



CRYPTOCURRENCIES

A Brief Overview

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► Cryptocurrency-a becoming of new asset class

Cryptocurrency has surely emerged as a new class of asset which has the potential to improve existing practices in financial transactions and challenge the role of well-established fiat currencies. Since the start of Jan-20, the price of first cryptocurrency, Bitcoin, has risen by mammoth ~8x. The sheer rise in the price of Bitcoin, has put the roller-coaster ride of the same since inception in the backburner. The cryptocurrency idea has not only led to introduction of a big number of cryptocurrencies, with varying underlying technology and purposes, but also built digital infrastructure (exchanges) for trading of cryptocurrency in an attempt to increase its acceptability among mainstream investors. From a humble beginning in 2009, the cryptocurrency has risen to account for cUSD2.2trn market capitalization in April 2021 (or ~10% of total GDP and 11% of total money supply in the U.S). COVID-19 pandemic has proved to be a big boon for cryptocurrencies. At the start of 2020, total market cap of all cryptocurrencies was at USD195bn which has increased to more than 10folds to current level.



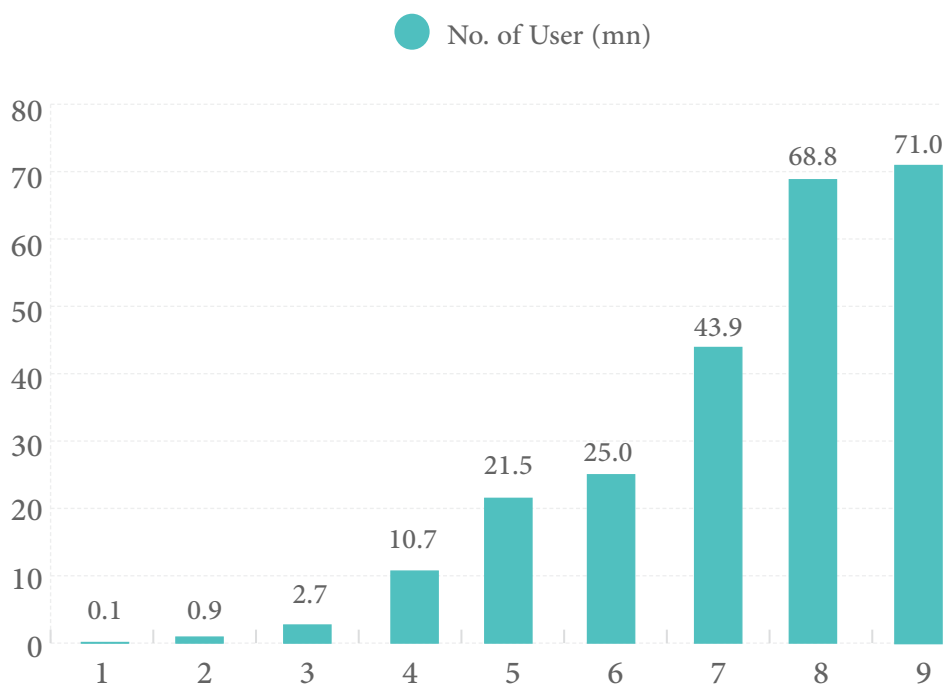
Key Snapshot of Cryptocurrencies

	Low Estimate	High Estimate
No. of Currencies	4501	9500
No. of Exchanges	366	980
No. of Users	71mn	106mn
Total Market Cap	USD2.2trn	USD2.2trn

Source: Statista, Coinmarketcap.com, Crypto.com



Number of subscribers of Crypto Currencies on the rise



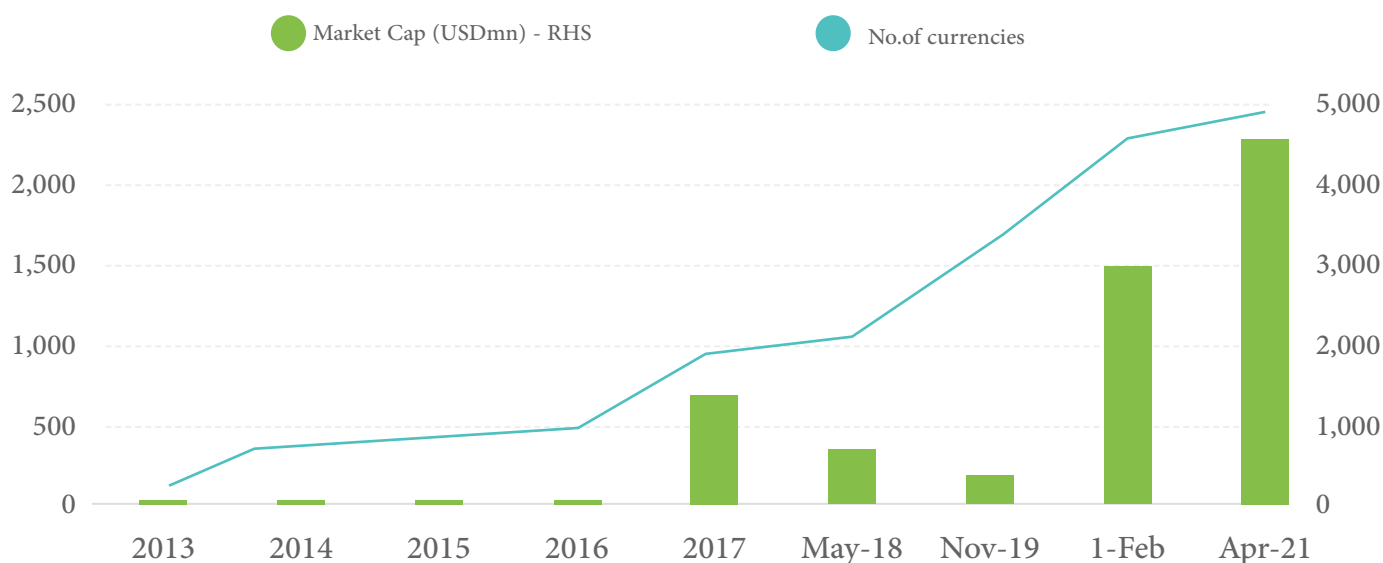
Source: [Statista.com](https://www.statista.com)

► The inception of cryptocurrency

The efforts to come up with a digital currency based on encryption had been afloat since early 1990's. However, the issue of double spend (using the same digital currency multiple times), infrastructure limitation and not-so-widespread enabling technology hindered development of widespread use of the same. The current form of Cryptocurrency, based on the concept of decentralized ledger and peer-to-peer transfer, owed its inception to publication of an online article online by Mr Satoshi Nakamoto in 2009. However, many believed that Satoshi Nakamoto is not the real name of the author and the original name of the author is still unknown. The original article argues for development of electronic currency which is free from centralized regulation as in case of fiat, provides efficiency of transaction and most importantly maintain anonymity of buyer and seller. More specifically, Decryptionary.com defines cryptocurrency as “an electronic money created with technology controlling its creation and protecting transactions, while hiding the identities of its users.”



Cryptocurrencies and total market cap has significantly risen since the start of COVID-19



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► **Key criticism of Cryptocurrency.**

The major criticisms of cryptocurrency are outlined below.

- By its very feature of offering to maintaining anonymity of buyer and seller, the cryptocurrency is believed to have offered a big value proposition for people involved in illegal, criminal and unethical activities as mode of payment for various services. It is widely believed the cryptocurrencies, Bitcoin being the most well-known one, is used in Dark Web or encrypted online content, money laundering, payment for drugs & illegal services, and criminal activities (cases reported so far include payment of ransom money for kidnapping, payment for match fixing in popular sports). As per an estimate, approximately USD46bn of illegal activity involves Bitcoin transaction (46% of total bitcoin transaction!)
- Cryptocurrency threatens the central bank: With current market capitalization of USD2.2trn (reported as of xx), growing number of transactions and soaring popularity, cryptocurrency surely establishes a parallel monetary system, undermining the role of the central banks.
- No backing of cryptocurrency: Unlike a conventional fiat currency which enjoys the backing of a state and multiple policy tools to stabilize the exchange rate vis-à-vis other currencies, cryptocurrencies don't have any such support mechanism. This aspect has significant bearing when it comes to consider cryptocurrency as an alternative to fiat currency or as investment asset class.
- The very nature of Cryptocurrency of being tech-driven makes it use unfriendly for common man and at the same exposes it to cyber-attack and cyber scams.



► Current scale of Cryptocurrency

No authentic number is available on the exact number of cryptocurrency available today given varying purpose for the issuance for many of the currencies and way the data is compiled (active or non-active, token, withdrawals, etc). One estimate has put the number of total currencies at over 9,000 out of which ~2000 considered were inactive or dead. CoinMarket Cap, a widely quoted website on cryptocurrency, has also put total number of coin at 9,241 though the website maintain data on 4,701 cryptocurrencies, which is close the number provided by Statista at 4,501. Interestingly, Statista's quote a 59% jump in number of cryptocurrencies in a short-period between Nov-19 to Feb-21. This period also coincides with stellar 10x jump in total market cap of cryptocurrencies as per CoinMarketCap.com.

Bitcoin remains the most dominant and popular cryptocurrency currency accounting for ~52% of total market capitalization of cryptocurrencies followed by Ethereum at USD280bn. Top ten cryptocurrencies accounts for 81% of total market cap. Following provides a snapshot of top ten cryptocurrencies.

Top Ten Cryptocurrencies						
Coin	Ticker	Price (USD)	Market Cap USDbn	Volume (USDmn)*	Volume (Coin,mn)*	Circulating Supply
Bitcoin	BTC	62,484	1,166,795	69,796	1.1BTC	18.7BTC
Ethereum	ETH	2,434	280,534	35,699	14.7ETH	115.5ETH
Binance Coin	BNB	542	84,146	6,494	14.7BNB	154.1BNB
XRP	XRP	2	76,693	21,313	14.7XRP	45.6XRP
Tether	USDT	1	46,546	147,614	14.7USDT	46.5USDT
Cardano	ADA	1	46,675	7,243	14.7ADA	31.6ADA
Polkadot	DOT	42	38,793	2,409	14.7DOT	929.7DOT
Uniswap	UNI	37	19,466	1,236	14.7UNI	523.4UNI
Litecoin	LTC	271	18,021	6,908	14.7LTC	66.0LTC
Chainlink	LINK	41	17,022	3,984	14.7LINK	419.0LINK

► Key Risks to Cryptocurrencies



Loss or Destruction of the Private Key

Bitcoins (and this applies to other cryptocurrencies) are stored in a digital wallet and are controllable only by the possessor of both the public key and the private key relating to the digital wallet in which the bitcoins are held, both of which are unique. If the private key is lost, destroyed or otherwise compromised, an investor may be unable to access the bitcoins held in the related digital wallet which will essentially be lost. If the private key is acquired by a third party, then this third party may be able to gain access to the bitcoins.



Cyber Security Risks

Trading platforms and third-party service providers may be vulnerable to hacking or other malicious activities. For example, in August 2016, nearly 120,000 units representing US\$72 million-worth of bitcoins were stolen from the Bitfinex exchange in Hong Kong, which led to an immediate 23% drop in pricing. One year earlier, in September 2015, BitPay lost approximately \$1.8 million of bitcoins due to a phishing attack. Also, if one or more malicious actor(s) obtain control of sufficient consensus nodes on the Bitcoin Network or other means of alteration, then a Blockchain may be altered. While the Bitcoin Network is decentralized, there is increasing evidence of concentration by creating of “mining pools” and other techniques, which may increase the risk that one or several actors could control the Bitcoin Network or other similar Blockchain.



Risks Associated with Peer-to-Peer Transactions

Digital currencies can be traded on numerous online platforms, through third party service providers and as peer-to-peer transactions between parties. Many marketplaces simply bring together counterparties without providing any clearing or intermediary services and without being regulated. In such a case, all risks (such as double-selling) remain between the parties directly involved in the transaction.



Other Risks Related to Trading Platforms and Exchanges

Digital currency trading platforms, largely unregulated and providing only limited transparency with respect to their operations, have come under increasing scrutiny due to cases of fraud, business failure or security breaches, where investors could not be

compensated for losses suffered. Although one does not need a trading platform or an exchange to trade bitcoins or other cryptocurrencies, such platforms are often used to convert fiat currency into cryptocurrency, or to trade one cryptocurrency for another.



Loss of Confidence in Digital Currencies

Digital currencies are part of a new and rapidly evolving “digital assets industry”, which itself is subject to a high degree of uncertainty. For a relatively small use of digital currencies in the retail and commercial marketplace, online platforms have generated a large trading activity by speculators seeking to profit from the short-term or long-term holding of digital currencies. Most cryptocurrencies are not backed by a central bank, a national or international organization, or assets or other credit, and their value is strictly determined by the value that market participants place on them through their transactions, which means that loss of confidence may bring about a collapse of trading activities and an abrupt drop in value.



Regulations Preventing or Restricting Trading of Digital Currencies

There are significant inconsistencies among various regulators with respect to the legal status of digital currencies. Regulators are also concerned that bitcoin and other cryptocurrencies may be used by criminals and terrorist organizations. In the future, certain countries may restrict the right to acquire, own, hold, sell or use digital currencies.



Currency-Conversion Risks

Policies or interruptions in the deposit or withdrawal of fiat currency into or out of the trading platforms may impact the ability of certain investors to convert. For example, when two of the largest trading platforms in China stopped margin lending and withdrawals in February 2017 and started implementing stricter anti-money laundering policies following discussions with Chinese authorities, this immediately triggered a decrease in pricing and trading volume.



Taxation of Digital Currencies

For investors in cryptocurrencies, it should be noted that there is substantial uncertainty with respect to the tax treatment of an investment in digital currencies. Bitcoins and other cryptocurrencies may be considered assets in certain jurisdictions and currency in others.

Sales or value-added taxes may be imposed on purchases and sales of digital currencies. The investors, based on their home jurisdiction, may require specific tax advice on a regular basis to ensure the tax treatment of their investments in digital currencies.



Slow-Down of Network

For bitcoins, mining is the process by which bitcoins are created and transactions verified. Through downloading a specific software, the user's computer becomes a "node" that validates blocks (i.e. details of some or all of the most recent transactions). Miners which are successful in adding a block to the Blockchain are automatically awarded bitcoins (plus transaction fees for transactions recorded). However, if the rewards for solving blocks and transaction fees are not sufficiently high, or if a high volume of transactions occur at the same time, the Blockchain may experience a slow-down. A slow-down is also possible for other cryptocurrencies, if the number of transactions on the blockchain is very high.



Dilution Due to Competition or "Fork" in the Blockchain

Last but not least, cryptocurrencies are based in protocols which govern the peer-to-peer interactions between various users. Dissent between users as to protocols to be used may result in a "fork", opening two separate networks. For example, in 2016, Ethereum experienced a permanent fork in its Blockchain that resulted in two versions of its digital currency, Ethereum (ETH) and Ethereum Classic (ETC), which trade very differently. Very recently, Bitcoin also experienced its first fork, leading to the creation of Bitcoin Cash (BCC), a new cryptocurrency. Latest data points to wide spread demand destruction in major economic centers and a deep global growth recession in Q2/Q3 2020. IMF forecasts drop in global GDP to 3% in 2020 (+3.3% pre-COVID-19) followed by a protracted economic recovery ahead. A multitude of monetary and fiscal stimuli have been unveiled to better manage financial stability. All eyes are on much-talked about 2nd wave of infection as economies come back to life.

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► Acceptability of Cryptocurrencies as medium of exchange

If one defines success as a rise in market capitalization and popular interest, crypto currencies have clearly succeeded, perhaps more quickly than its original proponents ever expected it to. But the long term success of any crypto currency has to answer a different question, which is whether it is a “good” currency. Harking back to Money 101, you measure a currency’s standing by looking at how well it delivers on its three purposes:



Unit of account:

A key role for a currency is to operate as a unit of account, allowing you to value not just assets and liabilities, but also goods and services. To be effective as a unit of account, a currency has to be fungible (one unit of the currency is identical to any other unit), divisible and countable.



Medium of exchange:

Currencies exist to make transactions possible, and this is best accomplished if the currency in question is easily accessible and transportable, and is accepted by buyers and sellers as legal tender. The latter will occur only if people trust that the currency will maintain its value and if transactions costs are low.

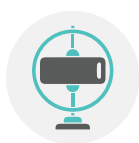


Store of value

To the extent that you hold some or all of your wealth in a currency, you want to feel secure about leaving it in that currency, knowing that it will not lose its buying power while stored. Given these requirements, one can see why there are no perfect currencies and why every currency has to measure on a continuum from good to bad. Broadly speaking, currencies can take one of three forms, a physical asset (gold, silver, diamonds, shells), a fiat currency (usually taking the form of paper and coins, backed by a government) and crypto currencies. Gold’s long tenure as a currency can be attributed to its strength as a store of value, arising from its natural scarcity and durability, though it falls short of fiat currencies, in terms of convenience and acceptance, both as a unit of account and as medium of exchanges. Fiat currencies are backed by sovereign governments and consequently can vary in quality as currencies, depending upon the trust that we have in the issuing governments. Without

trust, fiat currency is just paper, and there are some fiat currencies where that paper can become close to worthless. For crypto currencies, the question then becomes how well they deliver on each of the purposes. As units of account, there is no reason to doubt that they can function, since they are fungible, divisible and countable. The weakest link in crypto currencies has been their failure to make deeper inroads as mediums of exchange or as stores of value.

So, why has crypto currency not seen wider acceptance in transactions? There are a few reasons, some of which are more benign than others:



Inertia:

Fiat currencies have had a long run, and it is not surprising that for many people, currency is physical and takes the form of government issued paper and coins. While people may use credit cards and Apple Pay, their thinking is still framed by the past, and it may take a while, especially for older consumers and retailers, to accept a digital currency. That said, the speed with which consumers have adapted to ride sharing services and taken to social media suggests that inertia cannot be the dominant reason holding back the acceptance of crypto currencies.



Price volatility

Crypto currencies have seen and continue to see wild swings in prices, not a bad characteristic in a traded asset but definitely not a good one in a currency. A retailer or service provider who prices his or her goods and services in bitcoin will constantly have to reset the price and consumers have little certitude of how much the bitcoin in their wallets will buy a few hours from now.



Competing crypto currencies

The crypto currency game is still young and the competing players each claim to have found the “magic bullet” for eventual acceptance. As technologies and tastes evolve, you will see a thinning of the herd, where buyers and sellers will pick winners, perhaps from the current list or maybe something new. It is possible that until this happens, transactors will hold up, for fear of backing the wrong horse in the race.

► Key Developments/ Current Trends



Capital Markets

Fidelity announced in October 2018 that it would be launching Fidelity Digital Asset Services (FDAS) to offer as institutional-grade digital asset custody, trade execution, and dedicated client service. Since then the company noted a “significant interest and engagement by the institutional community, which show no signs of slowing,” and in December 2019 formed a UK subsidiary to formalize the provision of digital asset services in Europe.

QME (the commodity trading platform of the Hong Kong stock exchange) announced a partnership with **Ant Financial**, to integrate warehousing and logistics, using blockchain technology to provide transparency for the entire lifecycle of a commodity. Warehouse receipts, which can be used as collateral for finance, have been subject to widespread fraud in recent years, and blockchain technology allows a receipt to be better tracked and authenticated, hence preventing potential for double financing.

Blockchain technology has been used to improve the process of **bond issuance** by enabling more efficient bookkeeping, underwriting, pricing and allocation of bonds. Blockchain is also seen as enabling better transparency in the allocation of debt securities by issuers, an area where, in some instances, a conflict of interest could exist. 2019 saw an increasing number of blockchain bonds being issued. For example, the Bank of China completed the issuance of 20bn yuan (\$2.8bn) of bonds using its proprietary blockchain system. In addition, Santander issued a tokenized \$20mn bond on the public Ethereum Blockchain. BBVA has completed a number of loans ranging between €35mn and €1bn using its Blockchain loan platform, which also won it the Bankers Tech Projects Award in 2019.



ETFs

While exchange-traded crypto-tracking products exist in Europe and a Bitcoin ETF opened in February in Canada, U.S. regulators have repeatedly batted down attempts to introduce them, citing concerns about potential manipulation and thin liquidity. Yet with the world’s largest digital coin rallying to new heights and a change of leadership at the Securities and Exchange Commission, the prospect of a first U.S. Bitcoin ETF appears to be rising. The

largest Bitcoin ETP, the \$1.8 billion Bitcoin Tracker EUR, listed on the Stockholm Stock Exchange, invests in swap contracts to mirror the cryptocurrency's returns. The Purpose Bitcoin ETF (ticker BTCC), which debuted in Toronto in February, invests directly in “physical/digital Bitcoin,” its issuer, Purpose Investments Inc., said. Meanwhile, several U.S. investment trusts follow Bitcoin and are similar to ETFs but with certain restrictions. The Grayscale Bitcoin Trust (ticker GBTC) is physically backed, meaning that it holds Bitcoin. An ETF planned by VanEck Associates Corp. also intends to physically hold the cryptocurrency. After the SEC received a request for the VanEck Bitcoin Trust in December, at least seven more issuers, including Galaxy Digital Holdings Ltd. and Fidelity Investments, applied within months. Bitwise Asset Management is also seeking to launch a broader cryptocurrency ETF. It's one of numerous issuers who have already tried to start a Bitcoin ETF, beginning with the Winklevoss twins in 2013. Other attempts were made by Direxion, ProShares, First Trust, Grayscale, WisdomTree and GraniteShares, all without success.



Central Bank Digital Currency Currency - CBDC

A Central Bank Digital Currency (CBDC) is the digital form of a country's fiat currency that is also a claim on the central bank. Instead of printing money, the central bank issues electronic coins or account backed by the full faith and credit of the government. CBDCs are the liability of the central bank, which means the government must maintain reserves and deposits to back it up, rather than a private bank. A huge volume of literature, studies and proofs of concept have emerged around CBDCs. Currently, more than 60 central banks are striving to understand and assess how CBDCs could affect the role of traditional forms of money through proofs of concept. And, 36 central banks are exploring both retail and wholesale CBDCs, while 18 banks are focusing solely on retail CBDCs. China has emerged as a leader in CBDC development and may be the most advanced compared to other countries. In fact, introducing a CBDC in China would differ from other countries due to the duopoly of WeChat Pay and Alipay in terms of digital payment services. It should also be pointed out that the proposed “hybrid” CBDC model is intended to complement cash for online transactions. The possible issue of disintermediation would not arise as the Chinese central bank would only be responsible for providing the necessary infrastructures, while the public would need to liaise with commercial banks and payment service providers to use CBDCs.

Exchange listing

A cryptocurrency exchange, or a digital currency exchange (DCE), is a business that allows customers to trade cryptocurrencies or digital currencies for other assets, such as conventional fiat money or other digital currencies. Exchanges may accept credit card payments, wire transfers or other forms of payment in exchange for digital currencies or cryptocurrencies. A cryptocurrency exchange can be a market maker that typically takes the bid–ask spreads as a transaction commission for its service or, as a matching platform, simply charges fees.

Just as of yesterday, a US based cryptocurrency exchange, Coinbase made its stock market debut. Coinbase went public through a direct listing, an unusual transaction where no new shares are issued or sold — they simply start trading. Coinbase is the largest company to go public via direct listing, which has become popular among well-funded Silicon Valley start-ups that do not need to raise more cash from public market investors. Shares in Coinbase, the first major cryptocurrency company to list its shares on a U.S. stock exchange, jumped in their market debut on Wednesday, showing that investors are hungry to get a piece of the hot market for digital currencies. The stock swung as low as \$310 and as high as \$429 in a volatile day of trading that reflected the unpredictable nature of cryptocurrency prices. Coinbase ended the day at \$328.28, valuing the company at \$85.7 billion counting all of its outstanding shares — more than 10 times its last valuation as a private company.





مركز ثراء المالي
Tharaa Financial Center

Email: tharaafc@gmail.com



Phone

011494 8899



Email

www.tharaafc.com



Website

tharaa@psu.edu.sa



Address

Building 105, Prince Sultan University, Rafha
Street, Riyadh, Kingdom of Saudi Arabia



Tharaa Financial Center