

THE FASTEST ROAD TO **RICHES**

Creating Wealth with Bitcoin and Blockchain Assets



Tosin 'Badeniya, PhD

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Creating wealth with Bitcoin and
Blockchain Assets

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Acknowledgements

I thank God the Father, Son and Holy Spirit for giving me the wisdom and strength to write this book.

Also, grateful thanks to Twitter, where I learnt a lot about Bitcoin and other cryptocurrencies.

Disclaimer

This book does not claim to offer financial advice.
Readers need to do their own research.

Book Review

Tosin 'Badeniyi's book on creating wealth with Bitcoin and blockchain assets is an easy-reading introduction into the often confusing world of crypto currencies.

The author shares his crypto journey with the reader, discussing the strengths, weaknesses, opportunities and threats facing Bitcoin (his favoured investment). He also discusses how it could be improved and how mining could be made more energy efficient.

It is peppered with suggestions, dos and don'ts and a fascinating selection of quotes from an eclectic list of innovative thinkers who all, in some form or other, see crypto as the future of money. Included are the likes of Nayib Bukele, the President of El Salvador, who recently allowed his country to be the first to adopt Bitcoin as legal tender, Jack Dorsey, the CEO of Twitter and Square and Elon Musk of Space X and Tesla fame.

If you're wanting to hedge your bets, this book is for you!

Les Abercrombie, Editor

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Preface

Cryptocurrencies are powerful instruments enabling people around the world to achieve financial freedom. I got into crypto in 2018 and have learnt about its tremendous potential for wealth creation, although there are risks involved as there are with any investment. This book was written for those new to cryptocurrency to assist them on how to invest in this emerging asset class.

The focus of this book is on Bitcoin because it was the initial cryptocurrency. It is important to understand how Bitcoin works because even if you don't want to own any Bitcoin, it is important to know that when it increases in value most other cryptos usually increase as well.

The idea of the title of this book came from one of the best financial books I have ever read: *The 10 Roads to Riches* by Ken Fisher with Lara Hoffmans. Ken and Lara described 10 ways to become wealthy. Ken didn't include Bitcoin as it was still in its infancy when he published his book. However, in the last ten years, Bitcoin has been one of the best performing assets and, I believe, it will continue along this path for many years to come.

Join me as I share with you all the relevant information you need to create wealth with Bitcoin and other blockchain assets.

“Bitcoin is the benchmark of the crypto space. If it does well, altcoins will most likely follow.”

Anton Tarasov, Head of Research at SIMETRI

Chapter 1: Wealth creation and an abundance mindset

“Patience and discipline are keys to investment success, not genius and timing.”

Alexander Green

“Bitcoin greatly rewards those who have great patience.”

Vijay Boyapati

You are reading this book because you desire to be rich. You want to create wealth. There is nothing wrong with your desire. Money is important. Even Scripture says money answers everything.

First, you must understand that it is God that gives the power to accrue wealth and that He is willing to help you use your imagination to create wealth. This type of understanding is an ‘abundance mindset’. It is a belief that there is plenty out there and that if you have faith in God and boldly use the resources available to you, you can create wealth.

The *way* or *how* we think has a role in our ability to create wealth. Effective thinking is important to develop and maintain an abundance mindset. It is also required for preventing and managing any problems you may encounter in your life journey because it is fundamental to effective, personal decision making. Effective thinking will help you broaden your perspective, be creative, think creatively or critically and finally communicate your ideas by persuading others and writing and speaking effectively¹. Invariably, ones thinking influences one’s mindset and determines whether you will be wealthy.

As wonderful and great as an abundance mindset is, the majority of people live with a ‘scarcity mindset’. They are pessimistic, they hold back and are

fearful. The truth is that you can't live this way and realize your potential. The importance of shifting from a scarcity to an abundance mindset therefore cannot be overemphasized.

I find Caroline Castrillion's, *Five Ways to Go from a Scarcity to Abundance Mindset*² very inspiring. According to her one need to focus on what you have, surround yourself with people that have an abundance mindset, create win-win situations, incorporate gratitude into your daily life and lastly, train your mind to recognize the possibilities.

I have also discovered that when one has an abundance mindset, it is easier for one to be effective at actualizing your goals. Stephen Covey³ described in his best-selling book, *The Seven Habits of Highly Effective People*: Be proactive; begin with an end in mind; put first things first, think win-win; learn first to understand and be understood; synergize and sharpen the saw - that can help anyone be effective. Without an abundance mindset, you can't manifest these habits and you can't be wealthy.

An abundance mindset also helps one work with other people; to do the right thing, over and over again; to put short-term success and failure in their proper place and not to give up until you succeed.

An abundance mindset also influences personality traits that may assist people to build wealth. Traits like stability, flexibility, the ability to make independent decisions and belief in self are examples of traits common to wealthy people⁵⁴.

You can be wealthy if you believe it. Ken Fisher¹⁰⁸ described how people have acquired big wealth.

1. Start a successful business
2. Become CEO of an existing firm and juice it
3. Hitch to a successful visionary's wagon and ride along
4. Turn celebrity into wealth
5. Marry well
6. Steal it, legally
7. Capitalize on other people's money
8. Invest in an endless future revenue stream
9. Trump the land barons by monetizing unrealized real estate wealth
10. Go down the road most traveled - save hard, invest well – forever!

Saving, investing in equity and allowing the power of compound interest to do its magic is the way the majority of people in the global north have followed to be financially free.

However, there is another road to riches. The fastest one but perhaps one of the hardest roads is the one I share in this book.

Chapter 2: Purpose driven wealth

“We cannot choose between (economic) growth and sustainability. We must have both.”

Paul Polman, former CEO, Unilever

Before starting to invest in any asset, it is important to ask yourself questions. Questions such as What are my two main goals in life? Why do I want to be rich? And how much do I want to make? Questions help one to reflect and examine our motives. I hope your reason or motive for wanting to be rich is to be a blessing to the world and to solve problems in our communities. Also, take a moment to reflect and write down the answers to the following questions: What problems keep you up at 04:00? Is there anything you are currently doing, or wish you could do to help solve these problems?

I am sure you know to solve some of these problems - funds are necessary! In addition to an abundance mindset, by living a purpose-driven life, you can use your wealth to help solve the problems in your community.

John D. Rockefeller, America’s first billionaire, had two main goals in life: To live to 100 years and make 100 million dollars. He almost achieved the first goal, living until 95 and achieved the second goal. Rockefeller’s story reminds me of a quote by an unknown author: “Aim for the moon. Even if you don’t get there you will find yourself among stars.” So, write down your financial goals and if you are person of faith like me, also pray to God to give you the grace to actualize them.

Early in the year, I completed a Sustainable Business Strategy course at Harvard Business School. The course fits neatly into this chapter and into

my own life because one of my goals in life is to be a purpose-driven person. The number one person that has helped me discover my purpose in life is Jesus Christ, my Lord and Saviour. I have made His commandment – Love God and love others – to be the one thing that guides me as I live a life of purpose. Christ also expects me to serve others. For me, greatness is not the amount of money I have in my bank account or my achievements in life, rather it is serving and helping others. That is what I emphasize to the young people I mentor.

So this is my counsel, when you create and build wealth, determine to use it to help the poor and vulnerable people. You should also directly and indirectly support the development of inclusive institutions and be committed to social and environmental justice. One of the ways you can achieve this is by becoming a social entrepreneur and disruptor. According to Kerrin Myres and Gus Silber⁴, social entrepreneurs and disruptors shine a light on the power of enterprise in the service of a better society and they have courage, persistence and initiative to transform ideas into action even though they face great challenges and constraints.

These are some social enterprise ideas. You may want to consider starting one of them.

1. **Social supermarket:** a food market that sells food to low-income communities at a discounted price.³⁸
2. **Sustainable water:** Build small water purification stations in communities in developing countries using activated carbon or other low cost methods.
3. **Microlending:** Create a platform for individuals and organizations to lend money directly to entrepreneurs who would

otherwise not get funding especially in countries with a lot of unbanked people such as in developing countries³⁸.

4. **Baking/Cooking for a Social Cause:** Open a bakery/restaurant or some other food outlet providing an establishment that focuses on building employment skills for underemployed groups such as at-risk youth or former drug addicts. The profit from sales of food and beverage can be used for wages and training.
5. **Private food bank:** Open a food bank to provide food to the homeless and vulnerable.
6. **Climate change, education and awareness:** Develop a platform to raise awareness about climate change and sustainability.
7. **A marketplace for social good:** – Create an online platform to sell socially and ethically conscious products.
8. **Start a food kitchen:** Cook and give food to the homeless and vulnerable
9. **Start an initiative:** to mentor young people and teach them soft skills.
10. **Start a foundation** to provide scholarships or grants to indigenous students.

A Christian inventor and businessman named R.G. LeTourneau¹¹⁵ understood the concept of purpose-driven wealth. In the early 1900s, he founded a successful company that produced earth-moving machinery. Soon his company was making millions of dollars a year. Instead of spending his money on himself, R.G. lived on 10 percent of his income and gave 90 percent away to help spread the gospel. R.G. gave millions of dollars to God’s work. He was known for saying, “It’s not how much money I give to God, but how much of God’s money I keep for myself.”

When you see yourself as a manager of God's resources (like R.G) and not an owner, it will be easier for you to use your resources in a way that pleases God.

Chapter 3: Investing in innovation

“Innovation is the creation of the new or the re-arranging of the old in a new way.”

Michael Vance

Marklund, Vonortas and Wessner⁵ write: “Innovation is about exploring new combinations to respond to future challenges. It is essential to economic life as it is the main determinant of economic productivity and productivity growth in firms, sectors, regions and nations.” They also argued that innovation is imperative for wealth creation. You should therefore invest in innovation conscious companies or in an innovative asset if you want to create wealth.

One of the scholars that has allowed me to view innovation in a different way is Prof Clay Christensen. Sadly, Prof Christensen died in 2020. He came up with disruptive innovation, a type of innovation that creates a new market and value network and eventually displaces established market-leading firms, products, and alliances. Clay divided innovation into three main types: sustainable innovation; low-end disruptive innovation; and new-market disruptive innovation. He also argued that to get disruption to work in your favour you should follow the following guidelines:

- Disruption is typically an opportunity long before it is a threat
- You must begin to innovate while your core business is still strong
- Allow a disruptive business to run independently of the core business
- Spot disruption by observing customers at the bottom of the market

- Protect your business by focusing on and integrating around the job to be done.

The last point i.e., 'job to be done' is a very important innovation perspective. It is important to identify what 'job' customers need to get done or what problem they are trying to solve. For example, people want to grow their wealth. They want to invest in an asset that will help them beat inflation. After defining the job to be done, you must articulate the experiences in purchasing and using the product that you need to provide in order to get the 'job' done properly. After that, you need to determine how to integrate in order to provide experiences in purchasing and using the product. The last step is creating a brand that customers immediately think of to 'hire' for a 'job'.

One important 'job to be done' for most people is, "Help me find an investment that can beat inflation," so that I can create wealth. Through investing in Bitcoin, investors can get this 'job' done. They can invest in the best performing asset of the decade, returning ten times more than Nasdaq 100.

Since 2011, Bitcoin's cumulative gains have exceeded 20,000,000 %, far outpacing the cumulative gains of the Nasdaq 100 and the US Large Caps, which recorded returns of 541% and 282% respectively.

Like Big Tech changed the way we communicate with one another, cryptocurrencies will also disrupt the way we save and invest our money. Bitcoin and other blockchain assets are truly emerging innovation. I enjoy the way Michael Saylor Microstrategy CEO puts it: "First we put our communications, advertisements, inquiries, opinions, resumes,

relationships, photos, music and movies on the network. Now we are going to put our money on the network. If you missed Microsoft, Apple, Amazon, Google and Facebook, you might want to catch Bitcoin.”

Chapter 4: Bitcoin and other Blockchain assets

“I have no problem with people using bitcoin as an asset to invest in, but it’s too volatile to be used as currency.”

Cecilia Skingley, deputy director of the Swedish Central Bank

Crypto is a form of currency built for the internet⁷. It’s powered by blockchain, which is a technology that allows transactions to be recorded and very difficult to reverse. A blockchain has the potential to improve economic efficiency, productivity, and financial inclusion.

A blockchain is a list of records, called blocks, that make up a public blockchain ledger⁷. Each block includes transaction data and is linked to the previous block by a cryptographic hash, making it very difficult to reverse. Blockchain transactions are continuously verified by a process called ‘mining’ that verifies and adds transactions to the public ledger. Once verified, all transactions in the blockchain can be traced publicly. It should be emphasized that blockchain is the underlying technology that ensures the accuracy of accounting, and cryptocurrencies like bitcoin run on top of this technology. Adam Back, CEO of Blockstream refers to the Bitcoin blockchain as: “The new wonder of the world, with more work and human ingenuity than went into the Great Pyramids of Egypt. The biggest computation ever done. A digital monument. A verifiable artefact of digital gold – the foundation of a new digital age.”

Bitcoin was the first cryptocurrency to be created. It was created by an unknown person or people known as – Satoshi Nakamoto⁵². Little is known about him or them. It was on the 31 October 2008 that Satoshi Nakamoto⁸ announced one of the greatest inventions in the last 100 years. “I’ve been working on a new electronic cash system that’s truly fully peer-to-peer,

with no trusted third party,” he said. Before directing people to the full paper’s weblink, he also provided the main properties and an abstract of Bitcoin.

The main properties of Bitcoin include:

- Double-spending is prevented with a peer-to-peer network.
- No mint or other trusted parties.
- Participants can be anonymous.
- New coins are made from Hashcash style proof-of-work.
- The proof-of-work for new coin generation also powers the network to prevent double-spending.

Bitcoin P2P e-cash paper

Satoshi Nakamoto satoshi_at_vistomail.com

Fri Oct 31 14:10:00 EDT 2008

- Previous message: [Fw: SHA-3 lounge](#)
- Messages sorted by: [\[date\]](#) [\[thread\]](#) [\[subject\]](#) [\[author\]](#)

I've been working on a new electronic cash system that's fully peer-to-peer, with no trusted third party.

The paper is available at:

<http://www.bitcoin.org/bitcoin.pdf>

The main properties:

- Double-spending is prevented with a peer-to-peer network.
- No mint or other trusted parties.
- Participants can be anonymous.
- New coins are made from Hashcash style proof-of-work.
- The proof-of-work for new coin generation also powers the network to prevent double-spending.

Bitcoin: A Peer-to-Peer Electronic Cash System

Abstract. A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without the burdens of going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted party is still required to prevent double-spending. We propose a solution to the double-spending problem using a peer-to-peer network. The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as honest nodes control the most CPU power on the network, they can generate the longest chain and outpace any attackers. The network itself requires minimal structure. Messages are broadcasted on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone.

Full paper at:

<http://www.bitcoin.org/bitcoin.pdf>

Satoshi Nakamoto

However, it should be stated that much work preceded Bitcoin laying the groundwork for its conceptualization. Before Bitcoin was created, there was 40 years of research, development and demand.

One unique feature of Bitcoin is its scarcity.⁷⁰ There will only ever be 21 million Bitcoin in circulation, a number that will only be reached in 2140. By 2035, 99% of all the Bitcoin that will ever exist will have been mined. Another characteristic that makes Bitcoin superior to other cryptocurrencies, according to Austin Zeisel,⁹ is that it is completely decentralized i.e., no single entity or persons runs or operates the Bitcoin protocol. The Bitcoin ecosystem is therefore completely resistant to any counterparty risk. Joe Burnett, in his article titled, *\$1M BTC is early – Bitcoin’s scarcity leads to global abundance*, emphasized the superiority of Bitcoin as a currency because of its scarce supply and not having a counterparty and no dilution risks^{10,41}.

Apart from its scarcity and decentralized nature, other attributes that qualify Bitcoin as a currency include divisibility, utility, transportability, durability and being difficult to counterfeit. For example, one bitcoin can be divided into ‘Satoshis’. One ‘Satoshi’ is just 1/100,000,000 of 1 BTC. One incredible utility of Bitcoin is its blockchain technology. With the aid of cryptocurrency exchanges, wallets and other tools, Bitcoin is transferable between parties within minutes, irrespective of the size of the transaction, with very low costs. Bitcoin is also durable because they cannot be torn, burned or rendered unusable. Even if lost, it cannot be destroyed; it will continue to exist in records on the blockchain. Bitcoin is also very difficult to counterfeit due to the decentralized blockchain ledger system.

Many Bitcoiners believe that the first cryptocurrency is an honest monetary system fundamental that could be used to build a better world in which people experience true freedom and sustainable peace⁷³. Eight of those Bitcoiners recently authored a book titled: *Thank God for Bitcoin: The creation, corruption and redemption of money*.

Bitcoin has experienced an increasing mainstream adoption especially from institutional investors. According to a report, “Global investment bank Goldman Sachs is seeing huge institutional demand for bitcoin with no signs of abating. A survey of Goldman’s institutional clients shows that 61% expect to increase their cryptocurrency holdings⁵⁶. Meanwhile, 76% say the price of bitcoin could reach \$100,000 this year³⁷.” A recent survey by Goldman Sachs also discovered that nearly half of its family office clients are interested in cryptocurrency and 15% that the bank does business with are already invested in crypto.¹¹¹ According to Melina Flynn, a partner and Global Co-Head of private wealth at Goldmans, “The majority of families want to talk to us about blockchain and digital ledger technology and many of them think the technology is going to be as impactful as the internet has been from an efficiency and productivity perspective.”

Fidelity Digital Assets recently announced that they plan to increase headcount by 70% because demand for cryptocurrency services from institutional investors remains strong³². Currently, apart from Fidelity Digital allowing its institutional investors to hold and trade in Bitcoin, they also allow them to pledge Bitcoin as collateral against cash loans in a partnership with blockchain startup BlockFi Inc.³² Fidelity has also applied to launch an exchange traded fund called Fidelity’s Wise Origin Trust to track the performance of Bitcoin using data from exchanges including

Bitstamp and Coinbase. The reason why they decided to pursue this emergent opportunity can be seen in this statement: “The digital assets ecosystem has grown significantly in recent years, creating an even more robust marketplace for investors and accelerating demand among institutions. An increasingly wide range of investors seeking access to Bitcoin has underscored the need for a more diversified set of products offering exposure to digital assets.”^{113,114}

It has also been reported that money has been pouring into cryptocurrency space to fund startups as cryptocurrency and decentralized finance gains mainstream acceptance and adoption³². Venture capital funds have already committed more than \$17 billion this year to blockchain-based projects, according to data provider PitchBook. That’s by far the most in any single year and almost equal to the total amount raised in all previous years combined. Firms raising money include Chainalysis, Blockdaemon, Coin Metrics, Paxos Trust Co., Alchemy and Digital Asset Holdings LLC.³² Visa is also partnering with over 50 crypto companies including FTX and Coinbase to allow clients to spend and convert digital currencies through its card program.³³ The partnership is expected to enable customers to convert and spend digital currencies at 70 million merchants worldwide, even those that do not accept digital assets.³³

Mathew McDermott of Goldman Sachs’ global head of digital assets recently said: “Bitcoin is now considered an investable asset. It has its own idiosyncratic risk, partly because it’s still relatively new and going through an adoption phase. And it doesn’t have, as one would intuitively expect, relative to other assets, been given the analogy to digital gold. To date, it’s tended to be more aligned with risk-on-assets. But clients are largely

treating it as a new asset class, which is notable – it’s not often that we get to witness the emergency of a new asset class.”

It has also been speculated that Bitcoin will replace gold as the ultimate store of wealth someday.⁵¹ It was 50 years ago that gold stopped being the official foundation for global currencies. It was replaced by the US dollar becoming the global currency standard as a result of former US President Richard Nixon’s pronouncement. However central banks around the world continued to hold large stores of gold, cementing its reputation as the ultimate store of wealth. Since we now live in a digital age and young people driving the adoption of digital currencies don’t value gold like their parents, it won’t be too long before Bitcoin will displace gold²⁹. Bitcoin and other cryptos will also likely become the currencies of the internet because they have the potential to enable safe and secure transactions. According to Nate Geraci, president of the ETF Store, 90% of millennials prefer Bitcoin over gold. “When we talk to our younger clients – we have a core gold allocation in our portfolios, and they’ll ask about that and say, “What about crypto?” And if you talk to, primarily millennials, and ask them which they prefer, bitcoin or gold, it’s a landslide. It’s not even close, it’s like 90% prefer Bitcoin.”⁵⁵

Two factors fundamental to the success of, especially, Bitcoin are mining and proof-of-work. According to Michael Saylor, mining serves as the foundation of the monetary network, critical to its growth, stability, longevity, vitality, and integrity. The proof-of-work architecture is a masterpiece of engineering that anchors the system to the real world, providing layers of security. The proof-of-work architecture also anchors the crypto-asset network physically and politically to the firmament of reality, driving ferocious competition in the market place to decentralize,

improve and secure the network, thus assuring vitality and integrity over time.”

There are about 10 000 nodes that currently protect the Bitcoin network and each one has an entire copy of the Bitcoin ledger that they use to enforce and validate the rules. So what is a Bitcoin full node?⁸³ It is a program you run that fully validates all transactions and blocks in the network. It can be downloaded and synced with the entire network using an average computer or laptop, from anywhere in the world and that is what decentralizes Bitcoin. You are able to validate each transaction from Satoshi Nakamoto’s first transaction in 2009, to the one you send yourself today if you download a full node. According to Jameson Lopp, Bitcoin engineer and the chief technologist of the crypto startup Casa said: “With Bitcoin you can create a trust that is secured not by laws and courts of a specific jurisdiction, but by cryptography and a global network that can resist even nation state attacks.” Jameson also argued that, “Bitcoin is the first form of property that enables normal people to truly and unequivocally own it.”

Developers and entrepreneurs have tried to come up with cryptocurrencies that they hoped will be better than Bitcoin. For example, Roger Ver came up with BCH, Mark Zuckerberg – Libra, Calvin Ayre – BSV and currently, Elon Musk has been working with developers since 2019 to make the Dogecoin a cheaper and greener alternative to Bitcoin. I do believe they have not succeeded (will most likely not succeed) to achieve their objective of creating the ‘next Bitcoin’ because Bitcoin will always have an edge over other cryptocurrencies because of its first mover advantage along with the power of its network effect i.e. the number of people that own Bitcoin.

Bitcoin is also a hedge against inflation - the real enemy of wealth creation. According to Adriaan Pask¹¹ it is essential to price inflation into a wealth plan. It is Bitcoin's fixed supply that gives it this property. So if you are thinking of an asset that will increase in value as the purchasing power of fiat currency falls, choose Bitcoin because it is well poised to eventually become a worthy substitute for gold in investment portfolios. Bitcoin may also be worth more than the gold market's capitalization in future because it is more than an asset and it is revolutionary. At the recent Bitcoin Conference, Lyn Alden, and Elizabeth Stark explained how Bitcoin is an open monetary network that scales in layers, a humanitarian invention enabling freedom from central decision making and unlocking new ways of human interaction. One of the things that may make Bitcoin worth more than the gold market's capitalization in years to come is the adoption by the state.⁶⁵ On the 8 June 2021, Bitcoin Law was approved by a majority in the Salvadoran Congress (62 out of 84 votes), making El Salvador the first country to adopt Bitcoin as legal tender.²¹ The country plans to hold \$150M worth of Bitcoin in their Trust Fund and use volcanic geothermal energy to mine Bitcoin. Lina Seiche, Editor and Managing Director at the @BTC Times said: "Bitcoin went from an idea to legal tender in a nation state in less than 13 years. The Bitcoin Standard is coming and it's coming way faster than anyone could've imagined."

Types of Cryptocurrencies

There are more than 2 200 different types of crypto tokens. They vary, depending on the purpose and design of their respective blockchain protocols. The tokens can be divided into four.

Utility Tokens: (or Virtual Commodities): Bitcoin and ether (the native currency of the Ethereum blockchain), are generally considered utility tokens because they function as utilities within their networks

Security Tokens: Security Tokens have characteristics resembling traditional investment instruments, like equities, and are typically used as fundraising vehicles.

Non-Fungible Tokens: NFTs are altogether different in nature – they're still recorded on the blockchain, but each NFT is unique and valued individually, similar to a baseball card or piece of artwork.

Stablecoins: Stablecoins are made when assets, like the US dollar, are turned into a token. The benefit of this type of token is that it can move freely on the blockchain, but have the price stability of traditional currencies.

Out of all these cryptocurrencies, Bitcoin is the king of them of all, especially because of its first mover advantage. It was the first cryptocurrency to be created. Others are copycats. Nevertheless, there are other cryptocurrencies that have a lot of potential. An example is Ethereum⁷⁴ which is also known as Ether. Ethereum was developed and introduced in July 2015 by Vitalik Buterin, a young Russian-Canadian computer whiz. Cryptopayments, smart contracts, decentralized applications can all be done on its programmable blockchain. Other cryptocurrencies that I am interested in include; Cardano, Litecoin, Bitcoin Cash, Ripple, Chainlink, Polkadot and VeChain.

While Bitcoin is my most preferred cryptocurrency, I do believe cryptocurrencies generally have a lot of potential on the financial landscape while at the same time leading towards financial inclusion, economic efficiency, wealth creation and the creation of other opportunities for all

people.²⁷ It is the best performing asset of the decade, returning ten times more than Nasdaq 100. I like how Anthony Pompliano puts it: “Bitcoin strips power from dictators, allows the financially disadvantaged to peacefully protest and leverage software to prevent censorship and ensure freedom.”

Recently CNBC¹² requested experts from an array of fields to describe their vision for the cryptocurrencies 50 years from now.

Below are their responses:

Ivory Johnson, certified financial planner and founder of Delancey Wealth Management said, “Cryptocurrencies will disrupt traditional finance because one of their most attractive utilities is the ability to efficiently transfer payment across borders at little to no cost, delay or foreign currency fluctuations. With respect to Bitcoin, 50 years is a long time and it could either become the next world reserve currency or the next AOL that made a lot of people wealthy until it was unseated by better technology.”

Frederick Kaufman, author of *The Money Plot: A History of Currency's Power to Enchant, Control and Manipulate* said, “Way before 2071, the dollar will have more in common with a crypto than with silver or gold, so there is no need to doubt the longevity of encrypted algorithms as the store of value and media of exchange...”

Dan Egan, vice president of behavioural finance and investing at Betterment said, “Cryptocurrencies like Bitcoin have proven themselves useful for money movement and speculation, and they’re unlikely to go away...”

Dragan Boscovic, founder and director of the Blockchain Research Lab at Arizona State University said, “Central bank authorities are busy developing regulations on cryptocurrency. They recognize that digital currencies are native to the digital economy and, as such, are on their way to becoming mainstream in the next 10 years.”

Chapter 5: How I became a crypto believer

“Bitcoin is a bank in cyberspace, run by incorruptible software, offering a global, affordable, simple and secure savings account to billions of people that don’t have the option or desire to run their own hedge fund.”

Michael J. Saylor

The following three factors cemented my belief in cryptocurrency as a good asset: A book; my Head of Department; Michael Jordan and Crypto influencers (on twitter) and the potential of blockchain.

It was in 2015 that I read a book by Brian Kelly¹³ titled: *The Bitcoin Big Bang How Alternative Currencies Are About to Change the World*. It was the first book I read about Bitcoin. I borrowed it from BM Patel Library, at Durban University of Technology. After reading it, I googled how to invest in Bitcoin. All I found was a bit of information about mining it. Cryptocurrency exchanges were uncommon then. Those mostly into bitcoin were computer owners who contributed their computing power and energy to the network of a ‘proof-of-work’ based cryptocurrency e.g. Bitcoin. After they have solved difficult computer-generated mathematical puzzles with thousands of like-minded people worldwide, the first miner to solve a puzzle or validate a new block for the blockchain earned 25 bitcoins at the time.

I then forgot about Bitcoin, until in 2018, at work, my Head of Department told me he had bought into it. That reinitiated my research and I bought my first Bitcoin soon after, having been influenced by Michael Jordan to get on the bandwagon. He also recommended my main crypto exchange. Michael is a former FNB CEO. After stepping down from his role in 2013, he founded Montegray Capital, through which he has backed 25

entrepreneurial ventures including Rain, Bank Zero, NMRQL, CodeX, and VALR.

Michael once said: “Take (calculated) risks. Make (fast) mistakes. Laugh (at yourself).”

On Twitter, I have met crypto influencers from whom I have learned a lot about investing in Bitcoin. There’s Anthony Pompliano, who co-founded Morgan Creek Digital with Mark Yusko and Jason Williams in 2018. He writes daily newsletters to institutional investors which provide a personal analysis of the daily news in the crypto industry, and he hosts the podcast, ‘Off the Chain’.

Prior to his involvement in the blockchain industry, Pompliano was a partner at Full Tilt Capital (later acquired by Morgan Creek Capital), and held roles at Snapchat and Facebook.

Anthony, who is popularly called “Pomp”, once said: “Bitcoin is heading to \$100,00; just wait and see...”

Apart from Anthony, I have also learned from several Bitcoin influencers on Twitter. I learned from tweets by @Rhythmtrader during the bear market of 2018. He once tweeted: “Bitcoin is the transfer of wealth to the curious from the non-curious. Bear markets then weed out the impatient.”

It was also very easy for me to believe in Bitcoin and other cryptocurrencies after understanding the potential of blockchain technology. Food traceability, smart contract, e-voting, non-fungible tokens and

decentralized finance are some of the things that can be enabled by blockchain.

For example, Walmart, in collaboration with IBM, has been using blockchain to improve food safety in their supply chain¹⁴. They created a food traceability system based on Hyperledger Fabric, the open-source ledger technology. By placing their supply chain on the blockchain, it allows making the process more transparent and traceable. Walmart and IBM have run two proof-of-concept projects to test the system. The first focused on tracing mangos back to source sold in Walmart's US stores, and the other looked at sources of pork sold in China. Both of these two projects were proven effective. In the US, it typically took approximately seven days to trace the origin of mangoes, however the time was significantly reduced to 2.2 seconds when blockchain was employed. In China, the system enabled certificates proving authenticity of the pork to be uploaded to the Blockchain, this was impossible before.

I reasoned that if blockchain was this effective and important, what it was first developed for must be one of the greatest all time inventions.

Don Tapscott and Alex Tapscott¹⁵ in their book, *Blockchain Revolution* not only discussed how Bitcoin technology is changing the world at present but also how it will change it in the future. According to the authors apart from the part it plays in Bitcoin and other cryptocurrencies, it will transform every industry that adopts it. Blockchain will allow anything we value such as stocks, music and intellectual property, health records and identities to be stored in a secure and anonymous system that no one person or company owns. Birth and death certificates, insurance claims, land titles, and votes

will also be managed by blockchain. They summarized that blockchain will in fact drive economies in future.

Blockchain can also be used as a mitigation strategy against climate change. A recent UN report¹⁶ reads: “The UN believes that blockchain, the technology lying behind these online currencies, could be of great benefit to those fighting the climate crisis and help bring about a more sustainable global economy.” The UN argued that the main advantage of blockchain technology in the fight against climate change is its transparency. The United Nations World Food Program uses blockchains to make sure cash and food arrive where they should and avoid the high levels of corruption common in countries with weak institutions. Blockchain significantly improved the efficiency of a financial aid program, and was more secure and faster than traditional methods, when the program was tested in Jordan and Pakistan. Furthermore, WFP easily tracked every transaction and kept a more reliable online record of the distribution.

The UN has also managed to prevent illegal fishing of endangered tuna by using blockchain technology to prove which tuna were fished legally.

The UN also plans to use blockchain to improve the livelihood of waste pickers who help recover waste in some of the world’s poorest countries. A transparent payment system could help track waste pickers and reward them directly. In summary, the international organization believes that solutions built on blockchain will be key to the fight against climate change and inequality in future.

Even banks have started turning to blockchain to reform costly bond markets. According to the Financial Times, the European Investment Bank

raised 100m Euro from a two-year bond registered on the ethereum blockchain network. Bankers say putting new debt on the modern technology may help achieve considerable savings.⁴⁷ Apart from saving on costs, blockchains prevent counterparty and settlement risks. Standard Bank²⁸, Africa's biggest lender of assets, is also reported to be in the process of concluding an agreement with Singaporean fintech Ditledgers to use blockchain technology to improve soft commodities trade between Africa and countries of the Association of Southeast Nations (ASEAN).

Mark Carney,²² the former Bank of England governor also recently called on central banks to embrace digital forms of public money, or risk allowing tech firms to dominate a 'new world' of money. He said that the world was heading for a new monetary system, potentially with a greater role for distributed forms of finance. Mark couldn't have said this if he didn't understand the potential of blockchain and blockchain assets. However, before Mark made this point some central banks had already embraced digital currency. For example, a 2021 survey of central banks reveals that 86% of respondents are actively studying the potential of CBDCs. Although, Central Banks are trying to counter Bitcoin with their digital currencies, they may indirectly enable Bitcoin to remain the king of digital currencies. According to Ammar Naseer,⁸¹ "The lasting impact of CBDCs will be to normalize the concept of money as a digital native product, and their design limitations will create the demand for a permission-less, inflation-proof digital store of value. The leading contender to meet this demand is Bitcoin."

I recently came across a quote by Vitalik Buterin, Ethereum's co-founder, that succinctly defines the benefit of blockchains. Vitalik said: "Whereas most technologies tend to automate workers on the periphery doing menial

tasks, blockchains automate away the center. Instead of putting the taxi driver out of a job, blockchain puts Uber out of a job and lets the taxi drivers work with the customer directly.”

Chapter 6: Information on my blog about cryptocurrency, purpose and innovation

“Bitcoin allows anyone on earth to save money in an asset that appreciates in value, converts instantly to a currency like USD when they need a medium of exchange and transfer value freely worldwide across the monetary network through lightning at the speed of light.”

Michael Saylor

6.1 Will Bitcoin reach \$20,000 again? (Published 24 October, 2020).

I am one of those that believe that Bitcoin will reach its all-time high again. Below are my main reasons for this opinion.

1. **Bitcoin’s first mover advantage.** It is the most popular cryptocurrency on the planet. YouGov.Omnibus report (2019), revealed that Americans’ awareness of Bitcoin has reached 80%.
2. **Bitcoin’s infrastructure is growing.** According to Thomas Hughes, the Bitcoin development team and community are constantly working toward improving the network.
3. **Institutional interest.** Last year, it was Bakkt, a joint venture of the ICE, who started futures trading of Bitcoin. Just this week, PayPal announced that it will be launching crypto services. PayPal platform will enable customers to buy, hold, and sell crypto currencies directly from their PayPal accounts. Virgin Galactic Chairman, Chamath Palihapitiya, tweeted in response to the PayPal news on Wednesday: “After PayPal’s news, every major bank is having a meeting about how to support Bitcoin. It’s no longer optional.”

4. **Bitcoin is scarce and getting scarcer.** There can only be 21 million Bitcoins in circulation. 17.67 million BTC are available on the market at the moment with only 15% left to be mined.
5. **The smartest people believe in it.** Smart people continue buying Bitcoin and revealing its potential. The legendary investor, Paul Tudor Jones, who recently compared investing in Bitcoin with investing with Steve Jobs and Apple said, “I came to the conclusion that BTC was going to be the best of the inflation trades - the defensive trades...Bitcoin has a lot of characteristics of being an early investor in a tech company. It’s like investing with Steve Jobs and Apple.”

6.2 Ethereum: Crypto’s ‘dark horse’. (Published 15 November, 2020)

Bitcoin, a digital or virtual currency created in 2009 is without question the most important cryptocurrency. However, there are other cryptocurrencies that have performed better than the king of crypto over the past year. Notable among them is the second most popular and largest digital currency, Ethereum. Launched in 2015, it enables SmartContracts and Distributed Applications (DApps) to be built and run without any downtime, fraud, control or interference from a third party.

Ethereum has seen impressive growth since the beginning of the year. While Bitcoin has delivered 98% return to investors in the last year, Ethereum delivered about 175% profit. Ethereum’s booming trend also saw its combined value of all its coins in circulation spike at \$53.bn in September, a 102% jump in three months.

Data presented by AksejeBloggen.com has also revealed that Ethereum was the most traded cryptocurrency in the third quarter of 2020, with 1.1

million average daily transactions, 3.5 times more than Bitcoin. Also, CoinMetrics Data also showed that Ethereum transactions per day increased by 610, 00 between June and September, a 131% jump in three months. About 319 000 daily average transactions were witnessed with Bitcoin. Litecoin ranked third with 56 000 average transactions per day in this period. Dash, Bitcoin Cash and Monero followed with 25 100, 17 200 and 12 000 daily transactions, respectively.

Credit: iol.co.za – Ethereum growth: why it’s the perfect time to enter the crypto world

6.3 Think and act like a visionary venture capital investor

In 1903, Henry Ford’s lawyer, Horace Rackham, was advised not to buy stock in Ford. “The horse is here to stay, but the automobile is only a novelty - a fad,” he was told by the president of the Michigan Savings Bank. The visionary lawyer bought \$5 000 worth of stock and sold it in 1919 for \$12.5 million. After reading this recently, I asked myself how can one choose and purchase a small market cap company (e.g. \$2 billion or \$10 billion) that will end up becoming a \$100 billion or \$500 billion company in 15 years? How do you become an early investor in a company that will be among the world’s biggest 10 - 20 tech giants? You will agree with me that these are not easy questions. However, I sincerely believe that how you think and what you do definitely matter. For example, thinking and acting like a visionary venture capital investor can be helpful. Michael Joordan, a South African based visionary venture capitalist, is one person I have learned from. Michael once said, “Take (calculated) risks, Make (fast) mistakes. Laugh (at yourself).” Another visionary venture capital investor that I admire is Tim Draper. Tim’s prominent investments include Baidu, Hotmail,

Skype, Tesla, SpaceX, Twitter, DocuSign, Coinbase, Robinhood, Cruise Automation and Focus Media. In 2018, the New SEC Chief, Gary Gensler asked Tim whether he had any concern about his favorite investment failing? He said never! Instead, he always asked, “How high is up? Can we transform the world through this?” What a mindset. That is the type of mindset we need. Apart from thinking and acting like a visionary venture capital investor, reading financial information is also important. I find the Motley Fool (whose motto is making the world smarter, happier and richer) and the Distillery, a weekly debrief on Real Vison analysis, loaded with smart and moneywise ideas.

“When I look back on my life, the best investments were to just buy the leader, always, and then sit back and do nothing.” Brett Messing, Skybridge COO

6.4 Train yourself to handle financial prosperity well

D.L. Moody said: “We can stand affliction better than we can prosperity, for in prosperity we forget God.” Another preacher has said, “The Christian is more apt to disgrace his faith in prosperity than in adversity. It is a dangerous thing to be prosperous...When we are full, we tend to forget God. Rest assured it is harder to know how to be full than it is to know how to be hungry.” True. Prosperity can certainly make us forget God, after first making us proud and self-sufficient. It is necessary therefore for us to train ourselves to continue to have a solid relationship with God when we experience overwhelming abundance. And we can do it through the grace of God. We can determine not to allow anything to come between us and God, not even wealth. Rather, we can commit ourselves to Christ’s ethical and moral system. Also, if Abraham, Isaac, Jacob, David or Joseph of Arimathea could handle wealth/prosperity well, we should be able to do it

even better. We have what they didn't have - The Holy Spirit and Holy Scripture.

“The wealth of the world is nothing to God. So if your wealth increases, don't be boastful or put your trust in your money...” Psalm 62:10a (TPT)

6.5 Investing in decentralization

I was introduced to share investing by Mr Bisi Odeleye (a chartered accountant and a stock broker) about 21 years ago. I had just finished my NYSC (Nigerian Youth Service Corp) at the time. I remember visiting their stock broking firm in Lagos Island several times to purchase shares of companies listed on the Nigerian Stock Exchange. I have also continued investing on the Johannesburg Stock Exchange after relocating to South Africa. I have learnt a lot about investing in centralization (companies listed on stock exchanges are centralized) and I have turned my investing knowledge into two books (*Innovation and Investment; step-by-step guide on how to create wealth* and *200 Quotes, Stats and Ideas on Investing*). In summary, this is what I have learnt: If you buy a company that is properly run, and you hold the shares for a long time, you will reap an amazing profit. Many companies, however, are ridden with social mismanagement or poor governance which eventually destroy them along with the investors' money. Decentralization on the other hand has an advantage because it is powered by blockchain technology, a decentralized, distributed ledger that records the provenance of a digital asset. I also find decentralized projects more exciting because diversity and inclusion are valued higher in the crypto space than in traditional finances. They have also been referred to as catalysts for change. United States Securities and Exchange Commission Chair nominee, Gary Gensler, said during a Senate

Banking Committee confirmation hearing recently: “I think, as I teach at MIT on these subjects, that these innovations have been a catalyst for change. Bitcoin and cryptocurrencies have brought new thinking to payments and financial inclusion...” The boldest and most profound statement I have come across about the multimillion dollar opportunity in Bitcoin is this: “All investors hope for financial freedom. Few achieve it. Because few investments actually offer it. And those that do often require access (accredited investor only) or have low liquidity (startups). Bitcoin is open to anyone, anywhere and can be bought and sold anytime.”

6.6 Be a balance risk taker

Before Archegos Capital lost \$20 billion and collapsed on the 26 March 2021, most people in the investing community did not know about the family office capital management firm run by Bill Hwang. Hwang was the greatest trader we didn't hear about. It was in 2013 when he got his first break after multiplying his \$200 million hedge fund into a billion-dollar business by betting on stocks. According to Bloomberg, Hwang's wealth briefly eclipsed \$30 billion at its peak. However, Hwang's \$20 billion net worth 'evaporated' after Archegos defaulted on margin calls from several global investment banks. The underlying cause of the collapse was too much leverage, in particular, using Contract for Difference, a certain derivative instrument. Hwang 57, took too much risk. Before we castigate this man we must understand that any of us can fall into this trap. Hwang is a born again Christian. He once said, “I try to invest according to the word of God and the power of the Holy Spirit. In a way it's a fearless way to invest. I am not afraid of death or money.” Hwang has also been a pillar of his church community. His Grace and Mercy Foundation gave millions of dollars a year to mostly Christian causes. The Fuller Foundation and

Fuller Theological Seminary in Pasadena, Calif., and Washington’s Museum of the Bible are two of its biggest beneficiaries. Others, in New York, include the Bowery Mission and the King’s College, a Christian liberal arts school. Hwang hosted three Scripture readings a week at his foundation offices in Midtown Manhattan – at 18:30 on Monday, at 12:30 on Wednesday, and at 07:00 on Friday. He paid for another at Metro Community Church, too. Between listening to scripture and reading himself, Hwang said he spent at least 90 hours over the course of every year digesting the entire Bible. However, from Hwang’s unfortunate story, we see the importance of watchfulness, balanced risk-taking and not doing anything that could jeopardize your investment and relationships.

“Not taking any risk is probably the biggest risk for most people. Taking too much risk, you could be wiped out in a single event. Taking too little risk, you lose out on opportunity costs...” Changpeng Zhao, Co-Founder and CEO, Binance

6.7 Follow Jesus like a Bitcoin maximalist

A Bitcoin maximalist is someone who believes with unwavering conviction that Bitcoin is the only cryptocurrency – in fact, currency – that will be needed in the future. Maximalists believe strongly that any cryptocurrency that is not Bitcoin is not only technically flawed, but morally questionable. Even when they know they could make more money holding another cryptocurrency, they wouldn’t do that. See what one of them said recently; “There comes a certain time in life when you literally can’t turn back. That’s where I am with Bitcoin. I’ve bet my entire life, career, relationships, and my credibility. I am all in. 1000% committed.” Think about that. 1000% commitment. That is how we should be committed to

Christ. Following Him all the way, not looking back even when we are tempted to go back to the world. That was what our Lord was implying when He said “No one, having put his hand to the plow, and looking back, is fit for the kingdom of God.” Christ wants total dedication and not halfhearted commitment. We should be determined to focus on Jesus and refuse to be distracted from following Him.

“I have come to realize the key to success in life. It is not brains or luck, its tenacity.” David Sinclair, Harvard professor

6.8 Hold on...

If you are in the Bitcoin community, you will be familiar with HODL, one of the most common slang terms in cryptocurrency. It originated as a drunken misspelling of the word “hold” and it means you should not sell your Bitcoin during more volatile market movement time periods, when negative mainstream news cycles occur and other uneasy moments surrounding the Bitcoin ecosystem. This past Wednesday is an example of such a period. Crypto prices fell out of the sky in the biggest crash since March 2020. Bitcoin broke below \$40 000 and was trading at around \$30,000 minutes later. Ethereum, which recently touched \$4 200, went as low as \$1 900. Pretty much everything was in the red. Many people that have mastered the crypto market didn’t panic-sell rather they held their crypto and some even bought more crypto at a lower price. Whether you are into crypto or not, it pays to hold on and be patient especially during unfavourable times. We cannot succeed in life without patient endurance or the ability to hold firm. If you are reading this and you are in a difficult situation, hold on. Trust God, ask Him to help you and believe Him. He’ll send help.

“Crypto is a long game, and lack of patience can leave you rekt.”

Christian Williams

6.9 Your secular job is God’s work

Anyone that believes in Christ is on God’s team and has a special assignment. It doesn’t matter whether you are a pastor or not; as long as you are a child of God, you have been called and given the ability to work for the Lord in all that you do, including your secular job. Not many believers in secular employment or business, however, see themselves doing God’s work. I recently read about Cathie Wood, a wildly successful fund manager who knows that she is doing God’s work. Cathie is the founder of flagship Ark Investment Innovation Fund, a \$23bn fund that includes a number of tech stocks such as Tesla, Spotify and Teladoc Health. The open secret to Wood’s investment belief lies in the name of her fund – a direct reference to the gold-covered chest described in the Book of Exodus as containing the two stone tablets of the Ten Commandments. Cathie starts everyday by reading the Bible while her coffee brews and she has relied on her faith during testing moments and many market upheavals experienced in her 40-year career in finance. Cathie once said, “It’s not so much about me and my promise. It’s about allocating capital to God’s creation in the most innovative and creative way possible.” You too can bring glory to God in your secular job by being the best in what you do and being a positive influence on the lives of the people you meet in the market place.

“...whatever you do, do it all for the glory of God.” Scripture

Credit: Financial Times (Michael Mackenzie)

6.10 It's okay to change your mind

Boutros Boutros-Ghali, the Egyptian politician and the sixth Secretary-General of the United Nations was absolutely right when he said: “It is only a foolish man that doesn’t change his mind.” When you discover your position or decision has been wrong concerning an issue, don’t waste time, change your mind. That was what Ray Dalio and Carl Icahn did recently. Dalio, the owner of the world’s largest hedge fund revealed that he owns “some Bitcoin” and Icahn on the other hand said Bitcoin and Ethereum are stores of value emphasizing that Ethereum has an added utility as a network, also hinting that he may invest about \$1.5 billion in crypto. It’s interesting to know how these two fellows, whose combined net worth is about \$36 billion, have radically changed their stance on crypto. Both of them were Bitcoin critics, in fact, Icahn once compared crypto to the Mississippi Bubble. Michael Saylor, the CEO and founder of MicroStrategy, is another person that changed his mind about Bitcoin. In December 19 2013, Michael tweeted that, “Bitcoin’s days are numbered. It seems like just a matter of time before it suffers the same fate as online gambling.” About seven years later his company purchased over \$1bn worth of Bitcoin and he is now one of the most popular Bitcoin bulls and evangelists. Most people that are now in crypto have had to change their minds at one time. Even if you are not interested in crypto, it is wise to quickly change your mind whenever you discover that you have been wrong about the decision you have made.

“As an investor, you need to be ready to change your mind when new information presents itself.” Christian Williams

6.11 Good money and bad money

In disruptive innovation, there is a theory that is called good money and bad money. The theory, developed by Prof Clayton Christensen, describes two scenarios that can influence how emergent ideas are nurtured during the nascent years. “Bad money is money that wants me to become very big, very fast because if I have to do that, then I can’t go after small opportunities of today that will be the big ones’ tomorrow. Good money however is the money that says, I want you to take a little bit of money and get out into the market place, and try to close a deal, and bring that opportunity back to the company because if I give you too much money, it will give you too much opportunity to pursue the wrong strategy.” We can also apply this theory in our lives. Not all money or opportunity is good for us. The money or opportunity that makes me forget God or that does not enable me to have an intimate relationship with Christ which comes from consistent time spent in His presence and in His Word is bad money. The money that allows me to do that is good money. Biblical Agur was thinking of bad money when he said “...give me neither poverty nor riches. Give me just enough to satisfy my needs. For if I grow rich, I may deny you and say, ‘Who is the LORD?’” Agur understood that, for majority of us, our lives are more likely to be effective if we have neither too much nor too little money. However, if you want to have money, make sure it is ‘good’ money.

6.12 Why we should be purpose driven

I completed a three-week course (Sustainable Business Strategy) at Harvard Business School in early 2021. If I were asked to summarize in one word what the course, facilitated by Prof Rebecca Henderson (author

of *Reimagining Capitalism in a World on Fire*), was all about, my answer would be ‘purpose’. Purpose can enable individual firms to cooperate with others to solve society’s problems. When a company is purpose driven, it will support the development of inclusive institutions, focus on long term gains rather than short term profit and be committed to social and environmental justice. However, all these cannot be done without purpose-driven leaders or employees. The good thing is that ‘purpose’ is becoming more important to employees. According to a recent strategic survey, employees consider purpose more than twice as important a motivator as compensation and career. What about you? Are you purpose driven? To be purpose driven, you must first discover your purpose. The Westminster Shorter Catechism reveals the general purpose of every person. It says, “Man’s chief end is to glorify God, and enjoy Him forever.” Meaning your purpose is to bring glory to God by who you are and what you do. I have also discovered that when we believe in Jesus and obey Him, it is very easy to be purpose-driven and live a life of purpose. Prof Rebecca said, “If you manage a company on trust and strategy you will get a firm that will outperform like you wouldn’t believe. Purpose is fundamental to reimagining capitalism.”

Chapter 7: Weaknesses of Bitcoin and Threat to Bitcoin

*“Crypto offers alternatives for wealth management, savings, spending and investing.
It offers uncorrelated, differentiated returns and reduces counterparty risk – this is bigger than just Bitcoin.”*

The quote above reveals the benefits and strengths of Bitcoin, however, there are some weaknesses and threats that are associated with it and other cryptocurrencies.

Four weaknesses of bitcoin:

1. As a means of payment, it is slow
2. The environmental cost of mining is high
3. Bitcoin mining is in a relatively few hands, many of them in China, where there is cheap energy
4. Bitcoin can be lost: Forgotten passwords, SIM swaps, phishing attacks, exchange can be hacked

According to Niall Ferguson,¹⁷ author of *Ascent of Money*, Bitcoin weaknesses are outweighed by two unique features. Firstly it offers built-in-scarcity in a virtual world characterized by boundless abundance and secondly, Bitcoin is sovereign - No one can change a transaction in the Bitcoin blockchain. Bitcoin users can pay without intermediaries such as bank.

Also Lightning network has been able to tackle the limitation in processing of transactions²⁴. Regarding the energy cost of mining, a project launched by Square in December 2020 to promote the use of clean energy in Bitcoin mining revealed that the Bitcoin network

functions as a unique energy buyer that could enable society to deploy substantial more solar and wind generation capacity.²⁵ The deployment, along with energy storage, can facilitate the transition to a cleaner and more resilient electricity grid. The report concluded that energy asset owners of today can become the essential Bitcoin miners of tomorrow. Carter in his article titled, *How much energy does Bitcoin actually consume*^{18?} also revealed that although the peer-to-peer electronic cash system actually consumes as much energy as a small country, its energy consumption is not equivalent to carbon emissions and that Bitcoin can use energy that other industries can't, however, he concluded that the crypto community is expected to address the environmental concerns, reduce Bitcoin's carbon footprint and show that the societal value of Bitcoin is worth the resources needed to sustain it.

The third weakness I stated above will be overcome especially because of China's government decision to ban Bitcoin mining⁵⁷. Although the move led to a reduction in the price of Bitcoin, other countries, especially the US will grow their market share at the expense of China, invariably leading to a significant win for Bitcoin's decentralization. The U.S is a preferred choice because it has the second-most capacious grid in the world. Furthermore, states like Texas and cities like Jackson, Tennessee and Miami want miners to continue their activities in their domain.

To reduce Bitcoin's carbon footprint, all miners should endeavor to use renewable energy. It is encouraging to know that many miners are already doing this. Even the first country in the world to adopt Bitcoin as legal tender, has put forward a plan to offer facilities for Bitcoin

mining with very cheap, 100% clean, 100% renewable, 0 emissions energy from their volcanos. Michael Saylor also hosted a meeting between Elon Musk and the leading Bitcoin miners in North America, where they agreed to form the Bitcoin Mining Council to promote energy usage transparency and accelerate sustainability initiatives worldwide. Responding to Marty Bent who said the council was created in an effort to appease a man (Elon Musk) who is pro-censorship and is afraid of open criticism about the hypocrisy of his business, Michael said: “The Bitcoin Mining Council was created to educate the public on the benefits of Bitcoin and Bitcoin mining. We should not be afraid to advocate the benefits of a new technology in an organized fashion. We are not trying to appease anyone.”

To significantly reduce the chances of your Bitcoin getting lost, it is wise to self-custody it by first buying a hard wallet e.g. trezor or cold card.⁵⁸ Trezor is simpler to use, unlike the latter, which although better, is more complicated. After buying a hard wallet you should store your backup on titanium e.g. cryptotag. You can then transfer your Bitcoin to your wallet.

Threats to Bitcoin

1. Quantum computing
2. Government regulation

Even though there is a threat of quantum computing to Bitcoin, there is enough time to upgrade current security systems.

According to estimates, a quantum computer of around 4 000 qubits would be required to break Bitcoin’s code, while the most powerful quantum computers available right now operate with only about 50 qubits.

Bad regulation may hinder the growth of Bitcoin but it cannot kill it because people will continue to do peer-to-peer transactions as we have seen in countries where Bitcoin and other cryptos have been banned.¹⁹ However, a responsible government will not ban Bitcoin. For example, instead of banning or do nothing about Bitcoin/crypto assets, the South African Treasury has decided to regulate it.⁷¹ The report noted that crypto-assets have become too big to ignore and pose a number of risks for consumers if not sufficiently regulated. There are at least two million crypto retail investors in the country, with R2 billion in transaction volumes recorded each day.

South African regulators are also fast-tracking crypto regulations because of the collapse of both Africrypt and Mirror Trading International (MTI).⁷¹ They expect the regulations to include the establishment of know-your-customer rules for crypto exchanges and exchanges will be expected to, “create systems for the surveillance of the asset class in order to prevent money from being laundered out of the country.”

Chapter 8: The Improvement of Bitcoin

“Bear markets are often where the real work happens.”

Arianna Simpson

Bitcoin developers are always working to develop and make Bitcoin more efficient.

Lightning Network

This is one of the most popular solutions to the ongoing problem of Bitcoin’s scalability.

Bitcoin’s scalability problem.

Bitcoin can process, on average, seven transactions per second, while the cost of a Bitcoin transaction is roughly one dollar. Visa on the other hand, processes about 1,700 transactions per second. To solve this problem, Joseph Poon and Thaddeus Dryja came up with the idea of ‘lightning network’ in their white paper. They described a second layer application that is built on the top of the Bitcoin blockchain that allows people to exchange their Bitcoin directly with one another without the need for confirmations. It enables Bitcoin transactions to be carried out off-chain i.e., it doesn’t record every single transaction on the Bitcoin blockchain. This allows transactions to be much faster – almost instantly in some cases.

The Lightning Network is made possible by creating payment channels between two or more users (or to make use of existing ones) through channel networks.²⁰ Once a payment has been completed through a payment channel, that payment channel is closed and the final balance of how many Bitcoins each person has in their wallet is recorded on the blockchain.

Lightning networks allow fees to be small because of the increasing levels of competition between lightning network nodes and it could potentially handle hundreds of thousands or more transactions before a single transaction has been broadcast and recorded on the Bitcoin blockchain.

Lightning networks will also enable Bitcoin to be a universal money and a game-changer. Other media of exchange coins such as Dogecoin, Bcash, Ripple or Litecoin won't be able to compete any longer with Bitcoin. Lightning offers Bitcoin a user-friendly interface and a base layer for the development of decentralized services.²⁴ Lightning's growth will lead to hyperbitcoinization a situation where Bitcoin is a true daily-use currency.²⁴ That will soon occur especially with the news that an additional 250 Bitcoin capacity was added to the Lightning Network in June. Obi Nwosu³¹ writes in his article titled "People Power" that Lightning's public channel capacity now stands at an all-time high of \$1 651 Bitcoin. This signifies that it can support up to \$50 million worth of transactions at any point in time. Bitcoin's bandwidth and its utility are indeed growing all the time.

SegWit

SegWit⁶⁸ was developed by Bitcoin developer, Dr. Pieter Wuille, to solve one of the Bitcoin platform's challenges, for example, as more and more transactions are being conducted, more blocks have to be added to the chain. This constraint allows only a certain number of transactions to be added to a block. Pieter therefore suggested that to solve this problem, the digital signature needs to be segregated from the transaction data. This process is known as Segregated Witness or SegWit.⁶⁸

Taproot

Taproot⁶⁹ is privacy and scalability improvement to Bitcoin. It was first proposed by Bitcoin Core contributor and former Blockstream CTO, Gregory Maxwell. Taproot would enable Bitcoin to expand on its smart contract flexibility while offering more privacy at the same time. Taproot will also aid smart contracts on Bitcoin blockchain. Activation of Taproot began in May 2021 and it was locked in on 12 June 2021. Taproot is the biggest protocol upgrade to the Bitcoin network in the last four years. According to Pieter Wuille, who was one of the three people that initiated the idea, Taproot will activate probably around mid-November 2021.

We can expect Bitcoin to keep on being relevant and resilient because of the many developers carefully working on the platform and keeping it clean and efficient. Also, the developers are from diverse backgrounds and this will prevent Bitcoin from falling into the same trap as many of today's technology networks have done.¹⁰⁹

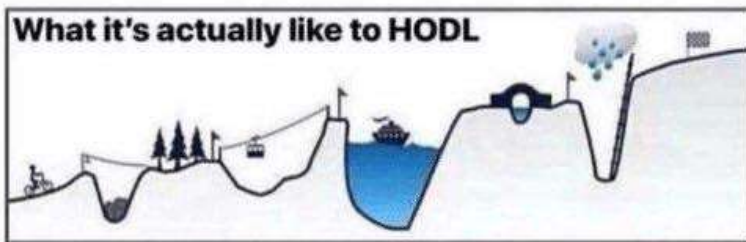
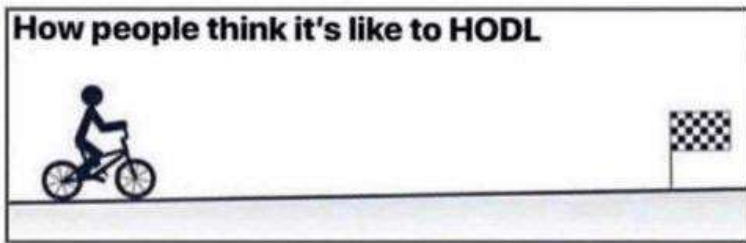
Chapter 9: Strategy to use to invest in Bitcoin

“Nobody who bought Bitcoin and Hodled for 4+ years (200 weeks) ever lost money.

Think of Bitcoin like a savings account.”

Bitcoin Magazine

There are three strategies that can be used to successfully invest in Bitcoin and other good cryptocurrencies. The first is to plan to hold for 5 to 10 years. Don't time the market, spend time on the market. In fact, investors or rather, traders, who are into Bitcoin for the short term will be disappointed and lose their hard earned money because of the volatility common to Bitcoin.⁷²



the process of hodling...

The second strategy is to buy the dip and lastly, use dollar cost average.

1 st of the Month/2020	Price of Bitcoin (\$)	Contribution (\$)	Bitcoin Bought
Jan	7200.17	100	0.0139
Feb	8392.28	100	0.0106
March	8562.43	100	0.0117
April	6793.62	100	0.0147
May	8986.60	100	0.0111
June	9329.80	100	0.0103
July	9123.41	100	0.0109
August	11053.61	100	0.0090
Sept	11414.03	100	0.0086
Oct	10553.16	100	0.0094
Nov	13727.11	100	0.0073
Dec	18803.00	100	0.0053
		Total Contribution	Total Bitcoin
		\$1,200	0.1232

For example, if you had spent \$100 dollar to buy Bitcoin on the first day of every month, January to December 2020, you would have still made 100% profit (excluding exchange fees), despite the volatility in the market. So, don't simply buy the dips; dollar-cost averaging is best to build long-term profits in cryptocurrency. Jordan Finneseth,²³ cryptocurrency expert, noted that “No technique is perfect, and not every crypto project will make substantial gains or even survive until the next bull market cycle, but dollar-cost averaging is one approach that has provided consistent results for amateur and expert investors alike.”

According to Ryan S Adams, a crypto investor and influencer, the strategy that works best for 98% of crypto investors is “

- Buy ETH and BTC.
- Dollar-cost average paychecks
- Don't use margins
- Don't trade and
- Stick to the plan.

Ryan said this is a great way to build wealth slowly. I certainly agree with him.

Apart from mastering the crypto investing strategies, it is wise to know the models or charts that can be used to predict future Bitcoin price gains.⁴⁶ One of the most widely used charts is the Stock-to-Flow model developed by a crypto analyst known as 'PlanB'.³⁰ According to the model's projections, "Bitcoin's price should see a significant increase over time because of its continually reduced stock-to-flow ratio." PlanB predicted that the price of Bitcoin could hit \$288 000 by 2024 according to the model. PlanB, who has been documenting his model since March 2019, recently tweeted that BTC/USD is now the furthest away from the estimated value in more than two years and he said that the next six months will 'make or break' the stock-to-flow model.³⁰

Halving is another event that has been observed to boost the price of Bitcoin.²⁶ A Bitcoin halving event which occurs around every four years is when the reward for mining Bitcoin transactions is cut in half.¹¹⁶ This event also halves Bitcoin's inflation rate and the rate at which new Bitcoins enter circulation. Previous halvings have been associated with intense boom and bust cycles that have ended with higher prices than prior to the event. Bitcoin last halved on 11 May, 2020, around 15:00 EST, resulting in a block reward of 6.25 BTC.¹¹⁶

It was easy for me to master the act of HODLING because of my experience investing in the stock market. One of the main lessons I learnt is that time in the market is more important than timing the market. Warren Buffett, arguably the greatest investor in the world once said, "Our holding period is forever." He also went on to add that, "If you don't feel comfortable owning a stock for 10 years, you shouldn't own for it for 10 minutes...Being too fearful or too greedy can cause investors to sell stocks at the bottom or buy at the peak and destroy portfolio appreciation in the

long run.”¹⁰⁶ Warren, however, doesn’t believe Bitcoin is a good investment. It is not surprising because he famously avoided tech stocks for decades because he didn’t understand them well enough.¹⁰⁷ He later went on to invest in International Business Machines Corp. and Apple. Perhaps he may also change his mind regarding Bitcoin in future.

Other inspiring quotes of Warren Buffett include:⁶

- We don’t have to be smarter than the rest. We have to be more disciplined than the rest.
- In the business world, the rear view mirror is always clearer than the windshield.
- Look at market fluctuations as your friend rather than your enemy; profit from folly rather than participate in it.
- Most people get interested in stocks when everyone else is. The time to get interested is when no one else is. You can’t buy what is popular and do well.
- I always knew I was going to be rich, I don’t think I ever doubted it once.
- We enjoy the process far more than the proceeds.
- We simply attempt to be fearful when others are greedy and to be greedy only when others are fearful.

Chapter 10: Top voices in cryptocurrencies

“It seems to be a law of nature. Inflexible and inexorable that those who will not risk, cannot win.”

Paul Jones

I have learnt a lot about Bitcoin and blockchain assets from many of the people I write about below. To me, they are Bitcoin or cryptocurrency influencers and top voices. I do hope you will take one or two lessons on cryptocurrency from them.

Nick Szabo, Bit Gold Creator

In 2005, Nick proposed the concept of ‘bit gold’ as a form of digital currency, similar to precious metals. The Bit Gold idea is seen by many as the precursor to Bitcoin and he has therefore been suggested as the face behind the Satoshi Nakomo. Nick has denied the connection.

Adam Back, Co-Founder/CEO Blockstream

Adam is also a cyperpunk, cryptographer, inventor of hashcash (used in Bitcoin mining). He has a PhD in Computer Science.⁶³ He has been suggested as the anonymous creator of Bitcoin i.e., Satoshi Nakamoto.

Andreas M. Antinopoulos, Entrepreneur and security expert

Andreas is a technologist, serial entrepreneur and well-known in Bitcoin. He is the author of *Mastering Bitcoin and The Internet of Money*. Andreas is also the permanent host on the popular *Let’s Talk Bitcoin* Podcast and a frequent speaker at technology and security conferences worldwide.⁸⁰

Nayib Bukele, President of El Salvador

Nayib encouraged his country to support the Bitcoin Law which allowed El Salvador to become the first country in the world to adopt Bitcoin as legal tender. After the bill was passed, Nayib said, “El Salvador is not only a country anymore. It is a symbol of what Bitcoin can do.” He also said that he believes the country’s adoption of Bitcoin will lead to more opportunities for its citizens, which should reduce the number of people leaving the country and illegally immigrating to the United States. “This is good for the US,” he said. I agree with El Salvador, Bitcoin could curb illegal immigration.

Recently, Nayib announced that every citizen would receive \$30 in free Bitcoin from his government when registered on their wallet app and that 1,500 new cash-to-bitcoin machines will be established in El Salvador by Athena Bitcoin. Nayib is indeed leading the Bitcoin race among the presidents of the world.

Greg Abbott, Governor of Texas State, USA

His support of Bitcoin and cryptocurrency can be seen in his recent tweet: “Blockchain is a booming industry that Texas needs to be involved in. I just signed a law for Texas to create a master plan for expanding the blockchain industry in Texas. #Blockchain #Bitcoin #cryptocurrency.”

Jack Dorsey, Twitter and Square CEO,

Jack Dorsey is a Bitcoin bull and huge fan. The only thing in his Twitter profile description is “#bitcoin” with a Twitter emoji of the Bitcoin logo. He said in 2018 that he believes Bitcoin will become the world’s single currency within ten years. He also once said that Bitcoin is “probably the best” native currency of the internet due to Bitcoin being “consensus-

driven” and “built by everyone.” Jack announced on 15 July 2021, that Square will be joining Seller, Cash App and Tidal to create a new company that will be “building an open developer platform with the sole goal of making it easy to create non-custodial, permission-less, and decentralized financial services.” He went on to say that Bitcoin is their primary focus.

Below are Jack’s five best quotes from the interviews at Bitcoin 2021 Conference⁷⁵

1. "For me, Bitcoin changes absolutely everything. What I'm drawn to most about it is the ethos, what it represents. The conditions that created it are so rare and so special and so precious and I don't think there's anything more important in my lifetime to work on. I don't think there's anything more enabling for people around the world."
2. "Whatever I can do, whatever my companies can do to make it more accessible to everyone is how I want to spend the rest of my life.⁹⁵ If I were not at Square or Twitter I'd be working on Bitcoin. If it needed more help than Square and Twitter, I would leave them for Bitcoin. But I think both companies have a role to play."
3. "Everything about it is why we're into it. There's nothing else that compares to it. And we have no interests other than making sure we are building a native currency for the internet and helping in every way that we can. So all the other coins to me, don't factor in at all."
4. "You just look at the economics of it and, you know, ultimately miners have to make a profit and getting cheap renewable energy maximizes their potential for profit, it's really that simple. I thought I had some agreement with some notable figures out there and then that seemed to change in a matter of a few weeks...but I

believe fully that Bitcoin over time will incentivize more renewable energy...and give people more freedom to convert unused, wasted power into something that actually creates value for billions of people around the world."

5. That realization that we finally have a currency that can be traded at any single point on the planet is pretty incredible and what that enables going forward is pretty mind-blowing and I'm going to do everything in my power to make sure that that happens."

Michael Saylor⁴⁰ Chairman and CEO of MicroStrategy

MicroStrategy is a publicly trade business intelligence firm that he founded in 1989. Saylor was the creator and founder of Alarm.com, one of the first home automation and security companies, and Angel.com (sold to Genesys for \$110 million in 2013), one of the first cloud-based interactive service providers. Saylor is a named inventor on more than 40 patents. He is the author of the book *The Mobile Wave: How Mobile Intelligence Will Change Everything*, published in 2012. The book discusses the impact of mobile, cloud, and social networks on worldwide political and economic development, along with the rise of Apple, Amazon, Facebook and Google. MicroStrategy owns 100,000 Bitcoins and his Board of Directors are paid in Bitcoin. Michael once said that Bitcoin is the most powerful and disruptive technology of our lifetime. When a journalist asked him about Bitcoin's volatility he responded, "Bitcoin is coming to life...the volatility is the price you pay for it to be 10x outperforming the S&P index over a decade."

Below are Michael's six best quotes from the interviews at Bitcoin 2021 Conference⁷⁵

1. "When I discovered bitcoin, I thought this is digital gold on a big tech monetary network and it's going to grow by a factor of a hundred. Then I thought, well, I should buy as much as I can...I was buying it and I was thinking, I have to buy as much as I can, as fast as I can or someone will figure this out and I won't be able to."
2. "Bitcoin is the apex property of the human race. It's the first time we figured out how to create true property that you can take possession of with full custodial rights that's least likely to be impaired, that's most mobile....Bitcoin is truly a seminal invention of the human race because for the first time in history we can grant property rights to eight billion people."
3. "I think Bitcoin is an extraordinary, disruptive, beneficial technology to the whole energy industry. As I studied it, it became clear that it's the highest value use of intermittent energy. It's the highest value use of renewable energy. It's the highest value use of wasted or stranded energy. And it's just the highest value use of energy, period. It's the solution to developing power plants in remote locations, to driving up efficiency of plants and driving down costs...I think as the world understands it, they're going to embrace it."
4. "What I was doing with Bitcoin was, I was saying I don't want to decapitalize the company. I want to keep the capital or grow the capital, but I want to put an asset on the balance sheet. The big breakthrough is I can convert my cash from a liability to an asset and then we realized that if that asset is going to go up by more than 10% a year and you can borrow money at 5% or four, or three, or two, then you should pretty much borrow as much money as you can and flip it into the asset."

5. "Bitcoin links together eight billion people, links together a hundred million companies, it synchronizes the world across political jurisdictions, and it returns rationality to the entire financial system, and it returns freedom and property rights to the entire human race."
6. "We say Bitcoin is hope. Bitcoin fixes everything...that certainly was the case with our stock....it imbued life into the company...morale was dramatically boosted. We just had the best first quarter we've had in a decade."

Michael, who is to me the world's biggest Bitcoin bull, also recently tweeted this after granting an interview to Bloomberg about volatility in Bitcoin and crypto.

"If you want to give joy to five billion people you need digital music. If you want to give knowledge to five billion people you need digital books. If you want to give wealth to five billion people you need digital property."

Eric Gravengaard and Gil Valentine, Athena's founders.

Eric is the CEO while Gil is the CCO. Eric once tweeted that, "The world needs access to sound financial products. That starts with sound money. Let's make it easier for the three billion under-banked to get access."

Anil Lulla, Co-founder and chief operating officer of Delphi Digital⁵⁹

Anil once said, "While everyone seems to celebrate every single new BTC high, let me remind you of where we are going. The Halving runs tend to get between 1 and 2 standard deviations overbought versus trend, and it occurs usually around 18 months. This would give a rough price target between \$400 000 and \$1.2m by the end of 2021.

He also said, “We believe crypto represents a multimillion dollar opportunity that will drive the greatest wealth transfer event of the 21st century.”

Tom Lee. Fundstrat Global Advisors managing partner

Tom is a popular Bitcoin bull. After the Tesla CEO suspended vehicle purchases made using Bitcoin as a result of environmental concerns,⁹³ he said, “I don’t think it’s going to get people negative on Bitcoin, but it is going to get people to focus on the problems that are being created by digital assets. It is probably better to view it as a call to action for the Bitcoin industry to focus on renewables or more efficient ways to provide proof-of-work.” Tom also upgraded his Bitcoin price target for 2021 from \$100 000 to \$125 000.

Sheila Warren, Head of Data, Blockchain and Digital Assets at the World Economic Forum⁵⁹

“I don’t think Bitcoin is going away. I think that it is deeply important to the ecosystem. I think that its maintenance and its enhancement is deeply important to the entire ecosystem. And I think that it will always have a certain unique role to play.”

Dan Held, Growth lead for Kraken

Dan had worked at Uber, Blockchain.com and Zeroblock before joining Kraken.

I first heard about Bitcoin Supercycle from him. According to him, “Bitcoin Supercycle is where Bitcoin’s bull run could be different than all previous runs.” COVID, institutional adoption, and ease of purchase were suggested as reasons for a possible epic bull run of Bitcoin.

Dan also once said, “Bitcoin is solving the biggest problem in the economy: storing value. It’s gold 2.0. It’s a better hedge against inflation, supply is known and capped and it’s easily stored and transferred.”

Changpeng Zhao, Binance CEO and founder

Changpeng⁸⁶ who is commonly known as ‘CZ’ is a Chinese-Canadian business executive. His cryptocurrency exchange is the world’s largest cryptocurrency exchange by trading volume as of early 2019. Changpeng was known for building high-frequency trading systems for Wall Street’s flash boys

Below are two of his tweets and quotes:

1. If you can’t hold, you won’t be rich.
2. A message is still a message, but the technology for transferring it has improved over time. Money is still money, but the technology for transferring it is improving.

Linda Xie, Co-founder and Managing Director of Scalar Capital

“Every time someone asks me what I’m excited about in crypto these days I end up going on a long rant because there’s so much to be excited about. Positive bitcoin news, DeFi traction, NFT creativity, governance experiments, layer 2 scaling, project launches, top talent joining etc.”

Robert Breedlove, CEO and Founder of Parallax Digital.

Robert is also the founder of the *What is Money?* podcast. He refers to himself on twitter as a freedom maximalist. He once said, “Bitcoin has introduced properties of money that are as close to perfect as the world has ever had and it distinguishes itself from all imitators as the only crypto asset with zero counterparty risk.”

Yoni Assia, Founder and CEO of eToro

“When I encountered Bitcoin for the first time, that was, for me, an a-ha moment. ‘Wow, this is the money of the internet. It’s decentralized, unregulated, not controlled by any single entity or government and it can’t be stopped.’”

Paolo Ardoino, Chief Technology Officer, Bitfinex and Tether

“Bitcoin is technology and financial elegance...Sentiment around remains overwhelmingly bullish. The king of crypto is the base layer for an emerging alternative financial system. Bitcoin is providing a solid foundation for a staggering array of projects, some of which will fundamentally change the nature of money by the end of the decade. Those celebrating the rise of competing chains in a rampant bull crypto market should do well to remember that they owe everything to Bitcoin.” Paolo also commented on Ethereum’s new all-time high.⁹⁶ “Ethereum has today reached a new all-time high. The price of Ethereum is going up in a resurgent decentralized finance (Defi) space. While the explosion of Defi has caused growing pains for Ethereum, layering solutions are in the works that are helping the network to scale. The launch of Tether tokens (USDt) on such solutions, as a valuable and trusted source of liquidity, will help power Ethereum towards its full potential.”

Lyn Alden Schwartz, Founder of Lyn Alden Investment Strategy

Lyn is one of the most brilliant women, thinkers and writers in cryptocurrency. In her interesting article, titled: *The Fraying of the US Global Currency Reserve System*,⁴³ she argued that the global economy will likely encounter the third dollar bear cycle which will make the price of different assets such as global equities, quality residential real estate, precious metals, industrial commodities, and alternatives such as Bitcoin,

do well. She also added that, “the global monetary system is gradually becoming more decentralized, in the sense that alternate payment systems and alternate currency settlements among trading partners are growing in use. This is indeed a more structural shift towards a new system. It could happen slowly, as it already is, or it could accelerate if the US itself also shifts out of the fraying system.”

Lynn also once tweeted that, “A lot of investors are concerned about potential regulatory actions against Bitcoin, but over time it’s generally moving in the opposite direction towards greater regulatory acceptance. More companies, more places.”

Plan B. Creator of Stock-to-flow and Value Model

His real name is not known. @100trillionUSD is his twitter handle. He hypothesized that scarcity, as measured by SF, directly drives value. He predicted the market value for Bitcoin after May 2020 halving will be \$1trn which translates in a Bitcoin price of \$55,000. Plan B also noted that Bitcoin is the first scarce digital object the world has ever seen. It is scarce like silver and gold but unlike them, it can be sent over the internet, radio, satellite etc.

“Once you have seen, you cannot unsee. Once you get it, there is no way back.” Plan B

Jason Williams, American entrepreneur

Jason, together with Mark Yusko and Anthony Pompliano, are the founders of Morgan Creek Digital Assets, a crypto focused investment arm of Morgan Creek Capital, involved with many of the top companies in crypto space and having significant holdings in Bitcoin.

Jason once tweeted

“If I had a house, I would sell it and buy Bitcoin because I know that in 10 years I can buy 10 houses.”

Ari Paul, CIO/Founder of BlockTower Capital

Ari tweeted about cryptocurrency volatility recently: “I’m always surprised when people are surprised at cryptocurrency volatility. Recent volatility isn’t unusual. BTC went from \$20K to \$60k a few months ago. People forget that high volume works in both directions.”

I also like his pinned tweet : “Stay hungry. Stay humble. Stay ambitious. Stay curious. Be a student, always.”

Alex Gladstein, Chief Strategy Officer at Human Rights Foundation and Oslo Freedom Forum

Alex is the author of *The Four Critics of Bitcoin* and *Can Governments stop Bitcoin?* In the latter, he argued that the only way Bitcoin will die is if people don’t want a devaluation-proof, censorship-resistant, permission-less, borderless, non-discriminatory, teleporting financial asset any longer. Otherwise, Bitcoin will thrive.

He also once said: “Bitcoin has many levels. On the surface, it’s an inflation hedge. Dig deeper, and you realize it’s a tool for individual freedom. Keep digging, and you unearth a massive financial and geopolitical disruptor.”

Dan Morehead, CEO of Pantera Capital

Dan’s company is the first investment firm in the U.S to launch digital currency, early-stage token and blockchain-enabled venture funds. On the

13th of April, 2020 he predicted that Bitcoin would hit \$62,968 in April 2021. It did. He also said that the 2021 Bitcoin rally is exactly like previous halvings and that Bitcoin would likely reach \$115K by August.

He also recently tweeted to his 95K tweeter followers this: “The grip centralized finance companies have on the world’s population is waning. Power being devolved to the people is evident in the rise of Decentralized Finance. Ethereum, the largest platform for DeFi, is worth more than every bank except JP Morgan.”

Naval Ravikant, Co-founder, chairman and former CEO of AngelList.

George Lee, Co-Chairman of the Global Technology, Media and Telecom Group, Gold Sachs recently asked Naval: “How do you think and define what blockchain is and what are cryptocurrencies?” Naval wonderfully described how the two are linked together:

“Cryptocurrencies are very complicated and everyone defines them in a slightly different way, depending on how they approach them. At the fundamental core of it is the blockchain. The blockchain is an invention dating back to around 2009, which combines a few things, like public key cryptography, peer-to-peer networks, and most importantly, the solution to an old computer science problem called ‘The Byzantine Generals’ Problem’. This solution allows groups of humans who are anonymous and don’t know each other to establish trust with each other. And that is a fundamental very, very important thing, because in human history we have only had a few ways to regulate large groups of humans. We’ve done that either through having a democracy where it’s one person/one vote, or an aristocracy where an elite is in charge, or a monarchy where a king or a dictator is in charge or a corporation is in charge. And now to that we’ve added sort of a fifth way, which is groups of people who

achieve consensus with each other on the internet, even though they don't know each other. And unlike a democracy, it's merit-based. It's based on what you provide into the network. So the closest analogy would be like a market. Anyone can participate in a market, within reason, like a stock market or the credit markets. But they're limited by the amount of capital they have. They have skin in the game. So blockchains allow you to bring that skin in the game-style voting consensus, and aggregation of resources into all kinds of places where markets would normally not exist. And so that's really fundamental. And it's allowing us to remake things that normally required a centralized authority in a decentralized way. And what we've done now is, because blockchains can allow people to gather together and contribute resources and create something new, you have to keep track of who contributed what resources, and is owed something by the network. So there needs to be a ledger that keeps track of these things, and that basically ends up creating the currency by default. So blockchains end up being inseparable from the currencies that run within them. The currencies are how you do the accounting. So it's a really fascinating and deep field."

Tim Draper, American Venture Capital Investor

Tim is also the founder of Draper Fisher Jurvetson, Draper University, Draper Venture Network and Draper Associates and Draper Goren Holm. On 27 June 2014, Draper paid about USD \$19 million for nearly 30,000 Bitcoins which was seized by the US Marshals. Tim once predicted that the Bitcoin price will hit \$250,000 by the end of 2022, or early 2023.

Knut Svanholm, Author of Bitcoin book

Knut authored *Sovereignty through mathematics and independence reimagined* with Kalle Rosenbaum. In their book they explained what

makes Bitcoin special, what sets it apart from every other monetary asset that preceded it. They also covered the subjects of money, inflation, scarcity and the Bitcoin mining process.

Knut recently tweeted: “The fact that so few of us are excited about the existence of a teleportable, absolutely scarce resource, tells you something about the human race.” This is another profound tweet of Knut: “Imagine, everything there is and everything that will ever be, divided by 21 million.”

Lou Kerner, Quantum Economics Head Crypto Analyst and Partner at Blockchain Coinvestor

Lou recently said amid the 18 May 2021 crypto sell-off: “Bitcoin will be at least \$1 million in 10 years and I’m pretty sure that it will get there by going up and down and up and down in very wild swings because that’s what it does.”

Mircea Popescu, early Bitcoin adopter

Sadly Mircea drowned off the coast of Costa Rica on 28 June 2021. Pete Rizzo who wrote an article⁵⁰ after his demise wrote that he left an indelible legacy in Bitcoin and that his ideas have influenced the Bitcoin philosophy, helping to shape the author of the Bitcoin Standard, Saifedean Ammous.

Below are some of his popular quotes:

“Bitcoin is. Much like gravity, sunlight during daytime or meteors-in-waiting in the Kuiper belt, Bitcoin just is. It’s not an entity, it’s a rule.”

“Bitcoin is no community. Bitcoin is simply math.”

“There is a reason Bitcoin will crush fiat. In any competition between two systems, the one that preserves property rights will completely crush the one that does not.”

Elizabeth Stark,³⁹ CEO/Founder of Lightning Labs.

“I’m not spending my life so that billionaires can manipulate things, or so that rich people can get richer. I’m spending my life so that a billion people will have access to this technology.”

Dan McArdle, Messaricrypto Co-founder, Creator of Onchainfx

“It pays to educate yourself on Bitcoin. Don’t just follow the hype. Understand it, have a thesis around it, be prepared for the volatility. Have a plan”

Obi Nwosu, CEO and co-founder of Coinfloor

Coinfloor is the UK’s longest running Bitcoin exchange. Obi has over 20 years’ experience building online marketplaces and bringing virtual currencies to tens of millions of people. Obi’s mission and focus is to make it easy for anyone to learn about, invest in and own Bitcoin, the world’s best savings technology.³¹ Obi writes: “The beautiful thing about Bitcoin is that it’s a technology designed to complement and draw strength from the most powerful force on the planet: humanity’s deep yearning to be free, to prosper, and to be in control of their destiny. And the problem for those in authority who want to ban Bitcoin is that they would need to exert such a level of authoritarian control over the citizenry that it would make a mockery of these core human values.”

Mark W. Yusko. American investor, hedge fund manager, and philanthropist.

Mark is the founder, chief investment officer and managing director of Morgan Creek Capital Management, an investment management firm that advises pension funds, endowments and wealthy individuals.

Mark, who predicted Bitcoin could hit \$500 000, once said: “The greatest wealth is created by being an early investor in innovation. Making that investment requires believing in something before the majority of people understand it. You will be mocked, ridiculed and criticized for your non-consensus action. It is absolutely worth it.”

“The whole point of investing is to take intelligent risk (risk you are compensated for), not to avoid risk...Great investors seek volatility and actively manage that risk to build wealth over long term.”

Joe Burnett. Research Analyst at Mimesis Capital, the first family office fund adopting the Bitcoin standard.

On 19 Feb 2021, Joe wrote an article titled: “\$1M BTC is Early – Bitcoin’s Scarcity Leads to Global Abundance.” In the article, Joe argued that Bitcoin is better than all forms of previous monetary goods. He went on to predict a future where everyone will hold a large portion of their portfolio in bitcoin because its purchasing power will grow in line with global productivity. To put it in its his words: “Holding bitcoin will be like storing wealth in a low cost index fund or a diversified portfolio (like a 401k). Except it will be magnitudes more valuable because Bitcoin offers the same NgU (“Number Go Up”) technology, but with no counterparty risk and no dilution risk.”

Marcus Swanepoel, Founder and CEO of Luno

Marcus is the co-founder and CEO of Luno, a leading global cryptocurrency company on a mission to upgrade the world to a better financial system. Luno recently revealed that cryptocurrency trading in South Africa is largely dominated by young people, with those under 29 accounting for 40% of transactions. The exchange which also claimed that it had added about a million new South African customers in 2020, said

that, “About 65% of Luno users are men and around 35% are women.” The industry average is 70% male to 30% female.

Marcus once said: “While much attention has been focused on institutional adoption, retail adoption has grown at an arguably even more frantic pace. In 2021, we plan to continue this exponential growth, on track to meet our goal of one billion customers by 2030.”

Muneeb Ali, CEO and Co-Founder of Stacks, smart contracts for Bitcoin
Below are some of Muneeb’s tweets: “Some crypto projects want to replace Bitcoin with something ‘better’. What they don’t realize is that without Bitcoin there is no crypto industry. If Bitcoin falls, everything else follows.”

“People don’t think beyond the Bitcoin base layer. Bitcoin layers, like Lightning or RSK/Stacks for smart contracts, bring additional functionality to Bitcoin. Bitcoin is for settlements, not payments. The additional layers, like Lightning or Stacks, is where payments happen.

Bitcoin’s base layer optimizes for decentralization and durability. The only metric that matters for sovereign money is decentralization. The only metric that matters for a settlement layer is durability. Bitcoin maximizes both. Experiments happen at additional layers.”

Vijay Boyapati, author of *The Bullish Case for Bitcoin*

Vijay authored an article titled *The Bullish Case for Bitcoin*⁷⁶ on 2 March 2018, which he recently published as a book.

In the conclusion of the article, Vijay wrote that at some stage in the future Bitcoin will become a global money much like gold during the classical gold standard of the 19th century. Vijay included the email exchange between Satoshi Nakamoto and Mike Hearn in 2010: “If you can imagine it being used for some fraction of world commerce, then there’s only going

to be 21 million coins for the whole world, so it would be worth much more per unit.” Lastly, he included the quote of Hal Finney, the recipient of the first Bitcoins sent by Nakamoto.

“Imagine that Bitcoin is successful and becomes the dominant payment system in use throughout the world. Then the total value of the currency should be equal to the total value of all the wealth in the world. Current estimates of total worldwide household wealth that I have found range from \$100 trillion to \$300 trillion. With 20 million coins, that gives each coin a value of about \$10 million. This bullish case may be true after all. On 11 May, the legendary Stanley Druckenmiller said, “It’s more likely than not that within 15 years the dollar loses reserve currency status.”

Vijay also recently tweeted: “Central Bank digital currencies are not equivalent to Bitcoin. The former centralizes power even more than the current fiat system, creating a financial panopticon. The latter decentralizes power and puts it in the hands of the people.”

Jake Woodhouse, Angel and Founder

“That Bitcoin will become the world’s global reserve currency is not my ‘belief’ *per se*. It is in fact, the ‘conclusion’ I reached. This took many hours of research, diving into history, economics, and the question “What is money?””

Nic Carter, Partner at Castle Island Ventures

Nic is also the cofounder of blockchain data aggregator Coinmetrics.io. He previously served as Fidelity Investments’ first crypto-asset analyst. He has a Masters in Finance and Investment from the University of Edinburgh and an undergraduate degree in Philosophy from the University of St Andrews.⁸² Nic once argued that the design features of Bitcoin that may appear odd, ugly or broken tend to have good justifications beneath the

surface and that design space is being actively explored by thousands of projects. He has also written widely about Bitcoin, energy consumption and sustainability.

Garrick Hileman, Head of research at Blockchain.com and visiting fellow at the London School of Economics.

Garrick once argued that governments may start to hold Bitcoin in 2021. According to him, the year 2020 strengthened the notion that crypto assets are here to stay and will be an integral of our financial lives going to forward.

Wences Casares, the Argentine-born tech investor

Wences, who is one of Bitcoin's most ardent advocates, once said: "After 10 years of working well without interruption, with close to 100 million holders, adding more than 1 million new holders per month and moving more than \$1 billion per day worldwide, Bitcoin has a 50% chance of hitting a price of \$1 million per Bitcoin in five to seven years' time."

Niall Ferguson, Scottish historian and the author of *Ascent of Money*

The Barron's asked Niall in December 2020 what will be the best investment opportunity coming out of the pandemic. This is his response: "I'm going to go with Bitcoin. It has had a stellar year, up 165% year to date..."

Niall argued that U.S should embrace Bitcoin and crypto assets so as to support a more privacy conscious and open financial system versus the more centralized one being actively promoted by China through its central bank digital currency i.e., the DCEP.

“Bitcoin is the only digital asset or token that has scarcity built in. Everything on the internet is defined by superabundance; Bitcoin is the exception.”

Rick Rieder, Chief Investment Officer for major asset manager BlackRock
Rick recently said when responding to a question on Bitcoin in light of Elon Musk’s announcement that Tesla will be halting acceptance of Bitcoin as payment for its electric vehicles due to environmental concerns.

“Bitcoin is an interesting asset. I think it’s durable. I think it will be part of the investment arena for years to come.”

Robert Kiyosaki. The author of Rich Dad, Poor Dad.

Robert once said “Fiat is Government money, Gold is God’s money and Bitcoin is internet money”

He also tweeted this when Bitcoin tanked due to Elon’s unfavourable remark concerning Bitcoin:

“Bitcoin crashing. Good news. Get ready to buy more. Remember the problem is not Elon Musk or Bitcoin. The problems are the Fed, Treasury, and Biden. Gold, silver and Bitcoin are the solutions. Take care.”

Alex Kruger. Economist and Cryptocurrency trader

Alex has an MBA from Columbia University. His pinned tweet is about Bitcoin current macro drivers which include;

- Loss of faith in governments
- Lower rates push speculators out the risk curve.
- Negative real interest rates
- Inflation

According to him, these drivers are all interconnected and they are the faces of a four-sided dice.

Lawrence Summers, Former Chief Economist of the World Bank

Lawrence is also the former Treasury Secretary and former Director of the National Economic Council. Lawrence recently said on Wall Street week: “Bitcoin may become fundamental to commerce on the internet.” He also said, “Bitcoin is here to stay and that there is a long-standing human desire to hold an asset that feels separate and apart from the day to day workings of governments.”

Saifedean Ammous. The author of *The Bitcoin Standard*

Below are some tweets by Saifedean:

“The best case for bitcoin is as a 4 year investment.

Over 4 years, bitcoin:

has never been down

has been up 365x on average

has been up less than 5x on 1 day

has been up less than 10x for 99 days.”

“Bitcoin is an open international conspiracy to make you free and rich and the only thing you can do about it is join early or join late.”

“Bitcoin replaces the need for strangers to have to be subject to the same government and central bank in order to trade internationally, which necessitates one government imposing its will on the rest of the world, which can only be done with war.”

“Under the Gold Standard, it was the Bank of England that provided the global payment settlement platform. Under fiat, it’s the Fed. By printing the global trade token, these countries had the exorbitant privilege of buying and invading the planet and footing it with the bill.”

“Every other form of money, physical, governmental, or digital, is a shitcoin because it relies ultimately on the authority of someone to move. Everyone wants to be that someone and the stakes are so high, they’ll fight it. War is the only alternative to Bitcoin.”

“We can keep using barbaric manual shitcoins that rely on the authority of violence, causing endless conflict and politics. Or we could upgrade to a peaceful software solution that runs on electricity and cannot be corrupted by politics or violence. That’s why Bitcoin’s worth it.”

“Bitcoin consumes so much energy because it uses a fully mechanical and digital process to ascertain truth. It doesn’t rely on the authority of anyone. It’s not a more energy-intensive way of doing consumer payments; it’s a less energy-intensive way of achieving consensus than war.”

Mark Cuban. The Dallas Mavericks owner

In response to Elon Musk’s tweet that he will not be accepting Bitcoin again, Mark tweeted “We at Mavs will continue to accept Bitcoin, Ether (ETH) and Dogecoin (DOGE) as payment means for tickets and merchandise items.⁴⁴ He also added that crypto and each implementation is evolving in real time from ‘what is the potential utility’ to ‘what is the current utility and how many users does it have’. Tokens/Coin prices are now less a bet on the future and more a reflection of real demand.

Emin Gun Sirer, Prof at Cornell University.

He is also the founder and CEO of Ava Labs, builds with Avalanche AVAX, which is empowering people to build an open, simple, and democratic internet of finance.

His pinned tweet: “So many academics forget that our goal, as a profession, is **not** to publish papers. It’s to change the world.” This is one of the best tweets I have come across as an academic!

Spencer Schiff,

He refers to himself on his twitter handle as, “Former goldbug, Bitcoin maximalist, Fan of Mises, Rothbard, Hoppe. Interested in finance, Austrian economics, libertarianism and anarcho-capitalism.” He recently tweeted: “Bitcoin’s move from \$500 to \$50K, as a \$900B rise in market cap, only brought the asset from insignificance to moderate relevance. The move from \$50K to \$5M, as a geopolitically seismic \$100T rise in market cap, will be far more consequential than the prior 100X price increase.”

Cathie Wood, Founder, CEO and CIO of Ark Invest

Cathie recently said that Bitcoin will hit \$500,000 in the future and she disagrees with Elon Musk on Bitcoin’s climate impact.^{42, 64} She also said, “I’ve had the honour of meeting Bitcoin core developers. They know economic history better than anyone I’ve ever met.” The Ark Invest put out this statement after Elon announced that he would stop accepting Bitcoin: “In our view, the concerns around Bitcoin’s energy consumption are misguided. Contrary to consensus thinking, we believe the impact of Bitcoin mining could become a net positive to the environment.”

Cathie – a longtime Bitcoin bull - has been buying up proxies for the digital asset through Coinbase and Grayscale Bitcoin Trust. ARK Investment Management announced on the 28 June that they will teaming up with 21Shares US LLC to create a Bitcoin (BTC-USD) ETF.⁶⁶

Barry Silbert, Founder/CEO Digital Currency Group (DCG) and investor in 180 cos.

DCG is a global enterprise that builds, supports, and invests in companies all over the world. The company is the parent of @Grayscale, @GenesisTrading @CoinDesk, @TradeBlock, @FoundryServices, @LunoGlobal. Barry is one of the most powerful men in crypto.

Barry once said: “Bitcoin is one of the most viral concepts I’ve ever encountered...The history of Bitcoin trading is a bubble, a correction, consolidation, and another increase.”

Vitalin Buterin, Co- founder of Ethereum

27 year old Russian-Canadian programmer and writer who got into cryptocurrency very early, co-founding Bitcoin Magazine in 2011. He launched Ethereum with Gavin Wood in 2014. You will find all of his interesting quotes on brainyquote.com. These are two of them:

“Blockchains will drop search costs, causing a kind of decomposition that allows you to have markets of entities that are horizontally segregate and vertically segregated.”

“A smart contract is a mechanism involving digital assets and two or more parties, where some or all of the parties put assets in, and assets are automatically redistributed among those parties according to a formula based on certain data that is not known at the time the contract is initiated.”

Paul Tudor Jones II, American billionaire hedge fund manager, conservationist and philanthropist

Paul recently said on CNBC Squawk Box that Bitcoin is a great way to protect his wealth over the long run and is part of his portfolio, like gold.⁹⁴

“I like Bitcoin as a portfolio diversifier. Everybody asks me: ‘What should I do with my Bitcoin?’ The only thing I know for certain, I want 5% in gold, 5% in Bitcoin, 5% in cash and 5% in commodities. At this point in time, I don’t know what I want to do with the other 80% until I see what the Fed is going to do... I look at Bitcoin as a story of wealth,” he said.

Paul also said recently: “Bitcoin is math. Math has been around for thousands of years. 2+2 will equal 4, and it will be for another thousand years. I like the idea of investing in something reliable, honest, secure, and hundred percent certain. Bitcoin is a way to invest in certainty.”

Ray Dalio, American billionaire investor and hedge fund manager

Ray has served as co-chief investment officer of the world’s largest hedge fund, Bridgewater Associates, since 1985, a company he founded 1971. In an opinion piece titled ‘What I think of Bitcoin’, published on 28 January 2021, Ray said, “I believe Bitcoin is one hell of an invention. To have invented a new type of money via a system that is programmed into a computer and that has worked for around 10 years and is rapidly gaining popularity as both a type of money and a store-hold of wealth, is an amazing accomplishment⁷⁷.”

Mike Novogratz, CEO of Galaxy Investment Partners

Michael is an ex-hedge fund manager, formerly of the investment firm Fortress Investment Group. Galaxy Investment Partners invests in Bitcoin and Ethereum. Mike predicted that Bitcoin would hit \$100,000 in 2021 and he also said in an interview on Squawk Exclusive that Bitcoin is an asset class that’s here to stay.⁷⁹

Ricardo Salinas, Mexico's third richest man

An interviewer recently asked Ricardo: "If you could choose an asset, or money to take 30 years into the future, what would you take?"

He replied: "No paper bills...no stinking fiat. I would take Bitcoin...Bitcoin should be part of every portfolio. Period. The finite supply is the key. The fiat system is a fraud; even in the US, money creation is going to the moon. The dollar as hard money is a joke."

Ricardo also said that his bank and him are working to be the first bank in Mexico to accept Bitcoin.

In addition, I find Ricardo's tweet to Michael Saylor interesting. Ricardo tweeted "Heeeey! @michael_saylor. Love your book *The Mobile Wave*... Way back then you had great vision. I really hope your big 'all in' bet with MicroStrategy pays off. BALLS OF STEEL!"

Michael's response is amazing: "Thank you. The next chapter of *The Mobile Wave* is Bitcoin and Lightning on billions of mobile devices, providing digital property rights and economic empowerment to everyone on earth. It will be the most exciting chapter yet..."

Cameron and Tyler Winklevoss, Founders of Gemini cryptocurrency exchange

The twin brothers are also the founders of Winklevoss Capital Management. They are known for also co-founding Harvard Connection (later renamed ConnectU) along with their Harvard classmate Divya Narendra. They later sued Mark Zuckerberg for stealing their ConnectU idea to create Facebook. On the 27 August 2020, they published¹⁰³ the case for \$500K Bitcoin predicting that the price of Bitcoin could appreciate 45x from where it is today i.e., a price of \$500,000 U.S dollars per bitcoin.

Cameron, once said, “Bitcoin is underpinned by math and cryptography. Like gravity, it works, whether you believe in it or not.”

“All investors hope for financial freedom. Few achieve it because few investments actually offer it. And those that do often require access (accredited investor only) or have low liquidity (startups). Bitcoin is open to anyone, anywhere and can be bought and sold anytime.”

After the Bitcoin 2021 conference, Tyler tweeted:

“When Cameron and I spoke at Bitcoin 2013, the price of Bitcoin was \$130. When we spoke at Bitcoin 2021, the price of Bitcoin was \$36,000. Few.”

“300 people showed up to Bitcoin 2013. 50,000 people showed up to Bitcoin 2021. In just eight years, 1 trillion in value has been created. The best part is we’re just getting started. The next eight years are going to be bonkers.”

Tyler also tweeted this on the 16th of June 2021:

“Bitcoin is the decoupling of money and state. Crypto is the decoupling of money and banks. DeFi is the decoupling of finance and Wall Street. NFTs are the decoupling of art and the establishment.”

Olaoluwa Osuntokun, CTO and Co-founder at Lightning Labs.

“If we’re to bring Bitcoin to a billion people, it’s fundamental constraint that everyone cannot possess a claim to a root UTXO. Therefore, it’s imperative that we build protocols that allow secure off-chain channel creation with unilateral withdraw via root UTXO tree unrolling.”

Senator Cynthia Lummis, Wyoming Republican senator.

Bitcoin is a great store of value, source of financial privacy and alternative to print-on-demand fiat currency according to the 66-year-old freshman Republican senator. She also believes that the growth of Bitcoin will encourage creation of renewable energy in many places⁸⁹.

In an interview with CNBC Power Lunch she said, “I encourage people to save Bitcoin for their retirement, for their future.” She also revealed she has 5 Bitcoin which she bought in 2013.

James Todaro, Partner Graymatter Capital

I recently came across James’s tweet thread which I found interesting. In the thread he described the most common crypto investors he had observed over the past years.

1. Get rich quick: Basically looking for a lottery ticket - makes very small investments because of low conviction. Often shaken out in dips or suffers a 90-99% loss in a coin that never recovers.

2. The Nocoiner: Judges the entire space based off the worst players; doesn’t take the deep dive to realize the transformative implications specific crypto protocols will have on finance and often becomes very bitter every 3-4 years.

3. The Fundamental Investor: Looks beyond the hype and gets hands dirty testing projects. Forms a thesis, then makes a material investment. May suffer losses in the first cycle, but has the conviction to become an early investor by the next cycle.

He also tweeted that the most independent thinkers eventually become the Fundamental Investor after their first cycle in crypto and that very few move backwards.

Ross Stevens, Founder of NYDIG.

NYDIG is a leading technology and financial services firm dedicated to Bitcoin. Ross once said, “Bitcoin is our peaceful weapon of choice against central bank driven time theft.”

Ross also said: “Each citizen now has a choice. You can stay on the Fiat Standard, in which some people get to produce unlimited new units of money for free, just not you. Or you can opt in to the Bitcoin Standard, in which no one gets to do that, including you.”

Max Keiser, American broadcaster

Max is an American broadcaster and film maker. He hosts Keiser Report, a financial program broadcast on RT that features heterodox economics theories.¹¹⁷ Max heard about Bitcoin in 2011 and started accumulating at \$1 at a time. Keiser said that BTC’s digital scarcity attracted him the most.¹¹⁸ He once said, “Like Venezuela, Zimbabwe, and Iran, NASDAQ is higher as confidence in the USD collapses. Safe haven money is seeking shelter in stocks, gold and Bitcoin.”

Elon Musk, CEO OF Tesla Motors

Elon is also the founder, CEO and chief engineer at SpaceX; founder of the Boring Company; co-founder of Neuralink and OpenAI. His company Tesla, purchased \$1.5 billion in BTC in February 2021. Elon announced that some of its Bitcoin was sold in the first quarter for \$272 million making a profit of \$101 million.⁶⁷ On 13 May 2021, he announced that Tesla will no longer accept Bitcoin over climate concerns but that Tesla will not be selling any Bitcoin.⁴⁵ This is one of his tweets after his dilly-dallying: “The true battle is between fiat and crypto. On balance, I support the latter.” Also during a live-streamed session of The B Word event on 21 July 2021, Elon said that he supports and holds the original cryptocurrency and that his aerospace company, SpaceX, also holds it.¹¹² “Bitcoin has an open ledger, which is quite gold. But transaction volume is low, transaction cost is high and usability for the average person is not yet very good but it has a lot of potential.” he said.

Justin Rhedrick, Bitcoin educator and investor

Justin once said, “Stop calling yourself a wealth builder if you don’t have any Bitcoin.” Because no other asset compares to it.

Ruggero Bertelli, Professor of Financial Intermediaries’ Economics at the University of Siena, Italy.

He teaches banking management, credit risk management and financial risk management. Bertelli is a board member of Euregio Monibond, an Italian fund specializing in regional SME bonds, and a board member and vice president of Italian bank, Prader Bank. He is also an asset manager, risk manager and asset allocation adviser for institutional investors. As a behavioral finance scholar, Bertelli is involved in national financial education programs. In December 2020, he published *La Collina dei Ciliegi*, a book about behavioral finance and the crisis of financial markets. Ruggero and Danielle published an article titled: *Forecasting Bitcoin price using quantitative models*. They argued that the value of scarcity, the market moves in bubbles, the rate of adoption and the hash rate can be used to predict the value and price of Bitcoin.

Daniele Bernardi, Founder of Diaman Group

Daniele describes himself as a serial entrepreneur constantly searching for innovation. His company, Diaman Group, is dedicated to the development of profitable investment strategies that recently successfully issued the PHI Token, a digital currency with the goal of merging traditional finance with crypto assets. Bernardi’s work is oriented towards mathematical models development, which simplifies investors’ and family offices’ decision-making processes for risk reduction. Bernardi is also the chairman of investors’ magazine *Italia SRL* and Diaman Tech SRL, and is the CEO of asset management firm, Daiman Partners. In addition, he is the manager of

a crypto hedge fund. He is the author of *The Genesis of Crypto Assets*, a book about crypto assets. He was recognized as an ‘inventor’ by the European Patent Office for his European and Russian patent related to the mobile payments field.

Russel Okung, NFL Star and Nigerian descendant

Russel is the first NFL player to receive half of his \$13M salary in Bitcoin.⁹⁷ He recently wrote an open letter⁹⁸ to the Nigerian government urging him to pursue a Bitcoin standard. He argued that a national Bitcoin standard will assist Nigeria achieve economic independence and financial sovereignty. “We offer our full support, a willingness to voluntarily consult and commitment to activate every resource available to us in order to see Nigeria pursue a Bitcoin standard,” he said.

Mike McGlone, Senior Commodity Strategist, Bloomberg Intelligence

He tweeted this recently: “Digital Gold, Ethereum and Dollar Power: Cryptos in Five charts – In one of the most unique examples of global free-market capitalism, the dollar is gaining dominance digitally, Bitcoin is replacing gold as a store value and Ethereum is building the fintech infrastructure.”

Bill Miller, American investor, fund manager and philanthropist

Miller, who began buying Bitcoin when it cost \$200-300 recently said: “Bitcoin was born out of the 2008 crisis and was designed to be free of government control and manipulation, to be the ultimate in an inflation-proof asset...It is an open question if it will be an enduring store of value, with many strong opinions on both sides.”³⁴

Apart from saying that Bitcoin becomes less risky the higher the price goes, he also said earlier in the year that the Bitcoin rally is the start of going mainstream because supply is growing 2% a year and demand is growing faster.^{35,36}

Sam Bankman-Fried, Antigua-based crypto derivatives exchange FTX
His crypto derivatives exchange FTX recently raised the largest private equity round in the industry's history, nearly doubling the previous record. The exchange which launched in May 2019, offers inexperienced traders advanced functionality and sophisticated investment products, including options, futures, volatility products and leveraged tokens.¹¹⁰ Sam once said, "A pretty good trader is someone who gets half of the things right and changes their mind a lot."

Jimmy Song, author of a book about Bitcoin

Jimmy is one of the authors of Thank God for Bitcoin, The creation, corruption and redemption of money. The book makes the moral case for Bitcoin from a Christian perspective.

Jimmy once tweeted:

"Decentralized - Anarcho-capitalists love this part

Digital - Technologists love this part

Scarce - Austrian Economists love this part

Learn all three, or risk missing the big picture. You need all three to make Bitcoin and everything else lacks one or more of these."

Some key words or slang terms common in cryptocurrency space

1. **Bug bounty:** A reward offered for the identification of vulnerabilities in software.
2. **CBDC: Central Bank Digital Currency:** A central bank digital currency¹⁰⁰ will use an electronic record or digital token to represent the virtual form of a fiat currency of a particular country however it will be centralized, issued and regulated by a central bank of that country.
3. **Decentralization:** “Bitcoin users, miners and full nodes are scattered all over the world. It is these groups in aggregate that make up the network. With no headquarters, CEO or employees, there is no central point of failure.”
4. **Dildo:**⁶⁰ The red or green ‘candles’, or vertical lines, on graphs showing crypto market data
5. **FUD:**⁶⁰ It is an acronym for Fear, Uncertainty and Doubt which describes the emotions that can be felt by investors during more volatile market movement time periods, when negative mainstream news cycles occur and other uneasy moments surrounding the Bitcoin ecosystem
6. **Futures:** An agreement to buy/sell a commodity/asset at a predetermined price in the future.
7. **Gains:** Gains refer to an increase in value or profit.
8. **Game theory:** Bitcoin has been defined as a game theory apart from masterpiece technology, economics, mathematics and philosophy. “Game theory⁸⁸ is based on the assumption that all participants are rational actors and are trying to maximize their gains from the game.”
9. **Halving:** It is the process of halving the rewards of mining Bitcoin after each set of 210,000 blocks is mined. By reducing the rewards of

mining bitcoin as more blocks are mined, Bitcoin halving ensures that the amount of Bitcoin in circulation does not increase exponentially and at the same time enabling its price to move higher.

10. **Hash power:** The processing power of the Bitcoin network. It is determined by the amount of energy miners spend in their competition to process transactions - more than 140 quintillion hashes per second currently. A higher hash power means a safer network.
11. **HODL:**⁶⁰ It originated as a drunken misspelling of the word 'hold' and it means you should not sell your Bitcoin.
12. **Hot wallet:** A crypto wallet that is connected to the internet for hot storage of crypto assets.
13. **Metcalf Law:**⁸⁵ The law originally presented in 1980 by Robert Metcalfe and later refined in 1993 by George Gilder could be used to predict Bitcoin's value. The law states that the value of a telecommunications network is proportional to the square of the number of connected users of the system (n^2), or $n(n-1)/2$, where n equals to a number of nodes. The law has been successfully used for evaluating valuations of FAANG technology-related stocks and internet usage in general.
14. **Miner:** A user of Bitcoin software competing to process transactions in exchange for mining rewards. Miners use specialized computing equipment called ASICs to race to find a special number. On average a miner finds the special number and presents it to the network along with block valid transactions every 10 minutes. In return, they are paid the mining reward, which today is 6.25 BTC plus transaction fees. The transactions are processed and cemented into the network's memory and a new race begins. Because such a large amount of energy is required to have a chance at winning the race, today miners team up

into mining pools which allocate rewards over time to participants based on a percentage of 'hash power' contributed.

15. **Nakamoto Consensus:**⁸⁴ A set of rules that verifies the authenticity of a blockchain network, using a combination of the proof-of-work consensus algorithm on a Byzantine Fault Tolerance (BFT) peer-to-peer network. It's a solution to the Byzantine Generals' Problems.
16. **No-Coiner:** Someone who has no crypto and firmly believes that crypto will fail.
17. **Node:**⁸³. This is very important in the Bitcoin network. A 'full node' is a computer in Bitcoin's peer-to-peer network which hosts and synchronises a copy of the entire Bitcoin blockchain. Nodes are essential for keeping a cryptocurrency network running.
18. **Peer-to-Peer (P2P):** Exchange of Bitcoin or cryptocurrency between two people.
19. **Private key:** It is used to sign and approve the transfer of digital money. It is like the password for your email.
20. **Proof-of-Stake:**⁸⁷ The concept states that a person can mine or validate block transactions according to how many coins they hold. It was created as an alternative to Proof-of-Work which requires huge amounts of energy.
21. **Proof-of-Work:** The algorithm that secures many cryptocurrencies, including Bitcoin and Ethereum. Most digital currencies have a central entity or leader keeping track of every user and how much money they have. But there's no such leader in charge of cryptocurrencies like Bitcoin. Proof-of-work⁹¹ is needed to make the online currency work without a company or government in charge. The main and the most important problem that proof-of-work solves is the 'double-spending problem' i.e., users double spending their coins

22. **Public key:** It acts as an identifier for your account on the blockchain network. You receive funds by telling someone your wallet address i.e., public key
23. **Rekt:**⁶⁰ Originated from the word 'wrecked'. Used when referencing an investor(s) that has made a bade trade or has, in general, lost a lot of coins in some way. For example when selling their Bitcoin right before the price increases significantly.
24. **Self-custody:** It is a place where you store digital money like Bitcoin.
25. **Smart contracts:** It is a program that runs on the Ethereum blockchain. It's a collection of code (its functions) and data (its state) that resides at a specific address on the Ethereum blockchain. Smart contracts^{102,105} allow you to automate transactions and eliminate the need for intermediaries such as a broker or lawyer. Also, Bitcoin is slowly being used to secure smart contracts and other assets like non-fungible tokens.
26. **Stacking Sats:** 'Sats' refers to the smallest fraction of a bitcoin that can be sent when an on-chain transaction is made, which is approximately equal to 0.00000001 of a Bitcoin. 'Stacking sats' is a term commonly used to describe the act of regularly accumulating Bitcoin – particularly in smaller increments – by buying, earning or mining.
27. **To the Moon:**⁶⁰ When the price of bitcoin is steadily increasing over a shorter period of time, investors regularly use the term 'To the moon' to describe its upward trend.
28. **Unbanked:** Those that are either unable to access banking services, or choose not to.
29. **Whale:**⁶⁰ It refers to a large bitcoin HODLer/investor who hold a substantial amount of Bitcoin. When a whale buys or sells bitcoin, its

influence can be so strong as to make the market price move significantly upward or downward.

30. **Yield farming:**⁶⁰ This involves earning interest by investing crypto in decentralized finance markets.

Books on Bitcoin

***The Bullish Case for Bitcoin* by Vijay Boyapati:** This is one of the best books on Bitcoin. Vijay converted his long-form article, first published in 2018 into this book. This is what Jack Dorsey (CEO of Twitter and Square) and Adam Back (cryptographer, cyperpunk and CEO of Blockstream) wrote about the book. Jack: “An excellent and inspiring introduction to, and reminder of, Bitcoin’s value to the world, all through a comprehensive and historical lens of money.” Adam: “*The Bullish Case for Bitcoin* is an informative and engaging read for the newcomer and long-time Bitcoin enthusiast alike. Boyapati makes a compelling case for Bitcoin via a fast-paced tour of the historical setting of money, the properties of different types of money, and why Bitcoin is the world’s best form of money and store of value, potentially set to displace other forms.”

***The Bitcoin Standard: The Decentralized Alternative to Central Banking* by Saifedean Ammous:** The book, which is perhaps the most popular book in the Bitcoin space, is, “an essential resource for a clear understanding of the rise of the internet’s decentralized, apolitical, free-market alternative to national central banks.” Ammous concluded in the book that, “Bitcoin shifts the pendulum of sovereignty away from governments in favour of individuals, offering us the tantalizing possibility of a world where money is fully extricated from politics and unrestrained by borders.”

***The Price of Tomorrow: Why Deflation is Key to Abundant Future* by Jeff Booth.** He explains in his book that technological advances are happening at a very fast rate and these advances bring efficiency and abundance and are profoundly deflationary.

***Bitcoin Clarity: The Complete Beginners Guide to Understanding* by Kiara Bickers:** The book describes how to understand Bitcoin as a system with mental models instead of codes. It also covers what is so unique about Bitcoin that it couldn't achieve before.

***21 Lessons: What I've Learned from Falling Down the Bitcoin Rabbit Hole* by Gigi:** The author shared his personal journey investing in Bitcoin and the lessons he has learned along the way.

***The Sovereign Individual: Mastering the Transition to the Information Age* by James Dale Davidson and William Rees-Mogg:** The authors argue that there is a shift from an industrial to an information-based society. According to them, the transition will liberate individuals and alter the power of government.

***Layered Money: From Gold and Dollars to Bitcoin and Central Bank Digital Currencies* by Nik Bhatia:** The author explains that the invention of Bitcoin has created a seismic shift in money, merging the monetary and cryptography sciences. She also argues that the dollar, Central Bank Digital Currencies and cryptocurrencies will interact together in the monetary system in future.

***Bitcoin and Black America* by Isaiah Jackson:** The author explained the synergy between black economics, Bitcoin and blockchain technology. He also described how readers can incorporate Bitcoin into their business, job and educational institution.

***The Book of Satoshi: The collected writings of Bitcoin creator Satoshi Nakamoto* by Phil Champagne:** I enjoyed Jeff Berwick's review of the

book: “Phil Champagne has put into an easy-to-read format one of the most important technological innovations of our time. A completely decentralized platform to perform payment transaction without the need for a trusted third party. Its importance is only surpassed by the internet itself as an evolution in communications. Chapter 2 provides readers, unfamiliar with Bitcoin, a great overview of its technological and philosophical foundation and how it operates.”

***Mastering Bitcoin: Programming the Open Blockchain* by Andreas Antonopoulos.** The book explains to readers how they can understand Bitcoin and participate in the internet of money. Andreas recommends the book especially for people building Bitcoin application, investing in a startup or curious about the technology behind Bitcoin and blockchain.

***The Creature from Jekyll Island* by G. Edward Griffin.** Apart from Mr. Griffin explaining the history and future of money, he also touches on many issues including the cause of wars, boom- and- bust cycles, inflation, depression and prosperity.

***The little Bitcoin Book: Why Bitcoin matters for your freedom, finances and future* by Lily Liu and Timi Ajiboye.** This book discusses the problem with money today and why Bitcoin is an alternative to the current system. The book also describes, “how Bitcoin works, why it’s valuable and how it affects individual freedom and opportunities of people everywhere - from Nigeria to the Philippines to Venezuela to the United States.”

Bitcoin online resources

- The potential of Bitcoin and Blockchain assets. Tosin 'Badeniyi
<https://www.youtube.com/watch?v=AJ-Wj0c-Os0&t=4s>
- Bitcoin and financial inclusion. Tosin 'Badeniyi
<https://www.youtube.com/watch?v=Ip6pvVVLfhU>
- Learn more and diversify less. Tosin 'Badeniyi
<https://www.youtube.com/watch?v=X6YELNo5V3k&t=1s>
- Introduction to Bitcoin by Andreas Antonopoulos
<https://www.youtube.com/watch?v=11si5ZWLgy0>
- Rising Bitcoin Adoption Tide. Bloomberg Crypto Outlook
https://assets.bbhub.io/promo/sites/12/1060725_Crypto-Apr2021Outlook.pdf
- Why this CEO made a bold \$425 million bet on Bitcoin
<https://www.youtube.com/watch?v=6RuQhsNAYh8>
- Understanding Bitcoin. Fidelity Financial Commentary
<https://institutional.fidelity.com/app/literature/white-paper/9901337/understanding-bitcoin.html>
- Why Bitcoin is not a Ponzi scheme: Point by Point. Lyn Alden.
<https://www.swanbitcoin.com/why-bitcoin-is-not-a-ponzi-scheme-point-by-point/>
- Bitcoin for Everybody. Stephan Livera. Saylor.org
<https://www.youtube.com/watch?v=6WxdkRk8cs4>
- Bitcoin, What is it? Zulfikar Ramzan. Kahn Academy
<https://www.khanacademy.org/economics-finance-domain/core-finance/money-and-banking/bitcoin/v/bitcoin-what-is-it>
- Learn all about Blockchain and Crypto. Binance Academy
<https://academy.binance.com/en>
- The beauty of Bitcoin. Ross Stevens – MacroMinds/ NYDIG

https://www.youtube.com/watch?v=lkZLm_0ynXQ

- The B Word | Live with Cathie Wood, Jack Dorsey, & Elon Musk

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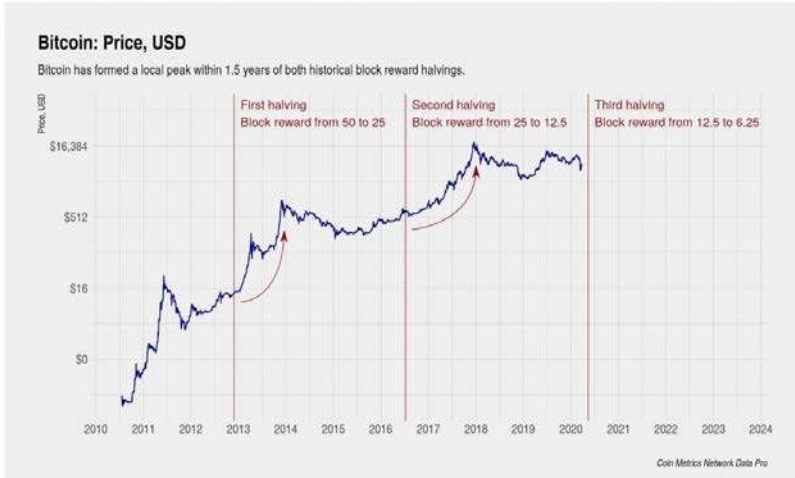
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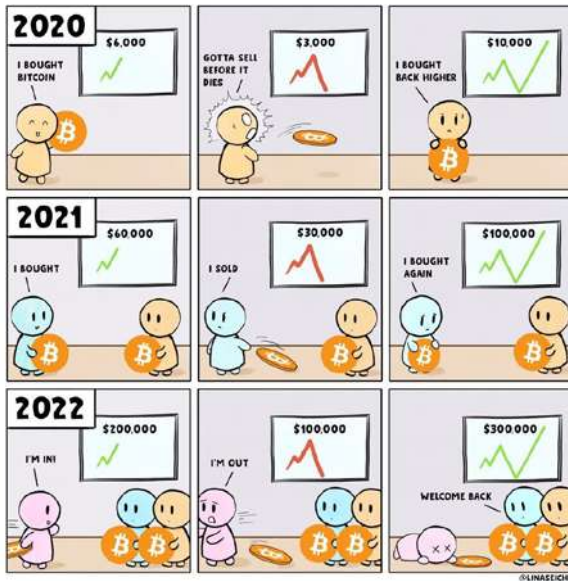
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Images related to Bitcoin



Coinmetrics logarithmic chart of Bitcoin price action following halvings.



Crypto: a new asset class?

With cryptocurrency prices remaining extremely volatile on news about regulatory crackdowns, environmental concerns and heightened tax scrutiny even as interest in crypto assets from credible investors has been rising and legacy financial institutions—including ourselves—have been launching new crypto offerings, crypto is undoubtedly Top of Mind. We first wrote about bitcoin in 2014 and cryptos more broadly in 2018, exploring the potential and risks of the crypto ecosystem. Amid the recent volatility, here we focus on whether crypto assets can be considered an institutional asset class.

We start by speaking with Michael Novogratz, Co-founder and CEO of Galaxy Digital Holdings, which is active in crypto investing and trading, asset management, and venture financing. He argues that the mere fact that a critical mass of credible investors and institutions is now engaging with crypto assets has cemented their position as an official asset class. And, despite the price volatility, he doesn't see the institutional interest in bitcoin, which he primarily views as a convenient store of value, waning as long as the current macro and political backdrop—in which the government has no imperative to stop spending on social issues that the Fed is largely financing—continues, and crypto remains in the adoption cycle.

Michael Sonnenshein, CEO of Grayscale Investments, the world's largest digital asset manager, agrees that institutional investors now generally appreciate that digital assets are here to stay, with investors increasingly attracted to the finite quality of assets like bitcoin—which is verifiably scarce—as a way to hedge against inflation and currency debasement, and to diversify their portfolios in the pursuit of higher risk-adjusted returns. Even though crypto assets have behaved as anything but a diversifier over the past year—selling off more than traditional assets as the COVID-19 pandemic set in—he says that their faster and stronger rebound in 2020 only reassured investors about their resiliency as an asset class.

But what makes a crypto like bitcoin—which has no income, no practical uses and high volatility—a good store of value? Novogratz's answer: because “the world has voted that they believe” it is. Zach Pandi, GS Co-Head of Global FX, Rates, and EM Strategy, largely agrees, arguing that bitcoin's potential for widespread social adoption given its strong brand on top of its other properties, such as its security, privacy, transferability and the fact that it's digital makes it a plausible store of value for future generations. And he believes that institutional investors today should treat bitcoin as a macro asset, akin to gold.

GS commodity analyst Mikhail Sprogis and Jeff Currie, Global Head of Commodities Research, for their part, argue that cryptos can act as stores of value, but only if they have other real world uses that create value and temper price volatility. This, they say, best positions cryptos whose blockchains offer the greatest potential for such uses, like ether, to become the dominant digital store of value. More broadly, Currie contends that cryptos are a new class of asset that derive their value from the information being verified and the size and growth of their networks, but that legal challenges to their future growth loom large due to their decentralized and anonymous nature.

And Nouriel Roubini, professor of economics at NYU's Stern School of Business, entirely disagrees with the idea that something with no income, utility or relationship with economic fundamentals can be considered a store of value, or an asset at

all. Despite the recent crypto mania, he doubts the willingness of most institutions to expose themselves to cryptos' volatility and risks, which the volatile price action in recent days has served as a stark reminder of.

Christian Mueller-Gissmann, GS Senior Multi-Asset Strategist, then makes the case that for an asset to add value to a portfolio, it has to offer either an attractive risk/reward or low correlations with other macro assets, and preferably both. He finds that a small allocation to bitcoin in a standard US 60/40 portfolio since 2014 would've led to strong outperformance, owing both to higher risk-adjusted returns for bitcoin compared to the S&P 500 and US 10y bonds, as well as diversification benefits from relatively low correlations between bitcoin and other assets. But with this outperformance largely owing to only a handful of idiosyncratic bitcoin rallies, he concludes that bitcoin's short and volatile history makes it too soon to conclude how much value it adds to a balanced portfolio.

But beyond the debatable role of cryptos as a store of value and investible asset, does the broader crypto ecosystem provide promise for investors? Novogratz and Sonnenshein strongly believe that the answer is yes, given a myriad of potential use cases for crypto assets. In particular, Novogratz sees the three biggest developments in the crypto ecosystem—payments, Decentralized Finance (DeFi), and non-fungible tokens (NFTs)—mostly being built on the Ethereum network, which suggests substantial upside for it and various DeFi applications. But Roubini contends that few successful applications of blockchain technology exist today. And he sees many potential corporate uses of it as “BINO”—Blockchain In Name Only. In short, he's skeptical that blockchain technology will prove revolutionary because “the idea that technology can resolve the question of trust is delusional.”

Mathew McDermott, GS Global Head of Digital Assets, then explains why GS has (re)engaged in the space—in two words: client demand—and how interest in cryptos differs between client types—from asset managers who are seeking portfolio diversification, to high-net-worth clients who are increasingly looking for exposure to broader crypto use cases, to hedge funds that are largely aiming to profit from the basis between going long the physical and short the future—an arbitrage that reflects the difficulties that still persist in accessing the market today.

Beyond this issue of market fragmentation, we conclude with a look at some of the other main obstacles to further institutional adoption of crypto assets. Alan Cohen, previous senior policy advisor to former SEC Chairman Jay Clayton and former GS Global Head of Compliance, explains how regulators are looking at crypto investigations. Michael Gronager, Co-founder and CEO of blockchain investigations firm Chainalysis, explains what is—and isn't—included in their analysis that finds that less than 1% of all cryptocurrency activity is illicit. And Dan Guido, Co-founder and CEO of software security firm Trail of Bits, discusses the black swan technological and security scenarios that all investors in the crypto ecosystem should be aware of.

Allison Nathan, Editor

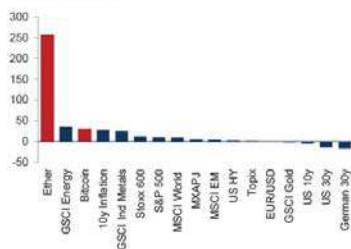
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Cryptos: sizing the surge

Bitcoin and ether have performed strongly YTD

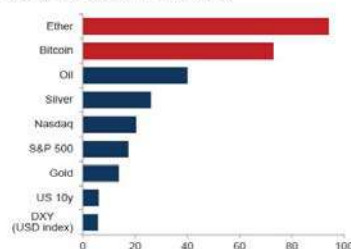
Total returns YTD, %



Note: Total returns in USD, all market prices as of May 19, 2021.
Source: Bloomberg, Goldman Sachs GIR.

But crypto returns remain very volatile

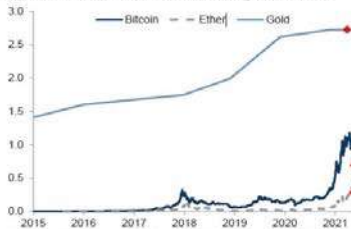
Average daily volatility in ann. terms, %



Note: Based on returns since 2014 and since 2015 for ether.
Source: Bloomberg, Goldman Sachs GIR.

The market cap of bitcoin had surged above \$1tn

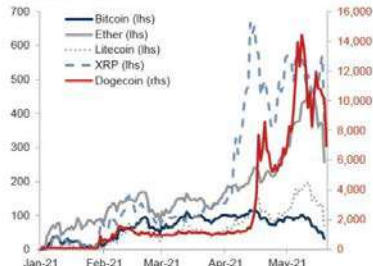
Crypto market cap. vs private investment gold stock, \$tn



Note: Private investment gold stock based on ETFs and barcoins held privately.
Source: World Gold Council, CoinMarketCap, Goldman Sachs GIR.

And other cryptocurrencies have seen even larger rallies

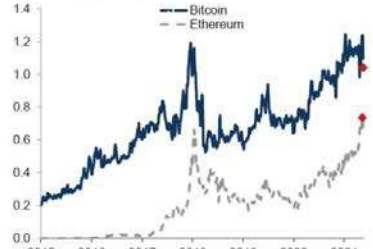
Total returns YTD, %



Note: Total returns in USD.
Source: Bloomberg, Goldman Sachs GIR.

Activity on Bitcoin and Ethereum networks is around 2018 highs

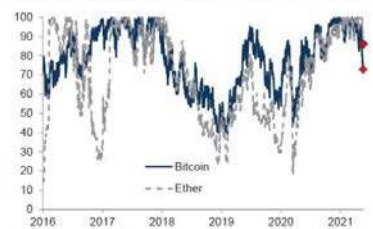
Total active addresses, million



Note: Includes unique addresses active in the network as a sender or receiver.
Source: Glassnode, Goldman Sachs GIR.

Around 70% of bitcoin and 85% of ether is held in profit today

Percent of total supply in the network with positive balance, %



Note: The percentage of circulating supply bought below the current market price.
See more detail [here](#); as of May 19, 2021.
Source: Glassnode, Goldman Sachs GIR.

Top coins and tokens

Name/ Market cap	Function	Established	Background/Objectives	Current/ Maximum supply	Consensus mechanism
Bitcoin (BTC) \$706bn	Currency	2009	The first cryptocurrency, established to allow peer-to-peer transactions without the need for a trusted third party. Transactions are verified by network nodes and recorded on the blockchain.	18.7mn/ 21mn	Proof of work (one party proves to the other that a certain amount of computational effort has been expended)
Ethereum (ETH) \$285bn	Smart contract application platform	2015	The most actively used blockchain, established to enable the creation and use of smart contracts and decentralized applications. Ether is Ethereum's native cryptocurrency.	115.9mn/ unlimited	Currently proof of work, but moving to proof of stake
Tether (USDT) \$58bn	Stablecoin	2014	Originally designed as a stablecoin—aiming to be fully backed by a fiat currency—it was later <u>found</u> that each tether was not fully backed by US Dollars at all times.	58bn/ unlimited	N/A: USDT tokens run on the Algorand, BCH, EOS, Ethereum, Liquid Network, Omni, Solana, Tron blockchains
Binance Coin (BNB) \$52bn	Currency/ application/ utility	2017	Issued by the Binance cryptocurrency exchange, Binance Coin is used to pay for fees on the exchange. While it originally operated on the Ethereum blockchain, BNB had its own mainnet ¹ launch in 2019.	153.4mn/ 170.5mn	Proof of stake (randomly assigns the node that will mine/validate, partially according to the number of coins a node stakes)
Cardano (ADA) \$47bn	Smart contract application platform	2017	Cardano is a public blockchain established to enable the creation and use of smart contracts while focusing on scalability and interoperability. Ada is Cardano's internal cryptocurrency.	31.8bn/ 45bn	Proof of stake
Dogecoin (DOGE) \$43bn	Currency	2013	Named after the Shiba Inu meme and created as a "fun" alternative to bitcoin, Dogecoin is a peer-to-peer, open-source cryptocurrency. Dogecoin is a fork of the luckycoin blockchain.	130bn/ unlimited	Proof of work
XRP \$38bn	Currency	2012	XRP is a real-time settlement system, exchange, and remittance network that facilitates cross-border payments for financial institutions.	46bn/ 100bn	A network of servers validates transactions through a <u>custom consensus algorithm</u>
Polkadot (DOT) \$24bn	Smart contract application platform	2017	Polkadot is designed to provide interoperability between other blockchains. Polkadot features "shared security"—developers can create their own blockchains on the system while still having access to Polkadot's security.	939mn/ unlimited	<u>Proof of stake</u>
Internet Computer (ICP) \$15bn	<u>Smart contract/data platform</u>	2021	Internet Computer is a public blockchain that extends the functionality of the public internet to allow it to host back-end software. This enables developers to create websites, enterprise IT systems and internet services by installing code directly onto the public internet, bypassing server computers and commercial cloud services. ICP is Internet Computer's utility and governance token.	124mn/ unlimited	Independent data centers operate standardized computer nodes, and are rewarded for the time that they correctly operate these nodes (currently 48 data centers run 1,300 nodes)

¹ A testnet is used by developers to test and troubleshoot all the features of a blockchain network. After a successful testnet, a mainnet version of the blockchain is launched, and all transactions are broadcast, verified, and recorded. The mainnet phase also sees the deployment of a native token rather than the previously issued Ethereum-based token, which is swapped for the new token during a process known as the mainnet swap.

Name/ Market cap	Function	Established	Background/Objectives	Current/ Maximum supply	Consensus mechanism
USD Coin (USDC) \$14bn	Stablecoin	2018	USDC is a stablecoin running on the Ethereum, Stellar, Algorand and Solana blockchains. USDC is fully backed by the US Dollar, with <u>Centre</u> —the consortium that mints USDC—holding \$1 for every coin in reserves.	14.4bn/ unlimited	N/A; USDC tokens run on the Ethereum, Stellar, Algorand, and Solana blockchains
Bitcoin Cash (BCH) \$13bn	Currency	2017	Another fork of Bitcoin, Bitcoin cash was created to facilitate the use of BTC as a medium of exchange rather than the original store of value purpose. BCH does this by increasing the speed at which transactions are processed via larger blocks.	18.7mn/ 21mn	Proof of work
Uniswap (UNI) \$13bn	Governance token	2018	Uniswap is a decentralized finance (DeFi) platform running on the Ethereum blockchain on which users trade cryptocurrencies and tokens. UNI is the platform's governance token, giving users the right to vote on new developments and platform changes.	565mn/ 1bn	N/A; UNI tokens run on the Ethereum blockchain
Litecoin (LTC) \$13bn	Currency	2011	A fork of Bitcoin, Litecoin was created with the goal of speeding up transaction times, which it achieves by utilizing a different cryptographic algorithm than BTC.	67mn/ 84mn	Proof of work
Aave (AAVE) \$5bn	Governance token	2017	Aave is a decentralized non-custodial money market platform that allows users to lend and borrow crypto assets. AAVE is the Ethereum-based, native governance token of the platform.	12.8mn/ 16mn	N/A; AAVE tokens run on the Ethereum blockchain
Monero (XMR) \$4bn	Privacy currency	2014	A privacy-focused cryptocurrency, Monero aims to make transactions untraceable and unlinkable through the use of <u>ring signatures</u> and <u>stealth addresses</u> .	17.9mn/ 18.4mn	Proof of work
Algorand (ALGO) \$3bn	Smart contract application platform	2017	Algorand is a blockchain built by MIT professor Silvio Micali that supports DeFi applications and smart contracts, built on scalability as its most important principle, but also on open participation, security, and transaction finality.	3bn/ 10bn	Proof of stake

Bitcoin's market cap has fallen over time as new coins have gained market share



Note: Table does not constitute an exhaustive list of all cryptocurrencies/tokens; data as of May 19, 2021.
Source: Underlying whitepapers, Coinbase, CoinDesk, CoinMarketCap, various news sources, Goldman Sachs GIR.

Bitcoin: beyond the basics

Step 1: Joining the Network and Buying Bitcoin

- Bitcoin is a peer-to-peer electronic payment system that transfers value between digital wallets. Wallets don't store currency, but rather interact with the blockchain by generating the necessary information to receive and send money via blockchain transactions.
- Wallets are a combination of a **public key** and a **private key**, and based on these keys, an alphanumeric identifier called a **public address** is generated. Similar to an email address, the public address specifies the location to which coins can be sent to the blockchain, and is shared among users. The private key is used to access funds, and like a password, should not be shared with anyone.
- Security issues present important risks for bitcoin users—bitcoin is a bearer instrument, and knowing the private key to a wallet would effectively put the user in possession of all bitcoin directed towards that address. The best security practice for crypto custody is to keep everything in **cold storage**—offline—until you need to make a transaction, move the wallet to **hot storage**—online—for the transaction, and then move the wallet back into cold storage. Today, a number of solutions exist to move wallets in and out of cold storage.
- The most popular way to obtain Bitcoin is through an exchange. Currently, the most commonly used type of exchange is not decentralized, and users need to provide personal identification documents per Know Your Customer (KYC) and Anti-Money Laundering (AML) regulations. Bitcoin ATMs and P2P exchanges are alternative ways of obtaining bitcoin.

What do public and private keys actually look like?

Cryptographic keys—which underpin BTC wallets—are strings of numbers and letters:



Public key: Account number, similar to an e-mail address.

0450f63a2e4407ae622f83e1af54039853e53e40409311
 2a5b3a187f582322c7243493a295e92712377161033
 8011a12f35555e6f2e1e1729c051b3a4



Address: Shortened version of the public key, unique to each transaction.

1F2oZ4e33000972De123V0Q80579v6c



Private key: Password granting access to a wallet's funds

Kx3uHvctb2R3j05MyqqaEAgP4e1X7J071vgr132p13NR7P0e

What does a typical wallet look like?

Wallets contain digital records of past transactions, which are used to calculate a total balance.

Example: Web/Mobile Wallet	
.0061BTC \$300	
Send BTC	Request BTC
Transaction History	
Received Bitcoin (4/23/2021)	0.0028BTC (+\$100)
Sent Bitcoin (4/23/2021)	-0.0048BTC (-\$200)
Purchased Bitcoin (4/23/2021)	0.0061BTC (+\$400)

Step 2: Transacting in Bitcoin

- Bitcoin can be transferred between wallets in exchange for other currencies or goods/services. There are three key variables in a bitcoin transaction: an **amount**, an **input**—the address from which the bitcoin is sent—and an **output**—the address that receives the funds. To make a transaction, users need to enter their private key, the amount of bitcoins they want to send, and the output address. A **digital signature** is then generated from the private key, and the transaction is announced to the network.
- The transaction is included in a **block**, which is attached to the previous block to be added to the network's public ledger, the **blockchain**. The blockchain does not track account balances. Rather, it keeps a record of where the bitcoin comes from and which address it is sent to. Therefore, the transaction input must match a past transaction, not the value being transferred.
- If a user makes a transaction worth less than the total amount of bitcoin they have, **change** is returned to the user. For example, assume User A has a total balance of 10BTC, received through two previous transactions of 6BTC and 4BTC. User A wants to send 2BTC to User B. To do so, User A sends 4BTC to User B and sends the change back to himself. This change is less any transaction fees that User A incurs, which are based on the size of the transaction (bytes). And the change does not go back to the original output—it will go to a new address under the user's control.
- The transaction is not immediately processed. Instead, it enters a pool of pending transactions and goes through the verification process (see Step 3: Verifying Bitcoin Transactions).

How are bitcoin transactions recorded?

Example: User A Sends 2BTC to User B		
Sender	Address	Input (BTC)
User A	14Q7x8pWz	4.0
Receiver	Address	Output (BTC)
User B	12r9uMEv	2.0
User A	1EmDoxbu	2.0-fees
Receiver	Address	Fee (BTC)

Value sent must have been received in a past transaction—think of it like using a gift card with 4BTC.

The transaction's "change" goes back to User A; the address is different, but the funds will likely return to the same wallet.

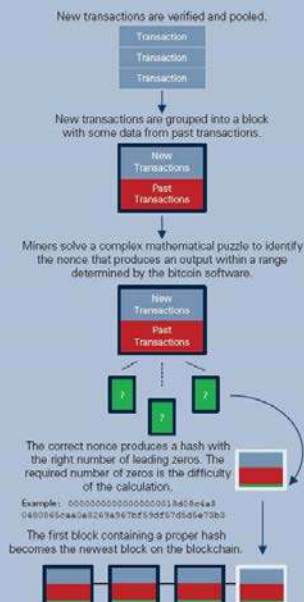
Every transaction in the blockchain is tied to a unique identifier known as a transaction hash, which is a 64-character random string of letters and numbers. Transactions can be tracked using this identifier.

Example ID: 081868a26694077370eed571c2c4690b3e4b49
 08e244602d40426e418c68

Step 3: Verifying Bitcoin Transactions

- In order for transactions to be recorded on the blockchain, they must be verified by **miners**. Miners can be individuals or **pools** of people. Most mining today is conducted by pools of miners.
- First, miners identify whether a transaction is valid. Bitcoin senders must have both the proper authority to send funds and the necessary funds to back the transaction. Once the transaction is validated, it is packaged into a block with other valid transactions. Blocks have a maximum size of 1MB.
- Miners then compete against each other to be the first to add their block to the blockchain by solving a complex mathematical puzzle and including the answer in the block. The puzzle is to find a number that, when combined with the data in the block and passed through a **hash function**—which converts input data of any size into output data of a fixed length—produces a result within a certain range. The result is called a **nonce**, which is an integer between 0 and 4,294,967,296.
- Miners find the nonce effectively by guessing what it is. The more computing power a miner has, the more guessing calculations he can perform. The hash function is applied to the combination of a guessed number and the data in the block, and the resulting hash will begin with a certain number of zeros—which determines the difficulty of the calculation. This difficulty is frequently adjusted to ensure that it takes an average of 10 minutes to process a block.
- The first miner to get a resulting hash within the proper range alerts the network, and all other miners stop working on the block at that point. As a reward, the winning miner gets compensated with some new bitcoin. The amount of the reward decreases over time, halving around every four years.
- Importantly, the hashing process puts a timestamp on all transactions contained within each block. It also links the data from new transactions to information from past blocks. Therefore, transactions can't be undone or tampered with, because that would require redoing all the blocks that came after the original block.

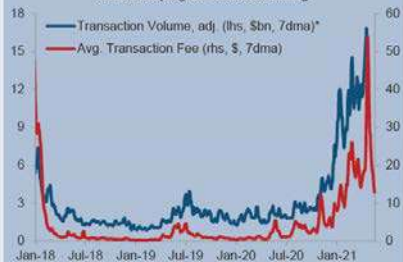
How do miners add blocks to the blockchain?



Step 4: Creating New Bitcoins

- In addition to receiving rewards for verifying transactions and maintaining the blockchain, miners also receive transaction fees. These are payments by bitcoin users to ensure that their transactions go through quickly given the limited throughput of the bitcoin network (approx. 4.8 transactions per second). Therefore, increases in transaction volume have led to an increase in transaction fees paid to miners.
- Bitcoin's founder set a limit for the maximum supply of bitcoin that will ever be in circulation at 21mn. Today, there are approx. 18.7mn in circulation, although some coins have likely been lost. Given the current halving rate, the final bitcoin is expected to be mined in 2140.
- While it's technically feasible to change the 21mn limit if the community chooses to do so, the bitcoin community has long stood in favor of the limit.
- Once the 21mn limit is reached, transaction costs may need to significantly increase to incentivize miners to continue maintaining the blockchain, since there will not be any more rewards received from mining a new block.

What's keeping the network running?



*Adjusted transaction volume is calculated by Coinmetrics as the dollar value of the sum of all native units transferred that day, removing noise and certain artifacts. Source: Coinmetrics, Goldman Sachs GIR.

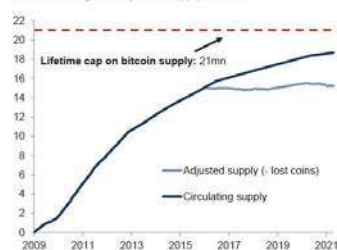
Source: Princeton University, Cambridge University, Blockchain Council, Satoshi Nakamoto, "Bitcoin: A Peer-to-Peer Electronic Cash System", [Blockchain.com](#), [CoinDesk](#), [Coinmetrics](#), various news sources, Goldman Sachs GIR.

Goldman Sachs Global Investment Research

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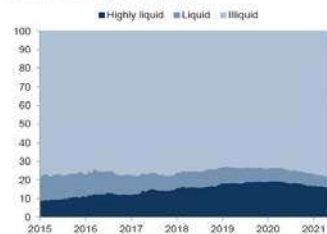
Bitcoin: sizing the market

Around 90% of all bitcoin that will ever exist is in circulation
Total circulating and adjusted supply, million



Note: Adjusted supply includes estimate of lost coins based on those that haven't moved in over seven years.
Source: Glassnode, Goldman Sachs GIR.

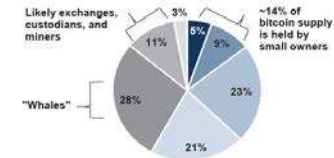
One measure suggests that 80% of bitcoin supply is illiquid
Percent of total supply by liquidity, %



Note: Based on the ratio of the cumulative inflows/outflows of all entities in the Bitcoin network. See more details [here](#).
Source: Glassnode, Goldman Sachs GIR.

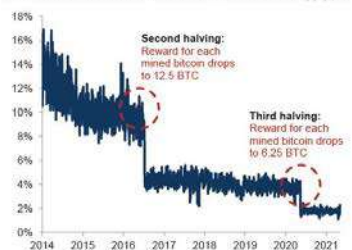
One measure that looks at network addresses suggests bitcoin holdings are fairly concentrated

Total supply held by size of addresses' coin holdings, % total
• <1 - 1-10 - 10-100 - 100-1K - 1K-10K - 10K-100K - >100K



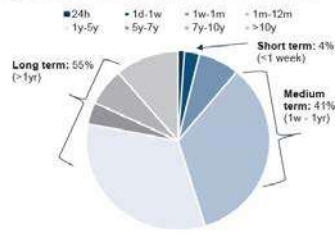
Note: Shows share of total Bitcoin supply held by the balance of different addresses. See more detail [here](#).
Source: CoinMarketCap, Goldman Sachs GIR.

Artificial scarcity is programmed into the bitcoin market
Annual bitcoin inflation rate (new units as % of current supply), %



Source: Glassnode, Goldman Sachs GIR.

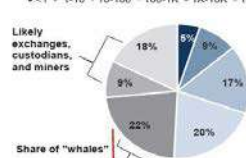
The footprint of short-term bitcoin holders is fairly small
Age distribution of bitcoin supply based on last transaction



Note: Based on the percentage of bitcoin in existence that was last moved within each given time period. See more detail [here](#).
Source: Glassnode, Goldman Sachs GIR.

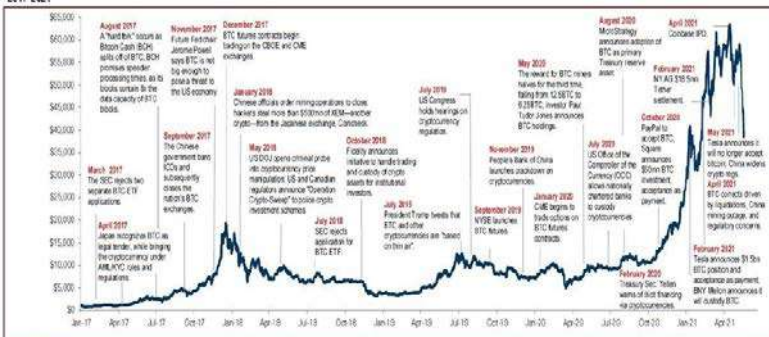
A measure that looks at bitcoin entities shows less concentration among "whales", because entities can own many addresses

Total supply held by size of entities' coin holdings, % total
• <1 - 1-10 - 10-100 - 100-1K - 1K-10K - 10K-100K - >100K



Note: Shows share of total Bitcoin supply held by the balance of different entities. See more detail [here](#).
Source: Glassnode, Goldman Sachs GIR.

2017-2021



2013-2016



Note: Market pricing as of May 13, 2021.

Sources: CoinDesk, Bloomberg, various news sources, Goldman Sachs QIR

The **FOUR** Critics of Bitcoin

According to Alex Gladstein

The Salty Hater

"You heard about Bitcoin years ago, but never bought, and are now salty."

The Desperate Statist

"You believe money can only be created by the state, so Bitcoin breaks your worldview."

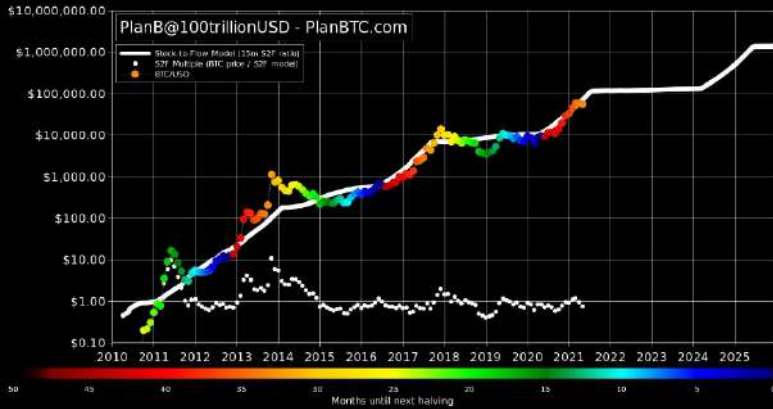
The Dishonest Intellectual

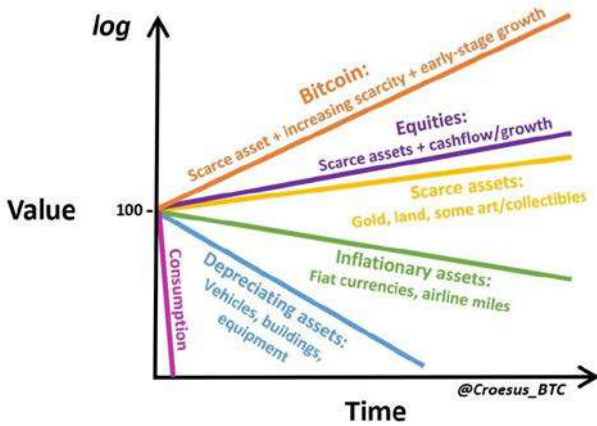
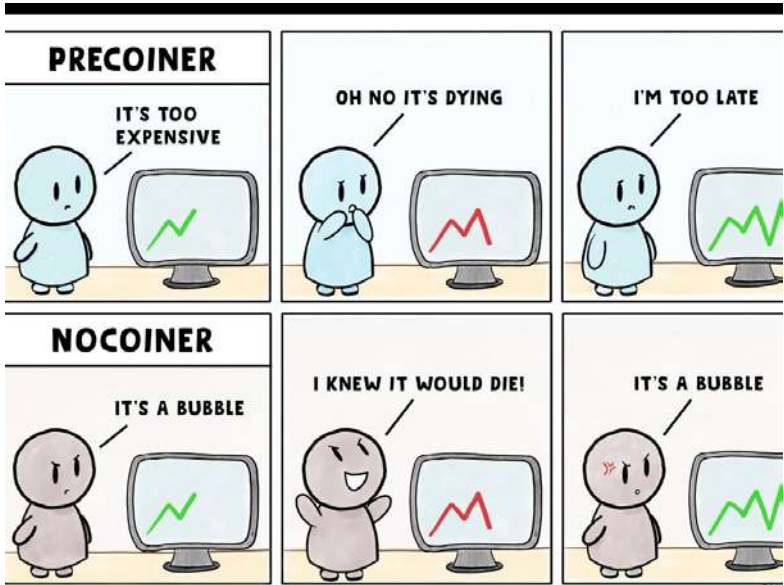
"You haven't done the work to understand Bitcoin so you wish it would just go away."

The Prisoner of Sunk Cost

"You are invested in an altcoin and feel the need to criticize Bitcoin to defend your life choices."

Bitcoin Stock-to-Flow Model (S2F)





THE FASTEST ROAD TO **RICHES**

Creating Wealth with Bitcoin and Blockchain Assets

Bitcoin is the best performing asset of the decade, returning ten times more than Nasdaq 100. Since 2011, Bitcoin's cumulative gains have exceeded + 232, 754 %, far outpacing the cumulative gains of the Nasdaq 100 and the US Large Caps, which recorded returns of 541% and 282% respectively. Investing in Bitcoin and other blockchain assets is the fastest road to riches. Bitcoin is however very volatile. You can lose your money easily if you don't understand the right strategy to use to invest. I shared about this strategy in this book along with every information anyone new to Bitcoin need to know.

The focus of this book is on Bitcoin because it is the first cryptocurrency. Also, it is important to understand how it works even if you don't want to own it because when it rises most cryptocurrencies usually rise along with it.



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