

---

---

# Bitcoin 101

By Luc Fiore

---

---

# My Bitcoin Story

- First heard about it Fall 2017
- First bought some in December 2017 right near the peak of the last bull run
- Became enamored with other “Altcoins” and lost about \$800
- Over the next 3 years I continued to monitor and learn about Bitcoin and would buy periodically (Didn’t have much \$\$ as a college student)
- Went all in on Bitcoin from Aug 2020 - Nov 2020 at roughly \$12,000 a coin
- Continue to buy as much as I can afford every 2 weeks and treat it as my savings account
- 1 BTC = 30k

# What is Money?



# What is Money?

- Money is a construct that humans created to avoid the problems that came from **Direct Exchange** - otherwise known as Barter
- Money is a form of technology or a tool
- There are 3 main functions of money
  - a. Medium of Exchange
  - b. Store of Value
  - c. Unit of Account

# Medium of Exchange

- A **Medium of Exchange** is an intermediary instrument or system used to facilitate the sale, purchase, or trade of goods between parties
- Once economies became large enough, individuals could specialize in the production of certain goods and services
- This specialization led to one of **Barter's** biggest problems, **coincidence of wants** - What you want to acquire is produced by someone who doesn't want what you have to trade
- Eventually what happens is a single **Medium of Exchange** emerges for everyone to trade their goods for
- Anything can become a **Medium of Exchange**, but some mediums are better than others

# Store of Value

- A **Store of Value** means that an asset maintains its value over time without depreciating, rotting, or corroding.
- For a good to maintain its value, the supply of the good must not increase too frequently during the time of which you hold the good.
- “The relative difficulty of producing new monetary units determines the hardness of money: money whose supply is hard to increase is known as **Hard Money**, while **Easy Money** is money whose supply is amenable to large increases.”

# Unit of Account

- **Unit of Account** - standard monetary unit of measurement of value, cost of goods, services or assets. It lends meaning to profits, losses, liability, or assets.
- For a market economy to succeed and grow larger, accurate pricing is paramount. The best way to have accurate pricing is by having one **Medium of Exchange**.
- A great unit of account is easily divisible - for example 1 dollar is divisible into 100 cents

# Examples of Goods Used as Money

- Cattle
- Seashells
- Rai Stones - Large circular stones carved from limestone
- Aggry Beads - used for centuries in Western Africa
- Bronze and Copper
- Gold and Silver
- Gold and Silver Coins
- Fiat - U.S. Dollars/Euros/Yuan
- Bitcoin

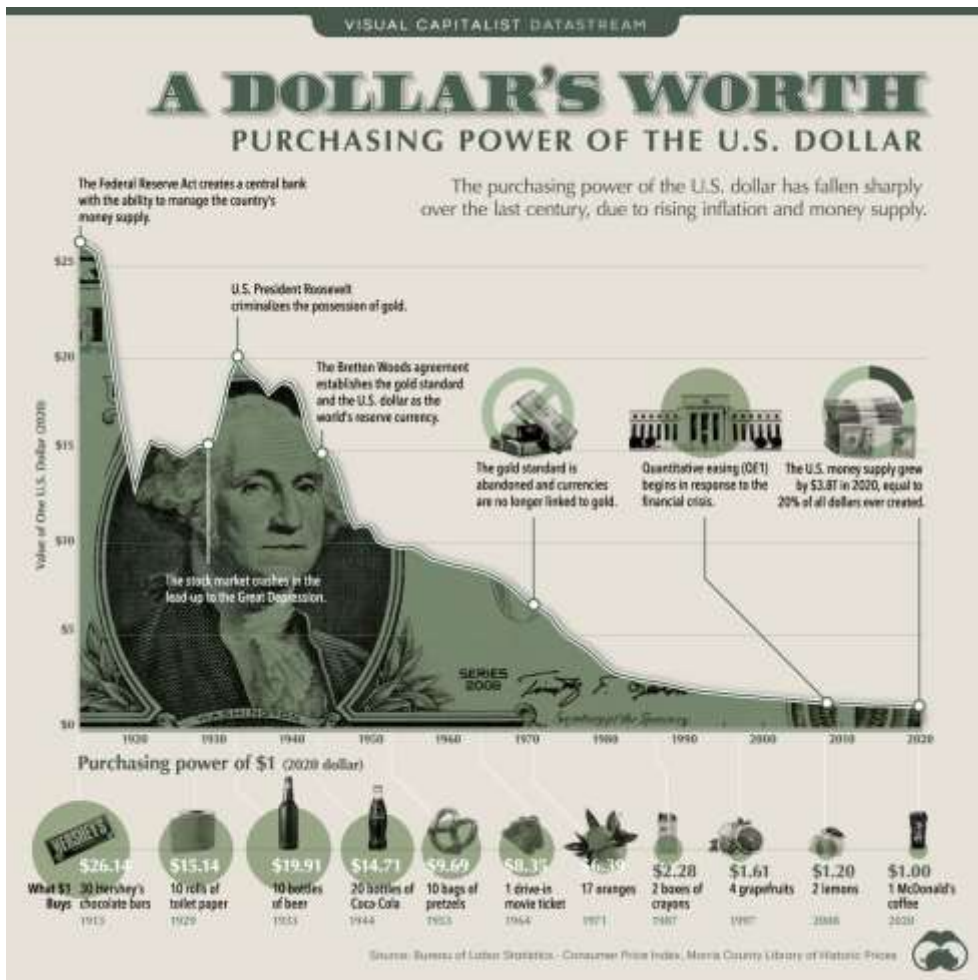




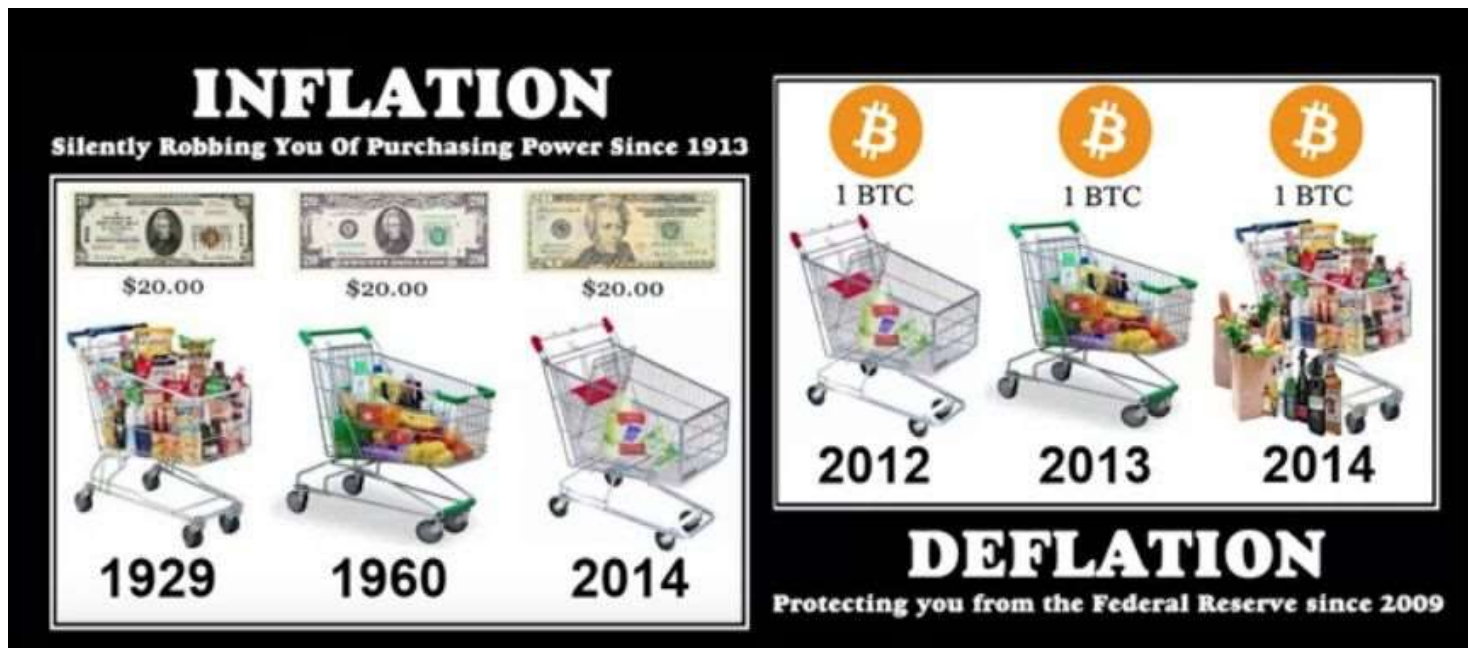
# Store of Value



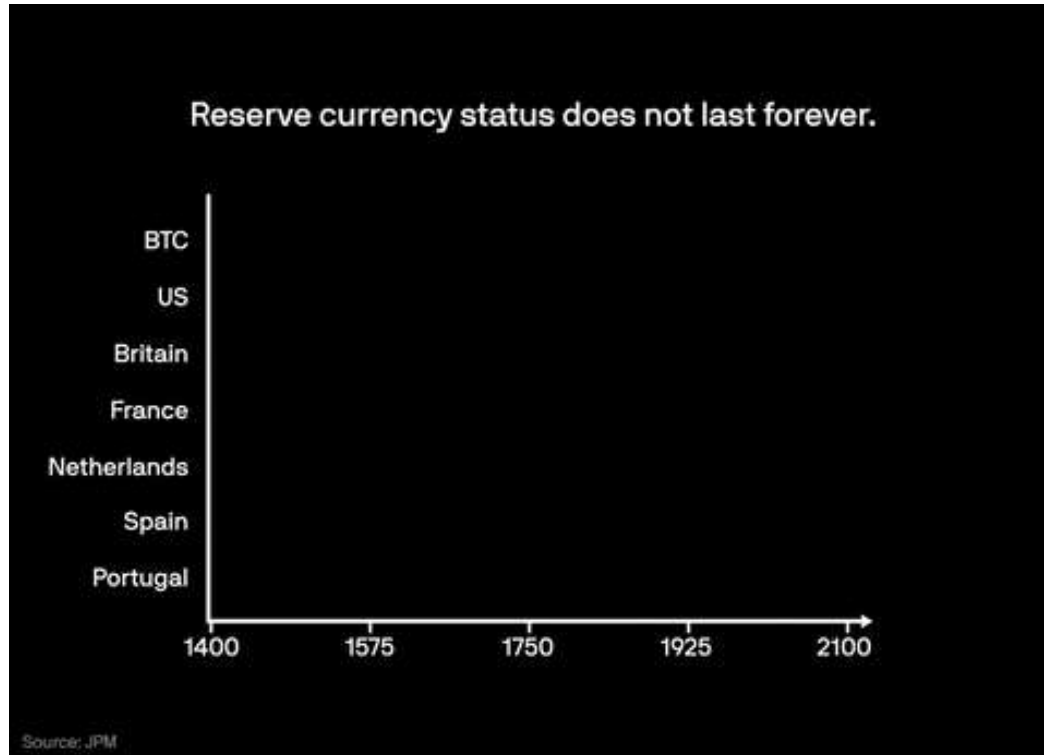
# Purchasing Power



# Purchasing Power



# Reserve Currency Status

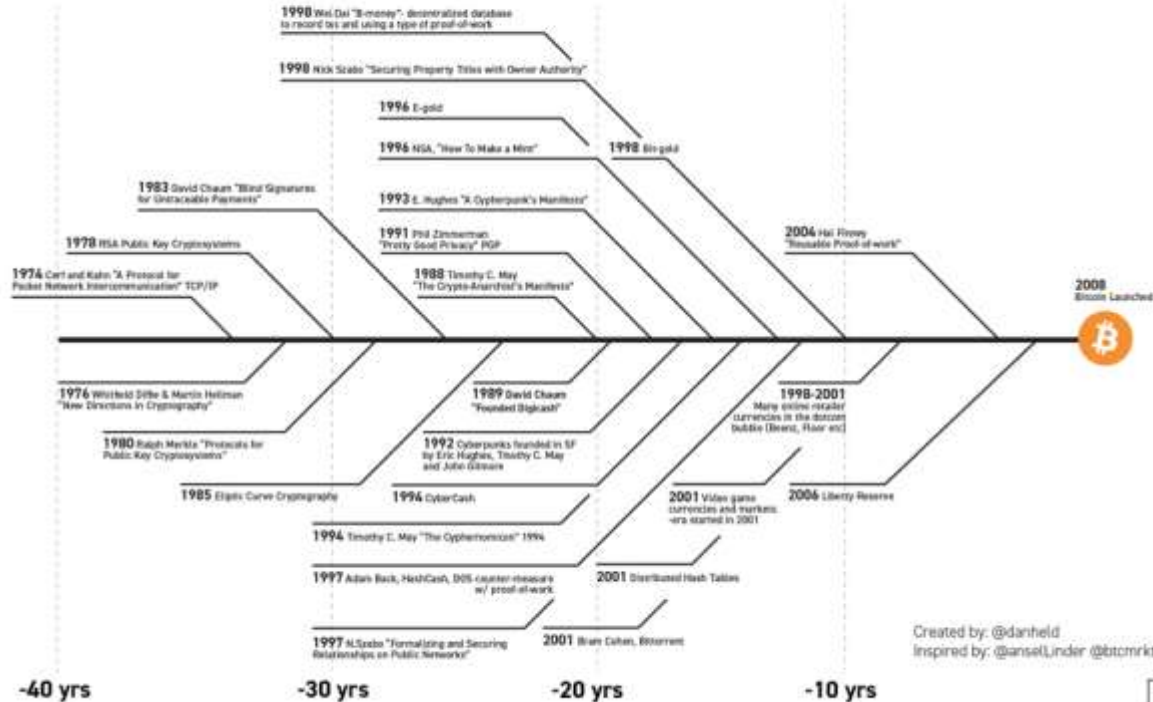


# Bitcoin History

- The Bitcoin white paper authored by Satoshi Nakamoto and was released on October 31st, 2008.
- The white paper was titled - **Bitcoin - A Peer-to-Peer Electronic Cash System**
- Bitcoin was initially released on January 3rd, 2009 when the **Genesis Block** was mined
- On January 12, 2009 Hal Finney received 10 Bitcoins from Nakamoto marking the first ever Bitcoin transaction
- May 22, 2010 Laszlo Hanyecz bought two large pizza with 10,000 BTC as a payment method. The first time Bitcoin was used to purchase goods

# Bitcoin Pre-History

**Bitcoin prehistory** - It's the result of 40 years of research, development and demand



# Bitcoin Whitepaper

## Bitcoin: A Peer-to-Peer Electronic Cash System

Satoshi Nakamoto  
satoshin@gmx.com  
www.bitcoin.org

**Abstract.** A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third 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 a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast 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.

## Genesis Block





# Bitcoin Pizzas!

- These Pizzas would now be worth roughly \$300,000,000



# What is Bitcoin?

As a thought experiment, imagine there was a base metal as scarce as gold but with the following properties:

- boring grey in colour
- not a good conductor of electricity
- not particularly strong, but not ductile or easily malleable either
- not useful for any practical or ornamental purpose

and one special, magical property:

- can be transported over a communications channel

# What is Bitcoin?

- Bitcoin is a **decentralized** digital currency, without a central bank or single administrator, that can be sent from user to user on the peer-to-peer **bitcoin network** without the need for intermediaries.
- Transactions are verified by network **nodes** through cryptography and recorded in a public distributed ledger called a **blockchain**
- Bitcoins are created as a reward for a process known as **mining**



# What is Blockchain?

What is Blockchain?



# What is Bitcoin Mining?



shutterstock.com • 772693789

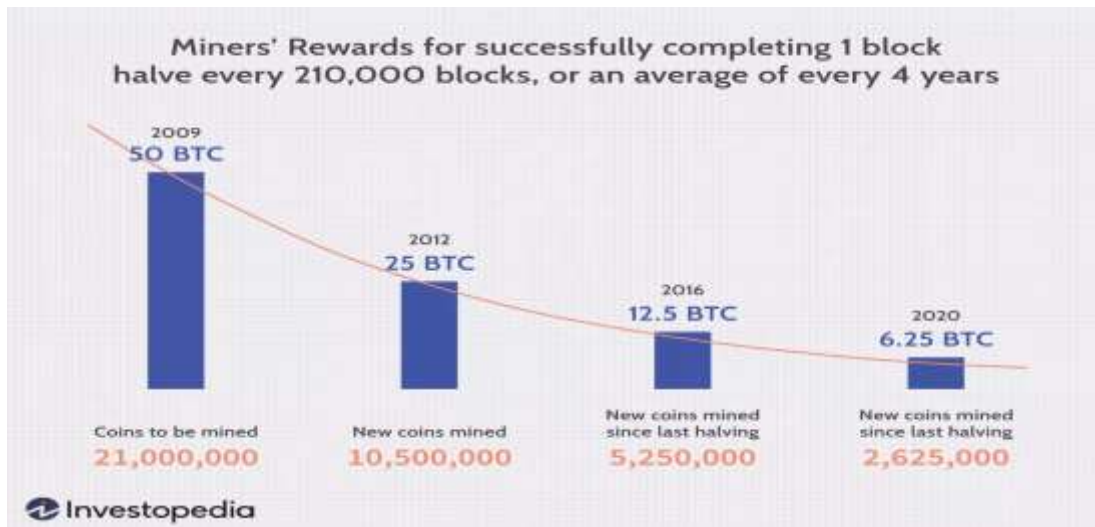
<https://www.investopedia.com/terms/b/bitcoin-mining.asp>

# Bitcoin Mining

- Bitcoin has a limited supply of 21 million total bitcoins (46 million USD millionaires worldwide)
- As of 5/9 19,035,581 BTC have been mined and are in circulation
- Every 10 minutes or so a new block is mined producing a reward of Bitcoins
- Bitcoin is designed to evaluate and adjust the difficulty of mining every 2,016 blocks, or roughly every two weeks. Meaning it will always take about 10 minutes to mine a block no matter how good the technology gets
- The more miners there are the stronger and more secure the networks gets.
- Last Bitcoin will be mined in the year 2140

# Bitcoin Halvening

- Every 4 years the reward for mining 1 block cuts in half
- As of today miners get rewarded 6.25 BTC every block
- That equates to 900 freshly minted BTC everyday
- Next halvening will be in 2024



# Bitcoin is Bad for the Environment!!!

## #4 - Bitcoin Wastes Energy

**CRITIQUE:** Bitcoin's mining process is extremely energy intensive, and therefore wasteful

**REBUTTAL:** Bitcoin's energy spend is required to do three things: fairly distribute new bitcoin according to bitcoin's monetary policy, allow anyone to participate in the bitcoin network on even footing, and create the strong security assurances around bitcoin's transaction settlement. Any financial system will have certain properties and guarantees, and they never come for free.

see detailed rebuttal



# Bitcoin is Bad for the Environment!!!

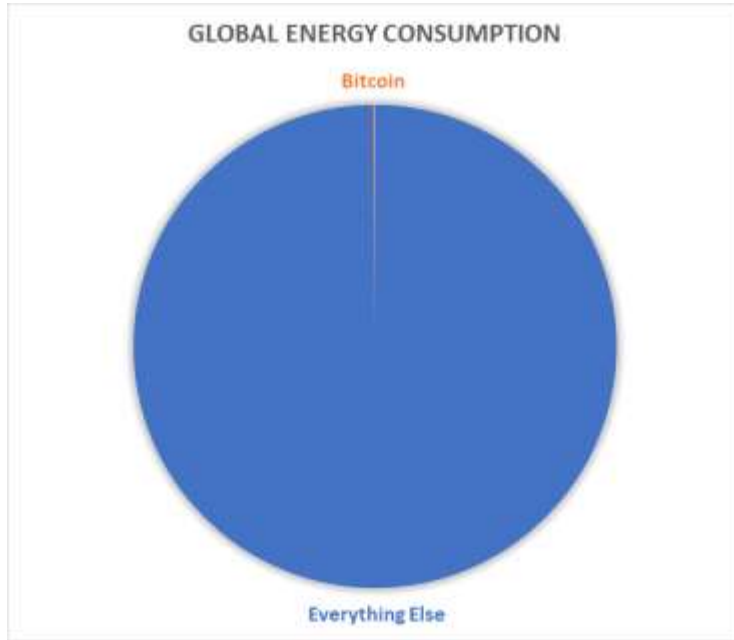
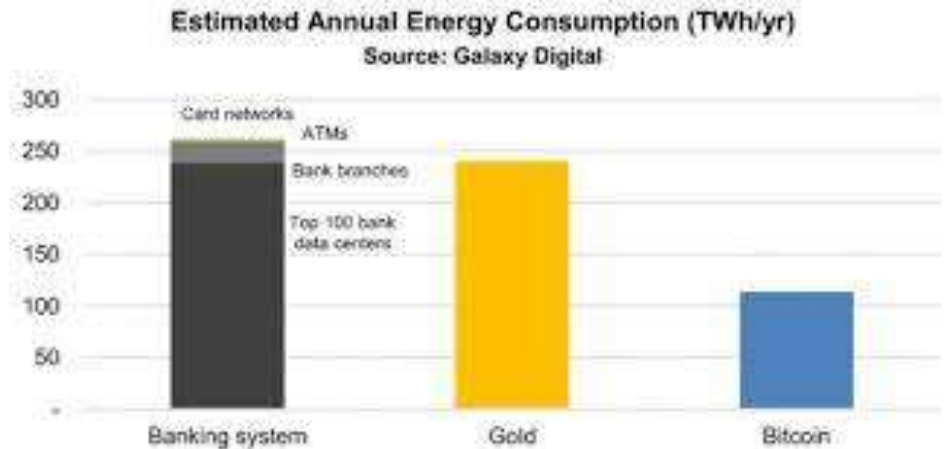


Chart Source: Lyn Alden

Data Source, Bitcoin: Cambridge Bitcoin Electricity Consumption Index 2021

Data Source, Energy: BP Statistical Review of World Energy 2020

- Bitcoin consumes 140 Terawatt hours per year
- Christmas Lights consumer 6.6 Terawatt hours per year



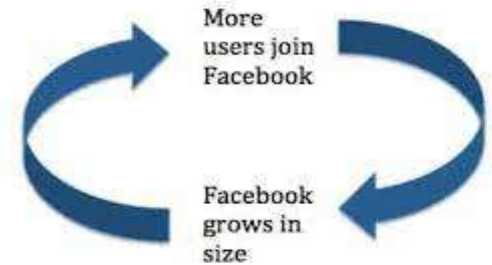
# What Makes Bitcoin Valuable?

- Finite supply - 21 million
- Decentralized - no single point of failure
- **Permissionless**
- Opt-in system
- 1 Bitcoin = 100 million **Satoshis**
- No intermediaries



# What Makes Bitcoin Valuable?

- Pseudonymous
- Can send any amount of value anywhere in the world in 10 minutes
- Never been hacked
- Censorship resistant
- Strong community of individuals
- **Network Effects** - “the more the merrier”



# Is Bitcoin a Medium of Exchange?

- Condo in Trump SoHo - 25,500 BTC (1 BTC = \$110)
- Two Pizzas - 10,000 BTC - (BTC had no USD value before this)
- Miami Mansion - 455 BTC (1 BTC = \$13,186)
- Tickets to Space - 450 BTC (1 BTC = \$555)
- Tesla Model S - 91.4 BTC (1 BTC = \$1,126)
- Paypal will allow all 29 million of its merchants to accept BTC for goods or services



# Bitcoin as Medium of Exchange in El Salvador

- As of September 7th, 2021 El Salvador now recognizes Bitcoin as legal tender
- All merchants in El Salvador must now accept Bitcoin, even companies like McDonalds, Starbucks, and Pizza Hut
- <https://twitter.com/i/status/1434604063480434690>



# Is Bitcoin a Medium of Exchange?


- In 2021 Bitcoin transacted anywhere between \$2B to \$11B in value everyday



# Is Bitcoin a Store of Value?

- Bitcoin has brought positive USD returns in all but two years of its existence
- Those two drops were significant drops of over half its USD Value
- 1 BTC will always = 1 BTC
- There have been 3 drops in price over 80%

Year	Year Start	Year End	% Change
2010	0.003	0.30	9900%
2011	0.30	4.72	1473%
2012	4.72	13.51	186%
2013	13.5	758	5507%
2014	758	320	-58%
2015	320	430	35%
2016	430	968	125%
2017	968	13,860	1331%
2018	13,860	3,689	-73%
2019	3,689	7,184	95%
2020	7,184	28,775	301%
2021	28,775	47,902	66%
2022 YTD	47,902	31,105	-35%


COMPOUND
@CharlieBilello





# Is Bitcoin a Store of Value?

- Over the last 10 years Bitcoin has a compounded annual growth rate of almost 200%
- Bitcoin has dwarfed the returns of both gold and the S&P 500 over the last 2/5/10 years

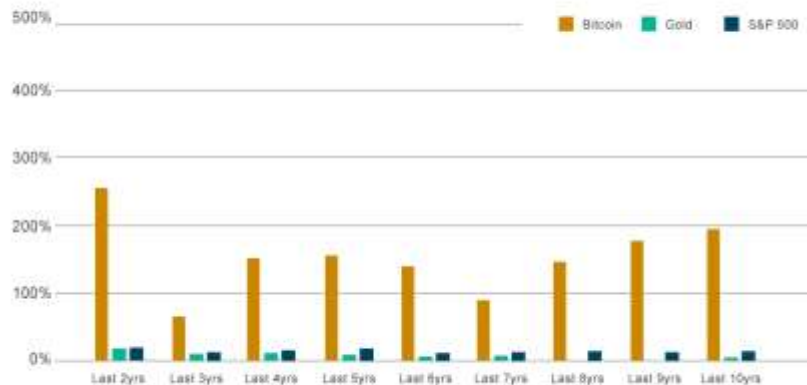
## BTC ROI

### Bitcoin & Traditional Assets ROI (vs USD)

	Bitcoin	Gold	S&P 500
1 year:	-45%	+1%	-4%
2 year:	+256%	+9%	+37%
3 year:	+336%	+44%	+41%
4 year:	+258%	+40%	+46%
5 year:	+1,651%	+52%	+67%
6 year:	+6,719%	+46%	+93%
7 year:	+12,737%	+54%	+90%
8 year:	+6,916%	+43%	+111%
9 year:	+26,689%	+29%	+145%
10 year:	+621,121%	+17%	+197%

### CAGR Various Periods: Bitcoin vs. Gold vs. S&P 500

Bitcoin's CAGR, over any multi-year period to today, has dwarfed other asset classes





# Is Bitcoin a Unit of Account

- As of the present day Bitcoin is not widely used as a Unit of Account
- Most countries around the world use Dollars, Euros, or some other form of government currency
- Since Bitcoin can be broken down into 100 million satoshis, goods and services could eventually be priced in Bitcoin

You can own  
part of a Bitcoin



[danheld.com](http://danheld.com)

# Canadian Trucker Protests

- Prime Minister Justin Trudeau decided to invoke his country's Emergencies Act for the first time in Canadian history to quell the unrest, it gave the police sweeping new powers to go after the finances of the protesters.
- The powers granted by the act would allow banks to target the accounts of people who have donated to crowdfunding platforms, like the fundraising campaigns on GoFundMe and GiveSendGo
- The national police force said in a statement, 219 “financial products” had been frozen and a bank had frozen 3.8 million Canadian dollars held by a payment processor.



# Russian Sanctions

- Under sanctions put in place after Russia invaded Ukraine on Feb. 24, foreign currency reserves held by the Russian central bank at U.S. financial institutions were frozen.
- The move was meant to force Moscow to make the difficult decision of whether it would use dollars that it has access to for payments on its debt or for other purposes, including supporting its war effort, the spokesperson said.
- The U.S. government on Monday seized a 254-foot yacht in Spain owned by an oligarch with close ties to Russian President Vladimir Putin
- “We are joining with our European allies to find and seize your yachts, your luxury apartments, your private jets,” [President Joe Biden said during his State of the Union speech](#)

# Fleeing Ukraine with Bitcoin

- A Ukrainian refugee took a USB stick with him across the border containing 40% of his life savings, or about \$2,000 in bitcoin.
- “I couldn’t withdraw cash at all, because the queues to ATMs were so long, and I couldn’t wait that much time,” Fadey told CNBC.
- His experience highlights some of the most important characteristics of bitcoin: It’s valid across borders, requires no bank, and is tethered to its owner by a password, making it a lot harder to steal than cash.



# Where Can I Buy Bitcoin At?

- Coinbase.com - First publicly listed exchange is a great place to buy your Bitcoin
- Cashapp - Where I buy most of mine
- Kraken.com
- Gemini.com



# Bitcoin Critiques/Misconceptions

# Bitcoin is Used to Buy Drugs and Launder Money!!!

- “According to the [United Nations](#), the estimated amount of money laundered globally in one year is 2 to 5% of the global GDP, or \$800 billion to \$2 trillion, with more than 90% of money laundering going undetected today. “
- “Concurrently, the cryptocurrency industry has also been criticized for being a tool for money laundering, despite statistics stating otherwise. It is estimated that only [1.1% of all cryptocurrency transactions are illicit](#).”
- If you are buying drugs or laundering money would you rather use Dollars that are untraceable or Bitcoin where every transaction is etched into the blockchain forever

# Bitcoin has no Intrinsic Value!!!

## #1 - Bitcoin Has No Intrinsic Value

**CRITIQUE:** Bitcoin is purely digital & backed by nothing, and therefore has no intrinsic value.

**REBUTTAL:** "Intrinsic" value is a faulty concept. It's always the case that humans value something based on its usefulness for a specific purpose. The value is not an inherent property of something but a reflection of people's demand for it. Similarly, something only needs to be "backed" by something else if it is missing the properties that people value.

Bitcoin has many **attributes** that are fundamentally similar to gold (which humanity values at over \$10 trillion), and are often superior precisely because of bitcoin's digital nature.

**see detailed rebuttal**



# Governments Will Ban It!!!

## #2 - The Government Will Shut Bitcoin Down

**CRITIQUE:** Governments won't simply allow a non-state money to keep growing. Control over money is too central to a government's survival for them to allow this.

**REBUTTAL:** Bitcoin's decentralized nature makes it impossible for anyone, even governments, to fully kill it. Given that it will always exist, the dynamic becomes one of "jurisdictional arbitrage,"; i.e., if one government makes owning bitcoin fully illegal with harsh penalties, other governments will embrace the opportunity to become home to bitcoin-related businesses, investors, etc.

see detailed rebuttal

# Bitcoin is Way Too Volatile!!!

## #3 - Bitcoin is Too Volatile

**CRITIQUE:** Bitcoin is too volatile to be a useful currency or store-of-value.

**REBUTTAL:** It's true that bitcoin historically has very high trading volatility. This is not a surprise for an asset whose market cap has grown to hundreds of billions of dollars, from 0 a decade ago. Furthermore, bitcoin's volatility *is* decreasing as it matures.

[see detailed rebuttal](#)

# Too Slow to Buy a Cup of Coffee With!!!

## #8 - Bitcoin Fails As a Currency

**CRITIQUE:** Bitcoin is too volatile to be a day-to-day currency, plus it takes too long for transactions to settle, and sometimes has high transaction fees, so it's a failure as money.

**REBUTTAL:** It's true that bitcoin is not a viable global every-day currency today (though it settles \$billions equivalent in transactions every day). And it may never be. But that's ok. Gold would make a much worse day-to-day currency, and yet humanity finds over \$10 trillion in value in gold's fundamental properties. Furthermore, bitcoin's digital nature and programmability mean future innovations can be built on top of bitcoin's base layer, potentially enabling direct frictionless instant global payments at scale.

see detailed rebuttal

# Bitcoin is Dead!!!

