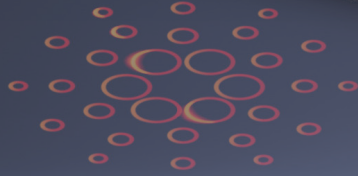




BetaShares
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INVESTOR GUIDE

THE INVESTOR'S GUIDE TO CRYPTO

betashares.com.au

The crypto economy has been growing strongly, aided by the performance of Bitcoin, Ethereum and other digital assets over the past ten years. This growth is anticipated to continue, naturally attracting the interest of investors. However, the radical technological innovation of digital ledger technology, and the investment opportunity it represents, may not be as easily understood as an investment in traditional asset classes such as equities and fixed income.

This guide is intended to help investors who may be considering an investment in the cryptocurrency sector, but who are unsure where to start.

In this guide, we will:

- ▶ provide a brief explanation of blockchain, and cryptocurrency
- ▶ set out the opportunity that crypto presents to investors, and
- ▶ discuss where an exposure to crypto might fit in an investment portfolio.

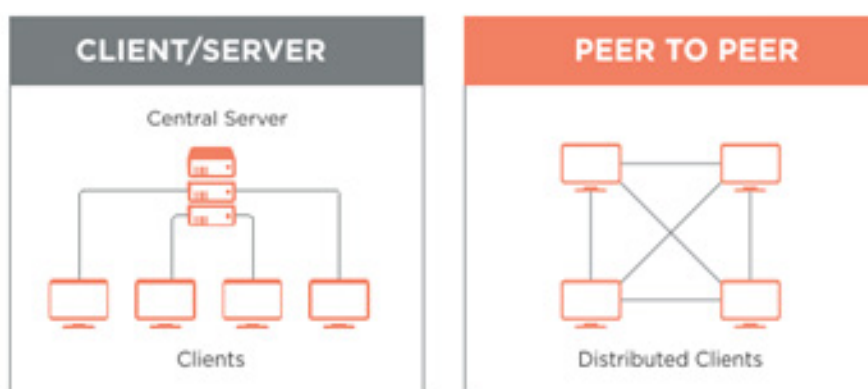
Investing in the crypto space involves very high risk of rapid loss. It should only be considered by investors who understand the nature of the investment, who have very high tolerance for risk, and as a small component of an overall portfolio.

BRIEF GUIDE TO BLOCKCHAIN AND CRYPTO

What is a blockchain?

A blockchain is a digital, publicly accessible ledger or register. The ledger contains data, such as a list of transactions, and is replicated across all the computers in the network, rather than being centralised. A blockchain is a type of **distributed ledger**.

In network terms, the blockchain utilises the **peer-to-peer** model, in which there is no centralised database. In the traditional **client/server** model, by contrast, a centralised database holds 100% of the data, and clients trust that the data held on the server is definitive.



DLT AND BLOCKCHAIN

The terms distributed ledger technology (DLT) and blockchain are sometimes used interchangeably.

They are not the same, however. Blockchain is a type of DLT, but not all distributed ledgers use blockchain technology. Blockchain is the type of DLT used by Bitcoin.

As the name suggests, a blockchain consists of a sequence of blocks.

A block contains data, for example, information about a group of transactions. Additionally, it contains a reference to the preceding block in the chain, in the form of a digital 'fingerprint' called a hash, which is determined by the contents of the preceding block. This reference is a fundamental part of the blockchain, as it is what guarantees the integrity of the chain, and the information in it. It provides a way to validate the data.

Any attempt to tamper with part of the blockchain is immediately evident, as the new hash will not match the old ones.

In this way, the blockchain replaces the need for a central intermediary to authenticate the transaction source with cryptography, as anyone can authenticate the chain by looking at the chain's digital fingerprints. If the fingerprints are consistent with the data, and the fingerprints all join up in the chain, this is proof that the blockchain is internally consistent.

With a centralised database, in contrast, trust is placed in the third party that maintains the database. The central database is the sole source of truth, on which all participants must rely. If the third party proves untrustworthy, or if the database is tampered with, the source of truth is corrupted.

How is the blockchain built?

Parties with access to the network enter into transactions, for example transferring digital currency to another party.

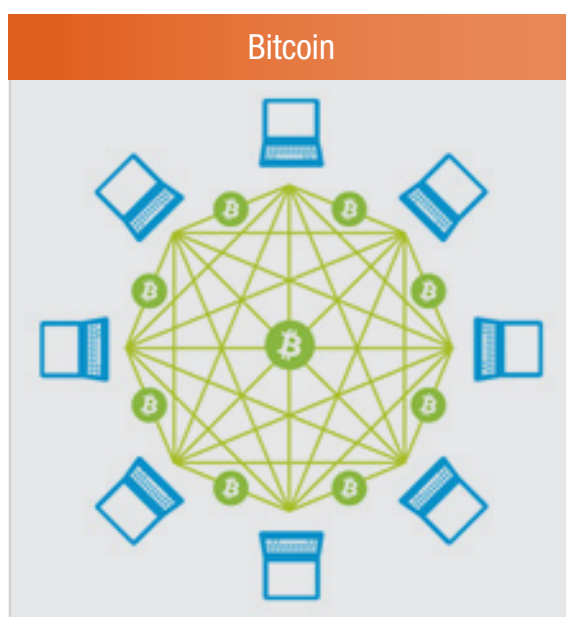
Transactions are verified by other computers in the network, and grouped into a block, which is then added to the chain. Once a block is added to the chain, the new version of the blockchain is broadcast to all the **nodes** (computers) in the blockchain network. As a result, each computer in the network has its own copy of the 'source of truth', rather than having to refer to a central version.

What is a cryptocurrency?

A cryptocurrency is a type of digital token that makes use of cryptography to secure transactions and to control the creation of new units in the currency. Transactions of most cryptocurrencies utilise blockchain technology.

What is Bitcoin?

Bitcoin is the most prominent example of a cryptocurrency. It was released as open-source software in 2009 by a programmer (or group of programmers) using the pseudonym Satoshi Nakamoto.



Source: Deloitte University Press

Bitcoin can be purchased on crypto exchanges worldwide. Users pay in their currency of choice, and nominate the bitcoin wallet to which the bitcoin should be allocated.

The user can then use their wallet to transfer bitcoin to, or receive bitcoin from, another address on the network, and sign the transaction with their private key (a secret digital signature).

Details of the transaction are sent by the wallet software to other computers on the bitcoin blockchain. The first computer to receive details of the transaction runs tests to validate it. Once the transaction is validated, the validating computer broadcasts it to all other computers on the bitcoin network, which run the same tests.

Specialised computers in the network, known as **miners**, then work to group validated transactions into a block, to be added to the Bitcoin blockchain.

Once the new block is confirmed by the Bitcoin network, it is added to the chain, and the newly updated blockchain is published to all the other computers on the network. Each computer performs its own check to verify that the new block is valid, and once that test is passed, the block is added to their own copy of the blockchain. The fact that all these nodes are independently validating new blocks is a key feature of blockchain design that 'keeps the system honest'.

A new block is added on average every ten minutes.

WHAT IS 'MINING'?

Mining involves performing a set of mathematical computations to win the right to add a new block to the chain. Miners compete for this right, because the reward for being the node that adds the block to the chain is newly-minted bitcoin (as of July 2021, 6.25 BTC per block).

THE INVESTMENT OPPORTUNITY

Crypto presents investors with two broad opportunities, which can be seen either as standalone, or as opportunities that complement each other:

1. The opportunity in Bitcoin and other cryptocurrencies
2. The opportunity offered by the companies driving the crypto economy

There are currently over 5,700 cryptocurrencies¹. Of these, Bitcoin is the oldest, the largest in terms of market cap, the most liquid, and the most popular. Let's take a closer look.

Bitcoin – the future of money?

'Bitcoin' is used to refer to two different things:

- ▶ the Bitcoin cryptocurrency itself, and
- ▶ the Bitcoin protocol and payment network (the technology that makes it possible to trade Bitcoin the cryptocurrency).

An investment in Bitcoin is an investment in both these things.

Bitcoin, which can be considered the world's first rules-based monetary system², aims to solve the problem of 'trust' within the financial system. With fiat money, we need to trust governments not to erode the value of our money or confiscate it, and we need to trust banks to stay solvent in order for us to redeem our deposits when we want them.

These may sound like issues we don't need to worry about in the Western world in 2021, however it is worth noting that the US Federal Reserve has printed 40% of US dollars in existence in the last 12 months alone³.

EXAMPLES OF CRYPTO-CURRENCIES



BITCOIN



ETHEREUM



RIPPLE



BCASH



EOS



STELLAR



LITECOIN



CARDANO



IOTA



TETHER

¹ <https://coinmarketcap.com/>

² https://www.researchgate.net/publication/333298459_The_Role_of_Bitcoin_in_the_Monetary_System_Its_Development_and_the_Possible_Future

³ <https://techstartups.com/2021/05/22/40-us-dollars-existence-printed-last-12-months-america-repeating-mistake-1921-weimar-germany/>

As a decentralised distributed database that is accessible to everyone, Bitcoin is not controlled by any single corporation, government, or person.

Unlike the supply of fiat currency, which governments can increase at will, in the process eroding its value, there is an inbuilt limit on the supply of Bitcoin. Written into Bitcoin's code is that there will never be more than 21 million Bitcoin in existence. This limited supply is crucial to the argument that Bitcoin can serve as a store of value.

Bitcoin can be neither confiscated nor destroyed. Cryptography ensures that no one can take a person's Bitcoin away without authorisation. Bitcoin does not have any physical properties so it can't be destroyed, and because the network is decentralised, no government can shut it down.

Bitcoin is already being recognised as an investable asset class, with some corporates starting to add bitcoin to their balance sheets alongside cash. Companies such as Square, MicroStrategy, and Stone Ridge Holdings Group, have all added an allocation to their balance sheet⁴.

The companies driving the crypto economy

The second crypto investment opportunity lies in the innovative companies providing core infrastructure for the crypto economy, including:

Crypto mining and mining equipment firms – Mining is the process by which new Bitcoin and other cryptocurrencies are entered into circulation, and is also a critical component of the maintenance and development of the blockchain ledger.

Asset management – Institutional adoption of crypto assets accelerated in 2020. Until then, investment in crypto assets was mostly retail-driven, but asset managers are increasingly selling and marketing crypto as another asset class.

Crypto exchanges and custody – As more investors and institutions become involved, the trading volumes and custodial requirements of crypto will continue to grow. Coinbase, one of the largest and longest-operating cryptocurrency exchanges in the world, made over \$2 billion in revenue in the second quarter of 2021 alone⁵.

Service providers – Providers of financial infrastructure solutions and services to participants in the digital currency industry will likely have an increasing role to play.

⁴ <https://www.fidelitydigitalassets.com/articles/corporate-treasurer-bitcoin>

⁵ Coinbase Q2 2021 quarterly filings

WHERE CAN CRYPTO FIT IN AN INVESTMENT PORTFOLIO?

A challenge to investors in the emergence of a new asset class is figuring out ‘where it might fit’ in a portfolio? In determining their asset allocation, investors typically consider their financial circumstances and goals, timeframe, risk tolerance, and the principles of traditional asset allocation.

Digital assets typically are very volatile, have demonstrated low correlation to traditional assets, and have a shorter history than other asset classes. Their potential and use case is still developing.

Direct crypto-currency exposure

The three main attributes of a direct investment in cryptocurrency are:

- ▶ the potential for high returns
- ▶ high volatility/risk
- ▶ low correlation with traditional assets

Following are four possible ways investors can view a direct investment in cryptocurrency:

Store of value – To be eligible for consideration as a store of value, an investment typically should have scarcity value, and low correlation with traditional assets. Its value should not be easily eroded over time due to inflation.

Early-stage investment opportunity – Even after 13 years, Bitcoin is considered to still be in its infancy. As a technology and a network, the potential remains largely untapped.

Trading vehicle – The volatility of cryptocurrencies makes them attractive to many short-term traders.

Speculative investment – some investors speculate with a small portion of their portfolio. In taking this approach, investors should recognise that the potential for significant gain is invariably accompanied by a high level of risk.

Investing in the companies behind the crypto economy

Investing in individual companies in the crypto eco-system is a high-risk exercise. Stock picking is a challenge in any sector – but particularly so in a sector still in its infancy, and characterised by as much volatility as crypto and crypto-related companies.

We believe that an ETF that provides exposure to a portfolio of companies driving the crypto economy is a more prudent way of gaining exposure. Of course, exposure to this sector remains high risk.

A crypto ETF can be considered a thematic exposure, offering access to a theme that has the potential for strong growth over the long term. Crypto is shaping up to be a technology that disrupts many industries and become a global megatrend. An exposure to the innovators of the digital assets industry could be compared to thematic exposures such as robotics and artificial intelligence, cloud computing, and climate change innovators.

Exposure to crypto-equities is not the same as investing directly in crypto-currencies. The performance of such companies should not be expected to track price movements of any cryptocurrencies.

Risks

The risks of a direct investment in digital assets or in shares of companies servicing crypto-asset markets, include:

Volatility risk – Cryptocurrencies are subject to extreme volatility, as are companies operating in the crypto-economy.

Early-stage investment risk – Just because something is first, does not make it the best, and there is no guarantee that the first players in the crypto space will remain dominant. Remember that MySpace preceded Facebook!

Regulatory risk – Regulation in crypto assets is still evolving and varies from jurisdiction to jurisdiction. Investors should expect the evolution and variation to continue. The taxation treatment of digital assets also continues to evolve.

Custody risks – Traditional investment vehicles will make investing in Bitcoin easier and should lower the risk of fraud, cyber-attacks, and lost keys. These risks remain for direct crypto investments.

Crypto-assets are highly speculative in nature and companies with significant exposure to crypto-asset markets can be expected to have a very high level of return volatility.

Summary

Digital assets such as Bitcoin have generated strong investor interest and returns over the past ten years, and the crypto economy is anticipated to continue to grow strongly. The investment opportunity presented by crypto can be accessed by investing directly in cryptocurrencies, or by investing in the companies driving the crypto economy, or by a combination of both. Given the very high volatility of the sector, investors should consider carefully whether such an investment is appropriate for their circumstances.

Investing in crypto assets or crypto focused companies should be considered very high risk. Exposure to crypto assets and companies involves substantially higher risk when compared to traditional investments due to their speculative nature and the very high volatility of crypto asset markets.

Investing in crypto assets and companies is not suitable for all investors and should only be considered by investors who (i) fully understand their features and risks or after consulting a professional financial adviser, and (ii) who have a very high tolerance for risk and the capacity to absorb a rapid loss of some or all of the investment.

Any investment in crypto assets and companies should only be considered as a very small component of an investor's overall portfolio.



BetaShares

Exchange Traded Funds

ABOUT BETASHARES

BetaShares is a leading manager of exchange traded funds (ETFs) and other Funds traded on the ASX.

Launched in 2009, BetaShares now offers the broadest range of exchange traded products in Australia, appealing to a wide range of investors and financial advisers - from institutional investors to individuals, including those maintaining self-managed superannuation funds.

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