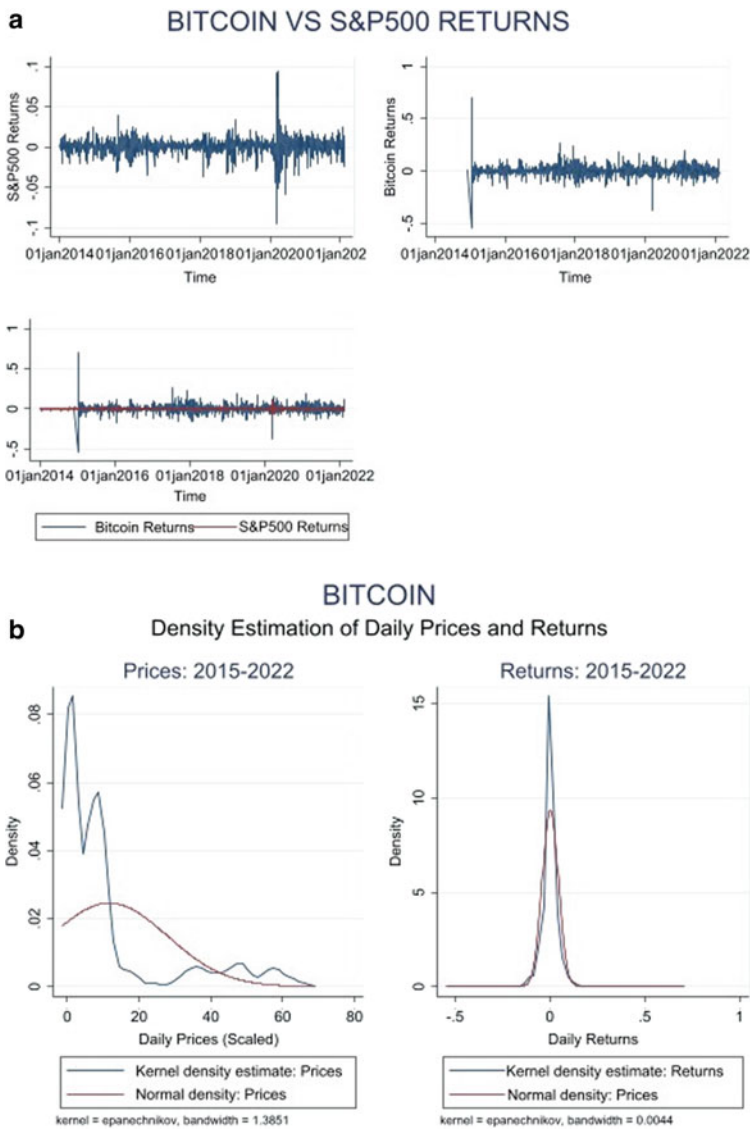

Fig. 7 **a** Bitcoin versus Standard and Poor's 500 (S&P500) returns. **b** Kernel density of daily Bitcoin prices and returns

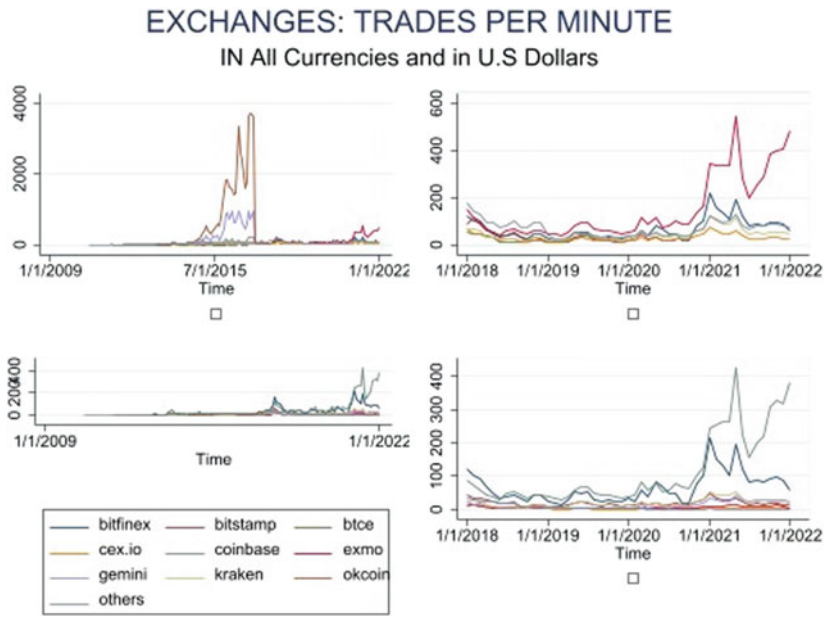

Fig. 8 Trades per minute on cryptocurrency exchanges

compared to gold during the immediate onset of the ongoing Russian–Ukrainian conflict. This result illustrates the potential that Bitcoin can serve as a safe asset ("flight-to-quality") during periods of significant political uncertainty.

2.4 Is Bitcoin a Collectible Asset?

Collectibles are a form of alternative investment. This form of investment generally includes fine arts, baseball cards, rare coins, comic books, and rare books. In addition to the pecuniary benefits, alternative investments generally provide some subjective utility to the owners. Bitcoin can be considered a "rare" collectible asset since there are only 21 million hard-coded Bitcoin, and 90% have already been mined; thus, it has a residual value that makes it valuable to hold into the future. The holders of Bitcoin might also infer some value from both the embedded technology and in being a part of a new and potentially useful innovative idea. The Bitcoin

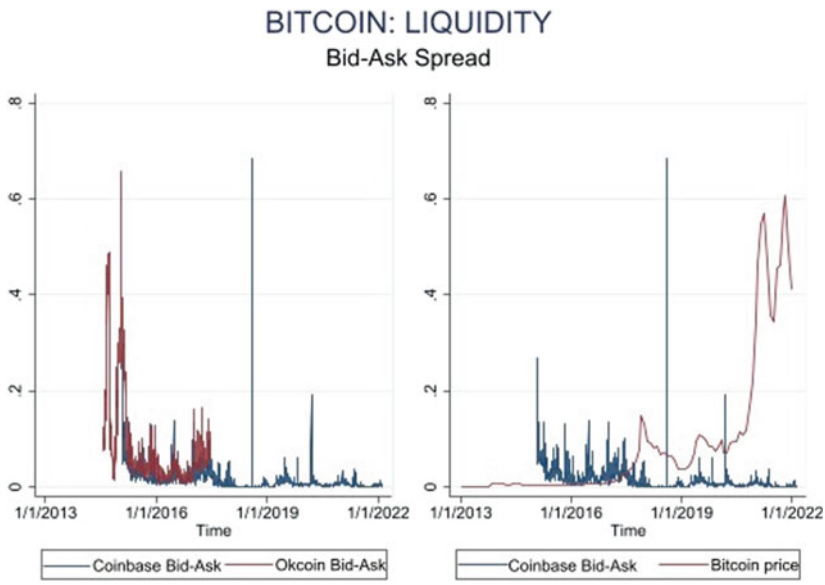

Fig. 9 The liquidity of Bitcoin

protocol has become a useful baseline for the new wave of cryptocurrencies, building smart contract-based tokens and other distributed ledger technology (DLT). Smart contracts are simply a set of rules stored in the blockchain that are automatically executed once the set conditions are met, thereby facilitating exchanges and transactions independent of a third party. The utility that comes from being at the forefront of this new movement and in leveraging big data in the cryptocurrency space makes Bitcoin a valuable collectible asset.

Collectibles are transferable inter-generational assets, and given that the block creation fee is projected to go down to zero in the year 2140, this could potentially explain why about 70% of Bitcoins are contained in less active and dormant accounts (Cheah & Fry, 2015, Chuen, 2015). Additionally, the rise of non-fungible tokens (NFTs), which are digital collectibles that enable users to authenticate ownership as transactions recorded on a blockchain, demonstrates that Bitcoin and other cryptocurrencies have some features in common with other collectible assets.

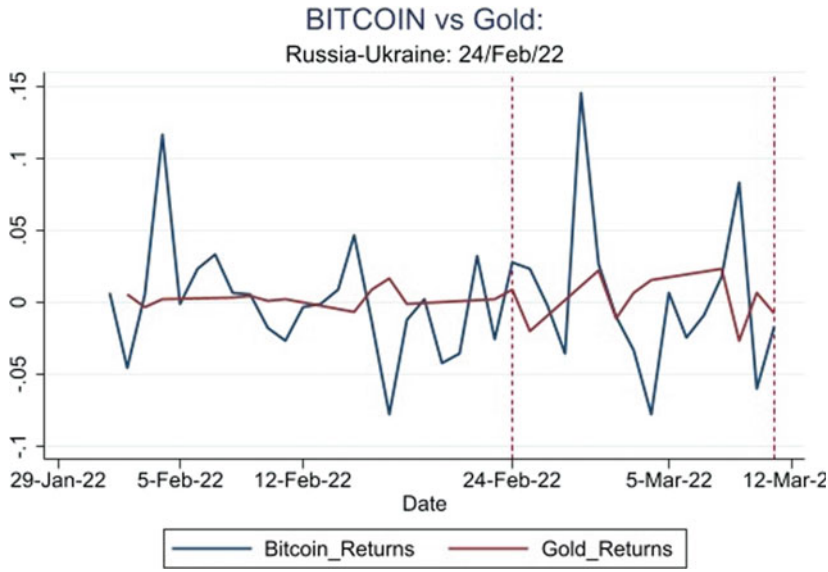

Fig. 10 Comparing the returns for Bitcoin and gold

Unlike Bitcoin and other cryptocurrencies, NFTs have an intrinsic value since they cannot be exchanged like-for-like. The intrinsic value of NFTs increases their applicability and marketability to a wider audience. NFTs employ Blockchain technology in two major ways. First, blockchain technology is used to create play-to-earn games in which users are incentivized to play the game via a reward, usually in the form of a token. Second, blockchain technology is used to create a metaverse, a virtual world in which various tokens can be traded for different assets, including virtual properties and artworks (Aharon & Demir, 2021).

3 Discussion

3.1 What is Bitcoin's Real Contribution: Cryptocurrencies, Big Data, and Blockchain Technology

What is the long-term value and contribution of Bitcoin to society? The Bitcoin protocol and blockchain technology have created many new cryptocurrency assets and digital products. For example, Ethereum

utilizes Bitcoin's protocol to build a decentralized transaction-based state machine that uses a cryptographic hash to collate transactions into a blockchain (Wood, 2014; Okamoto & Ohta, 1992. Thus, the built-in Turing-programming language in the Ethereum blockchain can quickly create smart contracts from an arbitrary set of codes (Buterin, 2013; Lipton, 2021, Bhutoria, 2020) and the PoW simply then ensures absolute confidence in the future viability of the protocol since each mined block has a reward attached to it. Additionally, Ethereum provides a potential solution to the application-specific integrated circuits (ASICs) problem in the Bitcoin protocol via the Ethash algorithm (Buterin, 2013; Poon and Dryja, 2016; Jentsch, 2015). However, Ethereum has scalability problems since supply is limited to only 18 million ETH per year. Ethereum's underlying protocol is quite costly to use, as smart contracts tend to require a large amount of collateral in their operations (Antonopoulos & Wood, 2018; Lipton, 2021; Lipton & Hardjono, 2021; Lipton et al., 2016). Bitcoin's blockchain technology is also currently being utilized to build decentralized finance (DeFi). DeFI is based on a Consensus as a Service (CaaS) and can be used to create smart contracts-based (cryptocurrency) exchanges independent of a third party (Lipton, 2021).

Furthermore, blockchain technology is a potentially useful tool in solving big data challenges. For example, healthcare providers are faced with challenges ranging from access to patients' health data, legal issues, secure storage, and ownership of the data. Blockchain technology can provide a secure structure in which healthcare providers can store the metadata of patients in a blockchain and then provide the patient with a unique key that can be used to access their health data anywhere (Gupta et al., 2016; Rapke, 2016). Applications such as "Storj" that use blockchain technology to ensure secured peer-to-peer authentication of storage contracts are potential solutions to big data challenges in the healthcare sector (Zhang et al., 2019). Storj uses smart contracts to manage, record, and keep a timestamp of data sharing.

Blockchain technology can also be used to protect intellectual property rights and authenticate ownership of digital art. An interesting implementation and application of blockchain technology in this area is the "Secure Public Online Ownership Ledger" (SPOOL), which can be used for documenting transactions, transferring ownership of each edition of the artwork, and recording it in a blockchain, which allows for tracking and authentication of ownership (Dejonghe &

McConaughy, 2016; McConaghy et al., 2016; Karafiloski & Mishev, 2017; McConaghy & Holtzman, 2015). Some applications of blockchain technology in marketing and supply chain management include "Omnilytics" and "Provenance" (Deepa et al., 2022). Blockchain in these applications is used to collate sales, marketing, industry trends, and product information data during each point in the supply chain (Kim & Laskowski, 2018). For example, Walmart and IBM have utilized blockchain technology (Hyperledger Fabric) to create a food traceability system, and early tests of the system have shown that blockchain technology can significantly reduce the time it takes to trace the provenance of produce in the supply chain from days to seconds (Hyperledger, 2020). Blockchain-based applications such as "Rubix" provide a decentralized trading platform where users can buy and sell cryptocurrencies and digital assets independent of a financial intermediary.

Blockchain technology is also useful in addressing some of the big data challenges in the financial services sector. Because data management is critical for financial institutions, most transactions generally incur some fees. These fees and charges erode returns to banks' clients and shareholders. Blockchain technology can ensure that banks monitor, detect and prevent fraudulent transactions at a minimal cost. Signature Bank has launched a blockchain-based payment platform called "Signet." The platform provides a channel via which Signature bank's commercial clients can transact with other commercial clients at zero cost, effectively eliminating the need for a third party. Blockchain technology has also been used to address some of the challenges in the securities lending markets. For example, Deutsche Boerse launched a distributed ledger technology in swap trading, which has reduced the cost of trading in these types of financial instruments (Morgan, 2020). These applications demonstrate that blockchain technology goes beyond simply the creation and minting of new digital coins and can potentially provide solutions to real challenges for individuals and businesses. These applications also demonstrate that the emerging technologies underpinned by blockchain or smart contracts can be engines for economic growth.

3.2 Government Regulations

Understanding the role of government regulations in the cryptocurrency space is essential as regulations affect both Bitcoin's long-term adoption as a currency and tax treatment as an asset. Aristotle argued that

money derives its value not from nature but from the law and can therefore be altered or abolished at will (Crisp, 2014). This idea that Aristotle presented clearly demonstrates that retail and institutional investors' potential global adoption of Bitcoin largely depends on governmental regulations.

Why should the government be interested in the cryptocurrency space? And why should investors care about regulations? There are two critical reasons. First, Bitcoin is a potential money laundering channel, which could impact the value of the reserve currency (U.S. dollar) and other major currencies. If the U.S. government decides to ban Bitcoin and related digital currencies, this would automatically drive their values to zero, making them less desirable for investors. If the government decides to introduce its own digital currency alongside Bitcoin, then this can only increase Bitcoin's price volatility and weaken its diversification role. Indeed, the Chinese government's ban on cryptocurrency mining and initial coin offerings in 2017 led to a precipitous drop of about 7.8% in Bitcoin prices. China, driven by concerns regarding the potential impact of a decentralized digital currency on monetary policy and the subsequent impact on fiat currency (Renminbi), is in the process of introducing a Central Bank Digital Currency (CBDC). Cryptocurrency users are more likely to use CBDC than their alternative decentralized digital currencies.[11]

Secondly, Bitcoin and other cryptocurrencies are potential sources of revenue since they can be treated as taxable investment vehicles. Some countries, such as Canada, consider cryptocurrencies as commodities, and these are taxed as either business income or as capital gains (50%). If a cryptocurrency is used to exchange goods and services, this is treated by the Canadian government as a barter transaction. Additionally, Hungary taxes any cryptocurrency income at 15% once it has been converted to fiat currency regardless of the source(s). The United States government's Internal Revenue Service (IRS), as of the 2022 tax year, treats Bitcoin and other cryptocurrencies as "property" and, therefore, as taxable assets. The long-term impact of this IRS policy is not yet clear, but it can only facilitate wider adoption and lead to a further increase in the price volatility of Bitcoin. Taxes will further erode some of the gains, making Bitcoin less

[11] Note that following China's ban, some miners simply moved their rigs to energy-rich countries such as Kazakhstan (Oxford Analytica, 2021).

attractive to investors relative to alternative assets that might have more favorable tax treatment.

4 Concluding Thoughts

Based on the findings presented in this chapter, we determine that Bitcoin is neither gold nor currency but a tradable asset and an alternative form of investment. Bitcoin also exhibits some features as an investment asset that are similar to collectibles. The true value of Bitcoin lies not in its speculative nature (price appreciation) but in the embedded technology (blockchain, DeFi, and Distributed Ledger Technologies), which has the long-term potential to revolutionize traditional finance. Blockchain technology can solve big data challenges in collecting, organizing, controlling, and storing a large amount of data. Bitcoin's long-term survivability and viability as an asset will largely depend on its diversification role, tax treatment, and government regulations.

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