

## Bitcoin: what to make of digital currencies

Bitcoins are just one of the over 900 new format currencies known as cryptocurrencies to have emerged over the past few years. As they have become more mainstream in their appeal the price of bitcoins and their crypto-cousins has skyrocketed, causing investors to wonder if they have been missing out. What then is a cryptocurrency, and should we consider these to be potential investments?

### What is a cryptocurrency?

Simply put, a cryptocurrency is a digital global currency created outside of the well regulated confines of the global monetary system. It exists only in the online world, and not in the physical world. This puts it out of reach of central banks, regulators and other watchdogs, making it the first independent, global currency.

It has no physical form, existing only through unique online software code which gives it the attribute of limited supply, something alien to the online world until now. Think of any piece of digital information you may have – you can simply copy it and send it on, with the recipient in turn sending it on again. Digital information in this form has no value as its supply is unlimited (it can be replicated for free). The key part to the rise of the cryptocurrency has come as a result of what is known as “blockchain” technology – essentially the ability to isolate unique pieces of digital information/code/bitcoins/cryptocurrencies, thereby limiting their supply and enabling them to become a store of value – as is the case with any traditional currency.

Bitcoin can therefore serve as a global transactional currency, with huge potential benefits in terms of the efficiency of global financial markets, payment for goods and services, protection against fraud, and broadening the scope of who can access ‘foreign currency’ by lowering the cost of access to anyone with an internet connection.

Bitcoin first emerged as a new form of global currency in 2009 in somewhat mysterious circumstances, with the founder remaining anonymous. Much like the internet itself had a founder but then became public property, bitcoins (and the related blockchain technology) have also become public property. Early users included the murky underworld, seeing the opportunity to conduct illicit business using bitcoins without the authorities able to track their activities (which as it turned out was a poor strategy, bitcoin keeps a full transactional record and this has been used to lock up a number of perpetrators).

As these cryptocurrencies by design have no traditional central bank to exert control, they are maintained and administered by the market which trades in them – a group of buyers, sellers and ‘miners’. New cryptocurrency ‘coins’ are created through a process called mining which is essentially the use of specialised software to break computer codes. As the codes are broken, coins are created. This attempts to replicate the same mechanism as mining for gold, also a scarce commodity. A completely transparent and publically available set of accounting records (the blockchain) ensures that all transactions ever conducted in bitcoins are publicly recorded, reconciled and verified.

Rather than monetary power being held and determined in the hands of a few central bankers, bitcoins are governed by the open market – to many a disconcerting attribute, but to others the ultimate safeguard of monetary value. Central bankers and the countries they act on behalf of have shown us that centralised governance (such as the devaluation of a currency, or more recently QE) can have material negative consequences for financial instruments. The appeal of cryptocurrencies to many has been the decentralised nature of how it is governed, with no single party able to control it.

Bitcoins are limited in supply by design – to 21 million coins. At present there are around 16 million in circulation, which increases as the miners are able to crack the various codes required to mint new coins. This limitation of supply helps preserve their value, and results in an ‘exchange rate’ – as you would expect with any other currency. You can for example buy 1 bitcoin for around R44,000 at today's rate. You can then use this bitcoin to buy any goods or services (in the physical, ‘real’ world, as well as the online world), provided the seller is willing to accept it as payment. This acceptance of bitcoin as a mode of transacting is becoming more commonplace, with global names such as Microsoft and Dell gladly accepting this form of payment, the country of Japan recognising it as official exchange, and a number of the more tech-savvy retailers in South Africa also open for bitcoin business.

It seems that bitcoins and cryptocurrencies are here to stay. What should investors be looking out for?

## Issues with cryptocurrencies

There are three main issues, outside of the shorter term issues such as a low number of willing dealers in cryptocurrencies, price volatility, and knowing which of the 900 cryptocurrencies to utilise in the first place.

### Security

The first and most obvious concern is that which relates to security. How do we know that the (anonymous) creation of bitcoin is not some elaborate scam? We take our hard earned R44,000, transfer it online and receive a single bitcoin in a digital wallet. No central bank backing, no underwriting by the gold standard, no reserve bank governors to set policy, no call centre or help line, just an online forum and the hope that your bitcoin is still there in the morning. In 2010 bitcoin was hacked and 184 *billion new coins created*, through a loophole which was quickly fixed and the transaction erased from the record. In theory the blockchain keeps everyone honest, through its public record and unique digital identity, but this new form of trust is expecting a lot from the average consumer.

### Governance

Its quite simple, there is none. To date governance comprises the fixed supply of 21 million coins, and the open forum accounting records to make sure the books balance, overseen by public participants and computer programmers. Is it impossible for more than 21 million coins to be issued, or for a hacker to find a way to create new coins, thereby diluting their value? It's too early to tell. But it's buyer beware. This decentralised management also highlights another key risk: collusion. Bitcoin based transactions are verified by the bitcoin community – is it possible they could collude to manipulate the book of record? Again, too early to tell. But it's a different set of risks to the current monetary system and by no means fool proof.

### Which cryptocurrency?

Despite individual cryptocurrencies being finite in supply which enables them to become a store of value and a medium of exchange, how are we to know which of the 900 coins will continue to exist in future? The world does not have the need nor the desire to support 900 new currencies, so there will likely be one or perhaps two winners. If you have decided to back the wrong currency, you may find no willing market to accept your coins, leading to loss of your capital. Even though bitcoin was the first cryptocurrency, newer versions are more advanced, more liquid and could potentially replace bitcoin quite easily as the dominant currency. Also, the fact that individual currencies are limited in supply (making them scarce, and therefore valuable) is not the same as it is for a commodity like gold, where total supply is limited. The 900 cryptocurrencies speak to that fact – there is infinite supply of cryptocurrencies.

### Are bitcoins and other cryptocurrencies an investment?

No. But then no currency really is. There is no yield, no interest, no dividend, no link to profits or productivity. Like any currency, its value is determined by relative supply and demand to *other currencies*. An exchange rate. Mostly this is a function of relative inflation and risks between the respective currencies. Putting this in perspective:

- We would expect for example the rand to depreciate against the US dollar by about 4% per year, given the fact our inflation is 4% higher than the US.
- With bitcoins, they have no country and therefore no inflation link. But they will depreciate by design as more coins are issued, but only to a (hopefully fixed) 21 million coins.
- The US dollar is amongst the lowest depreciating currencies in the world, a function of its stable environment, low inflation and low country risk. Assuming you see bitcoin as the ultimate global currency with no real reason to depreciate, this puts it at a roughly 6% advantage to the rand (6% being our inflation rate) – an expected 6% depreciation of rands vs bitcoin.

Six percent per year is therefore your best case expected return for holding bitcoins over rands. Bear in mind though there is no yield or interest earned on bitcoins (although this can't be far off, as banks cotton on to holding bitcoins and lending them out). So your net expected return for your R44,000 bitcoin is about 6% depreciation minus the 8% you could have earned in local money market, a negative 2% expected return per year. Crypto-fans could argue that these are the only currencies, potentially in addition to gold, which would preserve or escalate in value if the world's financial system descended into a debt induced spiral with hyper- inflation worldwide. A far stretch, and not a pleasant thought, but a possibility nonetheless.

Given that bitcoins have tripled in value against the US dollar this year alone, it seems unlikely that now is a good time to buy any. The implied halving of value of the USD vs the bitcoin this year, when the US inflation rate is around 2%, defies logic. More likely, the price of bitcoin is a symptom of a misunderstood instrument used as a speculative acquisition in a small, new market.

To conclude, the concept of cryptocurrencies and the associated blockchain technology is sure to make a lasting impression on the global financial system, possibly for the wrong reasons initially. However, the concept of a more efficient global currency is an appealing one, despite the fact that governments will be hesitant to hand the controls of the financial system to the public. For now, we prefer to watch these new dynamics play out from afar.

**Cryptocurrencies compared to traditional currencies:**

Item	Normal Currency (e.g. \$, €, ¥, £, ZAR)	Cryptocurrency (e.g. Bitcoin, Ethereum, Ripple and Litecoin)
Form	Physical notes and coins as well non-physical deposits and other forms of money market held by a financial institution.	Digital 'coins'
Issued / Created by	Each currency is issued by the relevant central bank (e.g. South African Reserve Bank or the Fed in the US) per country. Created using a mint or a printing press (physical) or through contractual agreement (non-physical).	'Mined' by anyone with a high powered computer and specialised software. Miners get paid in bitcoins per block of new coins created.
Security/Storage	Protected against fraud through various means (eg watermarks). Physically stored in secure access such as a vault. Online account protections, etc.	Blockchain based encryption preserves value and gives the specific coin an identity; accessed via online 'wallet' which holds the coins in safe custody. Each coin and related historical transactions can be traced.
Spending	Spend in any country and for any service or product where the seller is willing to accept this form of payment.	Follows the same principle, ie accepted form of payment depends on the willingness of the seller to accept Bitcoins or other cryptocurrencies
Value	Created through controlled supply through the relevant countries central bank. Limited supply = higher value. Value is also dependent on the currencies purchasing power in other currencies (ie the exchange rate).	Also created through controlled supply, in Bitcoins case through the physical limit of 21m coins as the maximum to be issued as they are 'mined'. Currently there are +-16m in circulation.

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data provided by Profile Data Analytics, Reuters and Datastream

		3m	YTD	1yr	3yr pa	5yr pa	10yr pa	5yr Vol <sup>1</sup>	10yr Vol <sup>1</sup>	
<b>LOCAL MARKET INDICES</b>										
FTSE/JSE All Share Index (ALSI)	ZAR	2.9%	10.6%	7.6%	5.5%	13.1%	10.0%	10.8%	15.2%	
FTSE/JSE SA Listed Property	ZAR	4.1%	6.1%	3.3%	13.8%	12.7%	14.6%	13.8%	15.2%	
SA All Bond Index (ALBI)	ZAR	1.6%	5.6%	7.2%	7.3%	6.1%	8.5%	7.7%	7.5%	
SA Cash Index (SteFI)	ZAR	1.9%	4.4%	7.7%	7.0%	6.3%	7.2%	0.3%	0.6%	
Balanced Benchmark <sup>2</sup>	ZAR	2.7%	8.4%	6.7%	7.8%	12.8%	10.6%	6.9%	6.9%	
SA Inflation (1 month lag)	ZAR	0.6%	2.9%	5.1%	5.4%	5.7%	6.0%	1.4%	1.4%	
<b>GLOBAL MARKET INDICES</b>										
Global Equity (MSCI World)	USD	4.4%	11.9%	13.9%	4.6%	9.4%	2.3%	10.0%	16.5%	
Emerging Markets Equity (MSCI EM)	USD	10.2%	25.5%	24.8%	2.4%	4.8%	2.0%	14.6%	23.4%	
Global Bonds (Barclays Global Bond Index)	USD	3.2%	6.2%	-1.3%	0.5%	0.9%	3.7%	4.6%	5.9%	
Global Cash	USD	0.3%	0.6%	0.9%	0.5%	0.3%	0.9%	0.1%	0.4%	
<b>MAJOR INDICES BASED TO RANDS</b>										
FTSE/JSE All Share Index (ALSI)	ZAR	2.9%	10.6%	7.6%	5.5%	13.1%	10.0%	10.8%	15.2%	
Global Equity (MSCI World)	ZAR	3.5%	9.3%	10.5%	14.3%	22.7%	11.1%	13.3%	13.8%	
Emerging Markets Equity (MSCI EM)	ZAR	8.6%	21.1%	18.8%	9.7%	15.2%	8.5%	12.2%	15.7%	
SA All Bond Index (ALBI)	ZAR	1.6%	5.6%	7.2%	7.3%	6.1%	8.5%	7.7%	7.5%	
Global Bonds (Barclays Global Bond Index)	ZAR	1.7%	2.4%	-6.0%	7.7%	10.9%	10.3%	11.8%	14.6%	
<b>COMMODITIES</b>										
Gold (US Dollars)	USD	0.1%	10.6%	-5.5%	0.5%	0.3%	0.2%	10.6%	7.4%	
Gold (Rands)	ZAR	-1.3%	6.9%	-10.1%	8.0%	4.7%	2.3%	11.8%	8.3%	
<b>CURRENCIES</b>										
Rand / Dollar	ZAR	1.1%	3.8%	5.6%	-6.8%	-9.1%	-6.0%	13.0%	15.9%	
Rand / GBP Pound	ZAR	-0.7%	2.1%	5.9%	1.2%	-5.9%	-1.9%	14.5%	15.5%	
Rand / Euro	ZAR	-6.7%	-7.2%	-0.3%	-2.8%	-8.3%	-4.6%	12.5%	13.7%	
<b>LOCAL UNIT TRUST SECTORS</b>										
SA Equity - General	ZAR	0.6%	5.5%	2.4%	3.1%	10.2%	8.0%	9.2%	12.4%	
SA Multi Asset - High Equity	ZAR	1.5%	5.5%	3.7%	5.3%	9.9%	8.1%	6.0%	7.1%	
SA Multi Asset - Low equity	ZAR	1.7%	4.8%	5.0%	6.3%	8.4%	7.9%	3.4%	3.6%	
SA Real Estate - General	ZAR	3.2%	5.5%	3.3%	12.7%	11.9%	13.1%	11.9%	13.2%	
Global Equity - General	USD	4.6%	12.5%	14.2%	3.8%	9.0%	1.8%	10.0%	16.3%	
Global Multi Asset - High equity	USD	4.5%	9.6%	10.6%	3.0%	6.7%	3.0%	7.7%	12.4%	
Global Real Estate - General	USD	3.7%	7.7%	-3.1%	1.7%	4.7%	1.3%	10.9%	21.3%	

Spot Rates		31-Jul-17	Latest Quarter	1 Year Ago	5 Years Ago	10 Years Ago	20 Years Ago
<b>CURRENCIES</b>							
Rand/US\$	Rand	13.2	13.1	14.6	8.2	7.1	4.5
Rand/GBP	Rand	17.4	17.0	19.7	12.8	14.2	7.5
Rand/EUR	Rand	15.6	14.9	16.3	10.4	9.5	NA
<b>RATES</b>							
Libor 6m \$	US\$	1.5	1.4	0.9	0.7	5.4	5.9
Repo Rate	Rand	6.8	7.0	7.0	5.5	9.5	NA
Prime	Rand	10.3	10.5	10.5	9.0	12.5	20.3
All Bond Index Yield	Rand	9.4	9.5	9.3	7.6	NA	NA
<b>COMMODITIES</b>							
Gold (\$/oz)	US\$	1,268.9	1,243.5	1,321.1	1,597.4	649.7	334.6
Platinum	US\$	938.0	922.0	999.0	1,428.0	1,279.0	430.0
Oil (Brent Crude) \$	US\$	52.5	47.8	49.6	95.4	71.0	18.6
<b>INFLATION</b>							
SA Inflation	%	NA	5.1	6.3	5.5	5.8	9.4

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