# A Primer on the Cryptocurrency Market[1]

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## I. Introduction

The 2007-2008 Great Recession created a fertile background for the development of cryptocurrencies. The major driver of the cryptocurrency development was the increasing loss of trust in the government and the banking industry to protect the value of their assets. Global investors had long been trying to find an alternative to the national payment system that would allow them to transfer money without having to go through a set of government regulations and the constraints of the traditional banking system. Bitcoin. After the onslaught of the pandemic, the world witnessed a rapid rise in the use of cryptocurrencies. Cryptocurrency, which is another illustration of disruptive technology, has the potential of transforming the financial landscape into a new, though uncertain terrain.

The growing use of cell phones, the internet, and social media helped the growth of cryptocurrencies. The introduction of Bitcoin futures trading on the Chicago Mercantile also gave a boost to the price of bitcoin. Although cryptocurrencies may have been used informally in certain countries previously, Bitcoin is the first to achieve worldwide recognition and respectability. Bitcoin was founded by the mysterious figure, Satoshi Nakamoto. Since its inception in 2009, Bitcoin emerged as the fastest-growing coin in the cryptocurrency market. The cryptocurrency market itself experienced prolific growth in terms of the number of cryptocurrencies and the volume of trades using a cryptocurrency. The number of cryptocurrencies listed in Coinmarketcap[3], a website that lists such currencies, increased from about 6000 a year ago to 11,145. Many of the cryptocurrencies are pegged to some major currencies such as the US dollar, British pound –sterling or Euro, or a basket of major currencies.

## II. What is cryptocurrency?

Cryptocurrency is a digital currency that facilitates online transactions. The mysterious founder of Bitcoin, Nakamoto (2008), in a white paper titled, "Bitcoin: A Peer-to-Peer Version of Electronic Cash System" said that this version "would allow online payments directly sent from one party to another party without going through a financial institution" (P. 1). He added that regular transactions need to be vetted by a third party such as a financial intermediary to

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[3] https://coinmarketcap.com.

avoid double-spending. Nakamato proposed a solution that avoids double spending by a monitoring system through a peer-to-peer network.

The arrival of Cryptocurrency has challenged the very concept of money as we know and are used to. We are used to thinking that money has a national origin. Modern money is composed of fiat money, which is the liability of the government, and bank deposits which are liabilities of banks. The confidence in the government and the banking system makes the payment system work even though it is not backed by gold or any other commodity and maintains the stability of the payment system. All transactions involving bank deposits are maintained by the ledgers of the banking system and bank deposits are protected in the USA by the Federal Deposit Insurance Corporation (FDIC). While traditional money is backed by confidence in the government and the banking system, Bitcoin and other cryptocurrencies are not backed by any tangible or intangible assets. Since cryptocurrencies are not legitimized by the government or the banking system, nor are they backed by reserves with the central bank, cryptocurrency holders risk having to lose a part or all of their investments in a financial crisis, specific to the cryptocurrency market or the overall financial market, as recent events show.

Cryptocurrencies generate ‘trust’ through their complex, inimitable computer algorithms. Since there is no traditional institutional backing of cryptocurrency, its security assumes added significance. Transactions involving most cryptocurrencies are recorded on a secure online ledger protected by a strong cryptography. These transactions are recorded and connected through a network of chains and nodes called Blockchains. Blockchain technology verifies and secures each transaction using powerful computers – a process known as mining. Miners solve complex computational problems to chain a new transaction to a block of transactions or link different blocks of transactions. The miners of bitcoin are rewarded with a new bitcoin. Blockchain technology is dubbed as a revolutionary technology that takes the concept of digital transactions to a new height by digitizing, distributing, and protecting all online transactions.

An important question for investors and researchers in cryptocurrencies is to know what are the rates of exchanges with traditional currencies and how they are determined. The currencies which have some relations with the traditional currencies are called 'stable coins'. Senner and Sornette (2018) in ‘The Holy Grail of Crypto Currencies: Ready to Replace Fiat Money’, classified cryptocurrencies into 3 types:

1. Stablecoins collateralized by other cryptocurrencies: Stablecoins are cryptocurrencies pegged to other stable assets such as gold or currencies such as the US dollar. Examples are BitUSD pegged to the US dollar and BitCNY pegged to the Chinese Renminbi.
2. Stable coins collateralized by fiat currencies: USDT claims to be fully backed by US dollars.
3. Stablecoins without collateral: They are pegged to a weighted basket of a fiat currency, other cryptocurrencies and some macroeconomic indicators. For example, Carbon is pegged to the US dollar but can be pegged to the CPI (Consumer Price Index) in the future.

### III. History of volatility in the cryptocurrency market

The short history of cryptocurrency has been plagued by a high degree of volatility. Coins like Bitcoin and Ethereum have experienced a high degree of volatility. On any typical day, it is not unusual to witness an increase of 10-20% or even a decrease of similar percentages (Lee, 2018). Bitcoin price plunged to below $20,000 in 2022 from a high price of $68,000 just one year prior in 2021 in one of the worst meltdowns in its recent history (Partz, 2022). Cointelegraph identified five bear markets for Bitcoin (Partz, 2022). Although the volatility in the cryptocurrency market can generally be attributed to ups and downs in the confidence of investors, there are specific reasons for the meltdown that occurred at different times, as the following narrative shows.

1. June 2011–Feb 2013: Between April 2011 and June 2011, the price of Bitcoin increased from $1 to $32. But soon after, its value slumped down to $.01 in a matter of a few days. The reason for this dramatic fall was security breaches at Mt. Gox, a Japanese crypto exchange that mostly traded in Bitcoin

2. November 2013-January 2017: Bitcoin price reached $100 in April 2013 and $1000 in Nov 2013, an impressive monthly growth of 130%. But the price fell over the next two years to $170 by 2015. A significant reason for this decline could be connected to restrictions implemented by the Chinese government on Bitcoin.

3. December 2017-December 2020: Bitcoin price soared from $1000 in January 2017 to $20,000 by the end of 2017, a spectacular average growth of 60% per month. One year later, by the end of December 2018, the price bottomed out at $3200. The price fall was caused by security issues in another Japanese cryptocurrency hack. With the banning of advertisements for initial coin offerings by big tech titans such as Facebook, Google, etc., bitcoin suffered a jolt in its price. Crypto regulations, imposed by the Securities and Exchange Commission led to the declining applications for bitcoin exchange-traded funds, ultimately leading to a crash in the bitcoin market.

4. April 2021- October 2021: During this period, the price fell from $63000 to $29,000. The bear market can largely be attributed to media reports about the high cost of mining and problems related to the social and environmental cost of mining due to high electricity costs.

5. Nov 2021 to July 2022: The price fell from a peak value of $68000 to below $22000 in 2022. Thus the cryptocurrency market was dealt a harsh blow in 2022. The total market value of all cryptocurrencies in 2021 was about $3 trillion when the cryptocurrency reached a peak. The downward slide began right after then.

The second largest cryptocurrency market is Ethereum, which is a blockchain-based software platform that can be used for sending and receiving value globally with its cryptocurrency, ether. Ethereum launched its token in August of 2014, 50 million ETHs were sold at a price of $0.31 per coin which raised over $16 million for the project. The current price of Ethereum today is

$1,507.59 per ETH/USD, with a market cap of $173.4 billion. The major difference between Bitcoin and Ethereum is that transactions on the Ethereum network can contain executable code, while data affiliated with Bitcoin network transactions is only used to record transaction information. Bitcoin has a market share of 39.6% while Ethereum has a market share of 18.8%. Bitcoin and Ethereum are both highly volatile when compared to stocks and Ethereum is considered more volatile than Bitcoin. In February 2022, Morgan Stanley reported that since 2018, Ethereum has been about 30% more volatile in price than Bitcoin. The greater volatility is attributed to the greater concentration of Ethereum among holders. Table 1 shows the current prices and market cap of the five largest cryptocurrencies.

**Table 1: Today's Cryptocurrency Prices**

| Name | Price | Market Cap | Volume (24h) |
|---|---|---|---|
| Bitcoin | $29,185.97 | $565,157,807,008 | $21,624,910,824 |
| Ethereum | $1,887.07 | $227,200,623,475 | $10,263,229,832 |
| Tether | $1.00 | $81,657,614,467 | $31,268,535,773 |
| BNB | $322.05 | $50,194,340,231 | $1,120,098,001 |
| USDC | $1.00 | $30,502,462,456 | $4,495,326,772 |

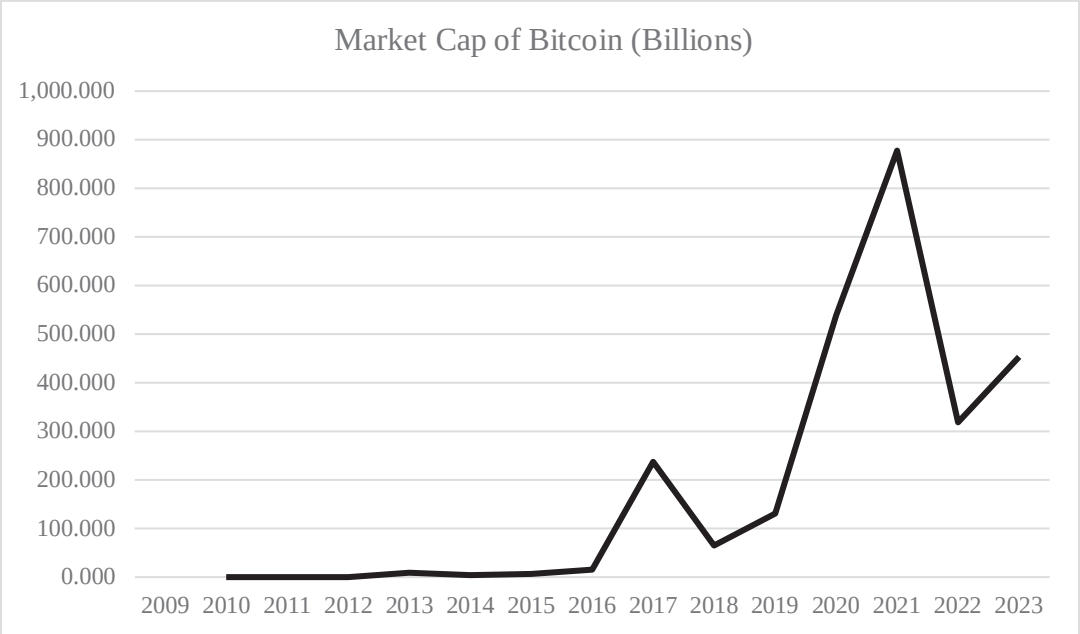
Source: https://coinmarketcap.com.

The aggressive increase in the interest rate by the Fed affected the crypto market like the other financial markets. By mid-April 2022, the value of all cryptocurrencies fell to $2 trillion, followed by another 35% plunge by May 2022. The total value of Bitcoin plunged by 60% of its value during 2022 and the price of Bitcoin bottomed out at $29000.

The meltdown in the cryptocurrency is largely attributed to the plight of TerraUSD Classic stablecoin. Terra started as a payment app in South Korea and soon built a $60 billion crypto market. The price rose because of big-shot investors; The TerraUSD stablecoin (USTC) was originally introduced to maintain a stable 1:1 peg with the United States dollar through blockchain algorithms rather than equivalent cash reserves. On May 7, 2022, the price of the USTC fell to 35 cents. The failure of USTC to maintain its dollar peg triggered a massive panic in the crypto market and caused a chain reaction in the rest of the crypto market due to massive liquidations.

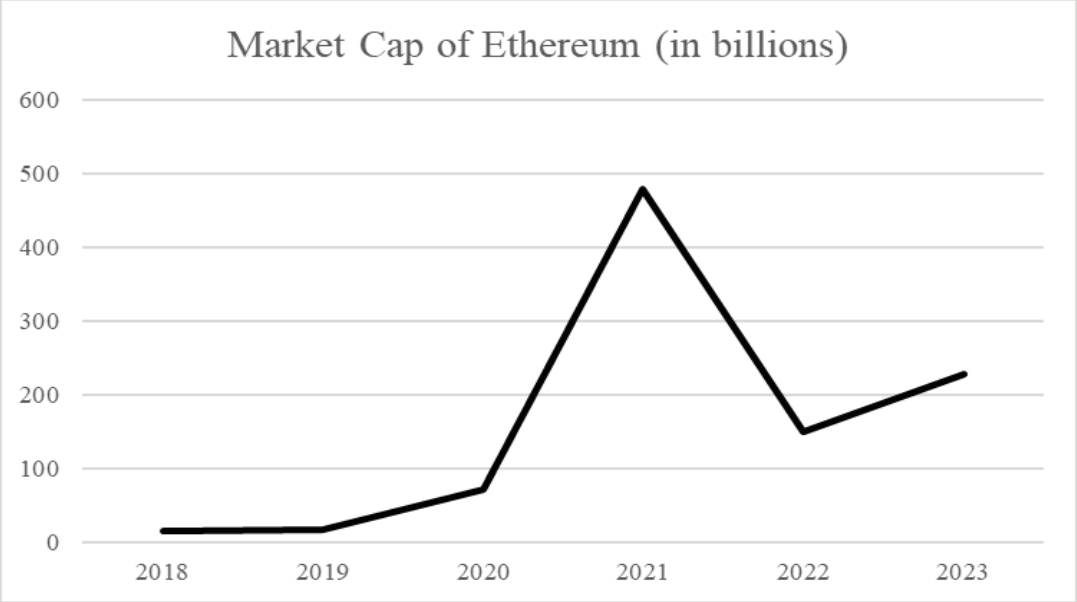
The graph below shows the market capitalization of Bitcoin through the years. As shown in Figure 1, Bitcoin's market cap had one peak around 2017 and another one in 2021, and in each case, the peak was followed by a steep plunge in the market value. Today, cryptoassets account for a total combined market cap of $350 billion. Major financial institutions such as Fidelity Investments and CME Group are heavily involved as well as schools such as Harvard, Yale, and Stanford University.

**Figure 1**




Source: https://coinmarketcap.com.

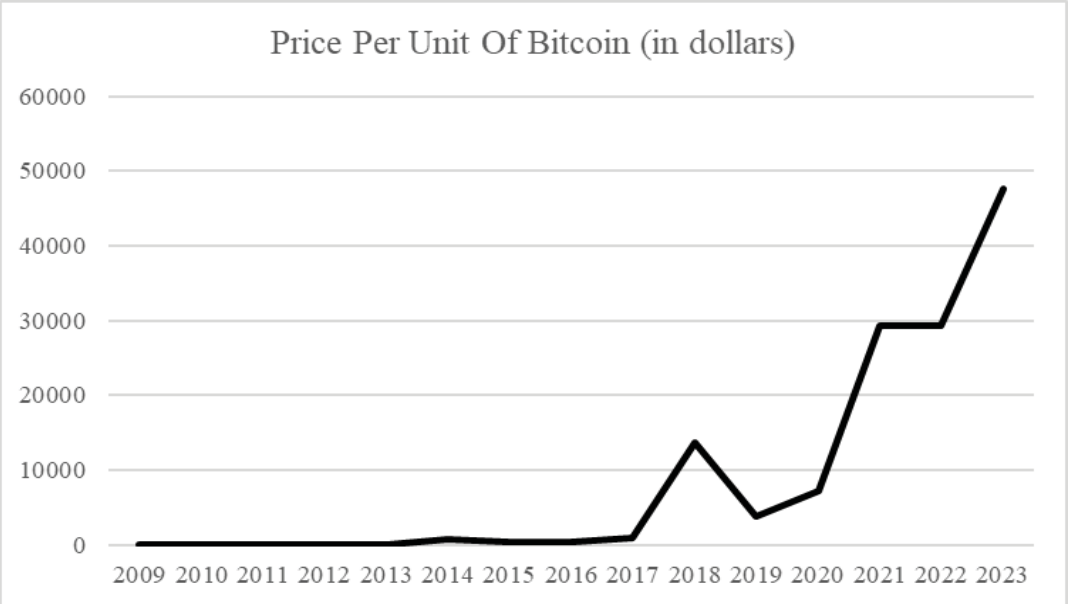
**Figure 2**




Source: https://coinmarketcap.com.

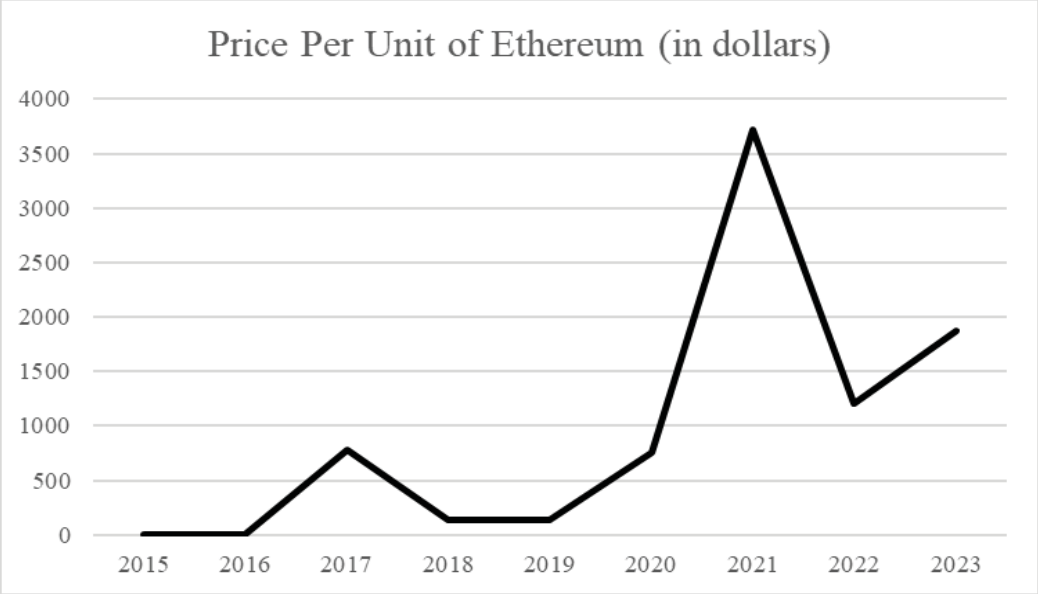
The market meltdown in 2022 had a cascading effect on institutions that had a major stake in the Cryptocurrency market. First to fall was Core Scientific, the largest mining company in the United States that mines bitcoin, which filed for bankruptcy because of falling crypto prices and rising energy costs.

**Figure 3**




Source: https://coinmarketcap.com.

**Figure 4**




Source: https://coinmarketcap.com.

The crisis in the cryptocurrency market in 2022 was the culmination of a host of factors. On the demand side, global inflation, the increase in interest rates by the Fed, and the looming recession discouraged investors from buying stocks and cryptocurrencies. Finally, the Ukrainian war, continuing supply-side challenges, and unabated inflation caused a great deal of uncertainty about the stock market among investors. Added to this was the scandal involving the crypto exchange FTX (short for "Futures Exchanges"), a cryptocurrency exchange and hedge

fund. The FTX exchange is a crypto trading and derivatives platform. Before its bankruptcy, FTX offered margin trading and options in cryptocurrency. The bankruptcy of cryptocurrency in 2022, affected investors; confidence in other cryptocurrency exchanges.

## IV. Regulations and the Cryptocurrency market

Cryptocurrency exchange FTX collapsed in early November of 2022 following a report by CoinDesk which highlighted potential leverage and solvency concerns involving FTX-affiliated trading firm Alameda Research. The collapse of FTX shook the crypto market, which lost billions at the time, falling below a $1 trillion valuation. Client deposits have been moved to the trading firm, Almeda Research, from the exchange without the investors' knowledge. To add to its problems, FTX experienced a possible hack within hours of the resignation of its CEO, in which hundreds of millions worth of tokens were stolen.

Since transactions and trading of digital currency are carried outside of the regulatory framework within which banks and other financial institutions operate, the government has been playing catch-up games with the crypto markets. In 2010, a comprehensive set of regulations titled 'Dodd-Frank Wall Street Reform and Consumer Protection Act', was passed by the US Congress to promote a safe environment for depositors and investors and to rein in aggressive practices of financial institutions *in the aftermath of the* 2007 financial crisis. Unlike traditional exchanges, cryptocurrency exchanges are not regulated by the Security and Exchange Corporation (SEC), so investors' money are not protected by the SEC or any Federal insurance such as FDIC (Federal Deposit Insurance Corporation).

The collapse of the crypto exchange was perhaps the proverbial straw that broke the camels' back. The government started taking action against unscrupulous entities and regulating the cryptocurrency market like other financial markets. The SEC is in the process of tightening rules making it difficult for asset managers to move customer's money into other firms without informing their investors. The proposal would develop a new set of rules to rein in self-serving institutions so that institutions such as FTX cannot dupe the customers by siphoning money for illegal purposes. The US government wants to enforce rules requiring brokers of all digital agents, crypto, and non-crypto currencies to report gains to the IRS. The Federal government plans to impose taxes on capital gains in cryptocurrencies and is expecting to raise $28 billion in revenue over 10 years which will be used to finance infrastructure spending.

Despite attempts by cryptocurrencies to have them legitimized, governments in various countries are trying to impose restrictions on trading them and many governments are still leery of them. The U.K. and Japan regulators banned Binance, one of the biggest cryptocurrency exchanges in June, 2021. Cryptocurrencies have a particular appeal for the underground economy that includes money laundering and other black market transactions. In addition to losing tax revenue, the government is concerned about whether the wider use of cryptocurrencies causes major instabilities in the financial system. A "stress test" conducted by the Economist magazine (August 7-17$^{th}$, 2022) suggests that holders of bitcoins would lose hundreds of billions of dollars in case of the collapse of bitcoin. Tether, a stable coin tethered to the US dollar, issued $62 billion worth of tokens which are supposed to be redeemable in dollars, one dollar per token.

However, the 'Economist' magazine reported these tokens are backed by 5% cash or treasury bills and 50% of assets are kept in commercial paper – a risky investment. Another cryptocurrency platform 'Tether' ended up paying a fine of about $15 million for misleading investors about its reserves against any possible loss. The Chinese government banned mining cryptocurrencies early this summer in China which previously devoted two-thirds of global energy to harvest bitcoin. The Chinese government is on the path of becoming the first country to issue its own digital currency.

## V. Conclusion

The fast development of the cryptocurrency market is the product of financial crises causing dissatisfaction and loss of trust in the traditional banking system and the need to avoid the perceived burdensome regulations, particularly as the cross-border regulations increased. Since 2009, various types of cryptocurrencies have developed, some of them tied to one of the major currencies, experiencing a strong growth rate. However, the wide fluctuations in the price and recent scandals involving FTX undermined investors' confidence in the cryptocurrency market. Cryptocurrency revolutionized the payment system by offering a decentralized, computationally elegant system so that each transaction is protected by the inimitable algorithm. It is reasonable to believe that for some time, the two parallel systems, traditional and cryptocurrency will continue. With the creation of a private payment system, clients will have more choices to transact, trade, and invest.

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