The Moon Isn't Made Of Gold

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Overview

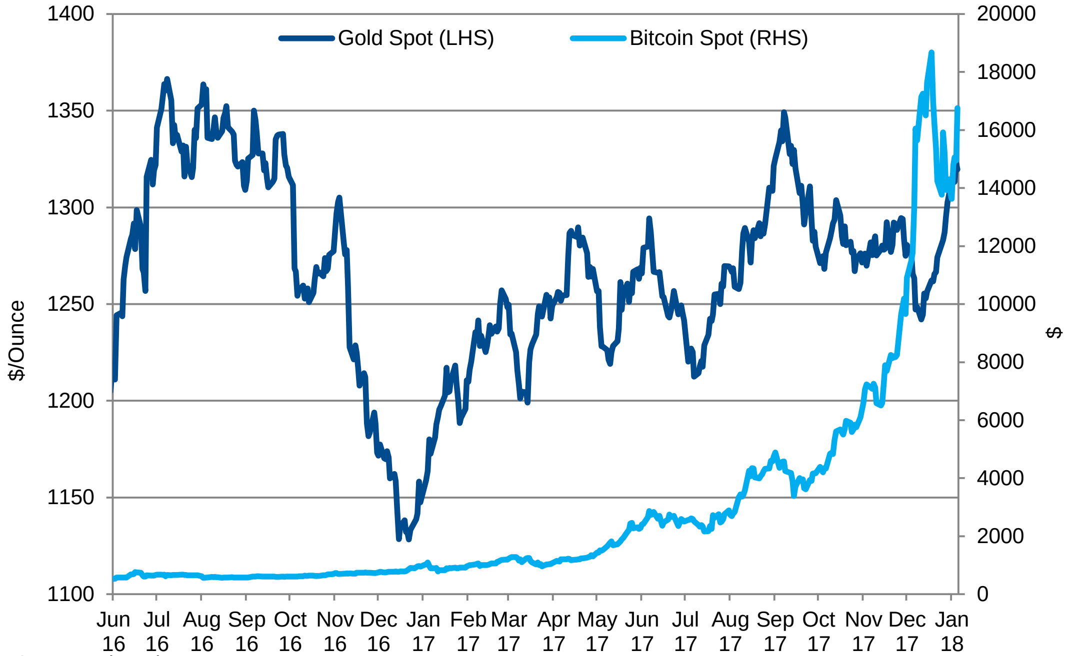
2017 has seen an unprecedented boom in cryptocurrencies, with 1384 digital tokens available at time of writing. The most famous of these decentralised currencies is undoubtedly Bitcoin, which currently holds 35% of the market cap at approximately $250bn. As an asset, Bitcoin has drawn numerous comparisons to gold, largely due to perceived similarities in limited supply, lack of yield and safe haven appeal. This has fuelled speculation that Bitcoin may be acting as a gold substitute, affecting demand for the precious metal.

'Gold for millennials' has become an increasingly popular term among financial commentators to describe this relationship. However, a closer comparison and examination of these assets suggests this link is more tenuous than commonly perceived. We expect it is unlikely that Bitcoin's rising popularity has had any significant impact on gold prices.

The rise of Bitcoin from a niche asset of a small community to mainstream adoption has received unprecedented media attention, drawing praise and criticism alike. At time of writing, Bitcoin has risen to $16363.5/XBT, up 1550% y/y despite setbacks such as regulatory crackdowns, security issues, scaling problems, and a number of significant crashes. The most recent crash saw prices fall briefly 44.8% from an all-time high of 19511 set in December. Bitcoin has rallied since, but remains down 17.6% from December's high.

At time of writing, CBOE futures trading suggest the market remains relatively bearish following the crash and slow recovery, with non-commercial net length at 1688 contracts short. In addition to the recent launch of futures by CBOE and CME, there have been indications that binary Bitcoin options are being explored by various firms, potentially adding to the burgeoning suite of financial products tied to the digital asset.

Gold vs Bitcoin Spot Price: *Despite a series of crashes, Bitcoin prices saw parabolic growth over most of 2017. Gold prices have been relatively subdued.*



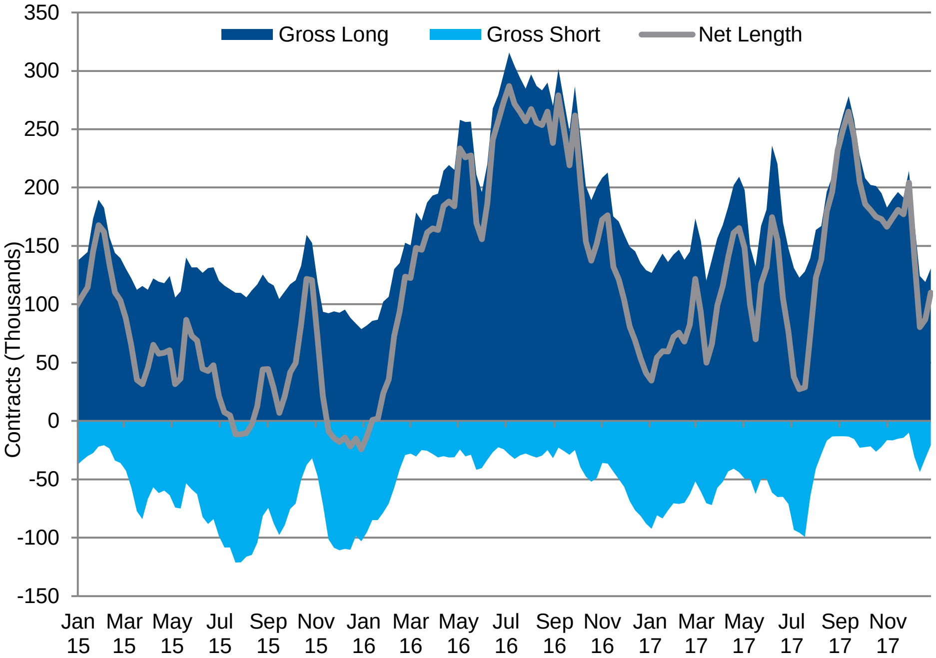
Source: Bloomberg

Similarly, gold has seen a strong year. Prices briefly rallied to a peak of $1357.6/oz in September, supported by safe haven demand and dollar softness, before retreating in Q4 under a slight recovery in the dollar, disappointing physical demand, and tighter US monetary policy. However, a seasonal rally in December and further weakness in the greenback saw prices take back losses and close the year at $1302.8/oz, up 13.2% y/y. In comparison, silver gained 6.29% y/y.

"…Federal Reserve economists have projected further increases in the base rate to 2.1% in 2018…"

The CFTC commitment of traders report reflects the end-of-year rally, with managed money net length closing the year at 110,000 contracts long, up from December's low of 80,453. Interest rates remain highly influential on gold prices, and following 3 25 basis point hikes over the past year, Federal Reserve economists have projected further increases in the base rate to 2.1% in 2018.

Commitment of Traders Managed Money Net Position: *Bullish sentiment weakened somewhat over 2017, with geopolitical concerns causing a temporary spike in September.*



Source: Bloomberg

Demand: A difference in demographics

Comparisons of investor demographics form perhaps the strongest argument for the divide between gold and Bitcoin. For gold, central banks make up some of the strongest buyers, accounting for 110.98t of bullion demand in Q3. World gold reserve holdings currently stand at 1080.4 million ounces, up from 1069.51 at the start of 2017. Other prominent investors include businesses and high net worth individuals, with institutional ownership accounting for 40% of the largest gold ETF, the SPDR Gold Trust.

"…we see acceptance of Bitcoin among financial institutions to occur very gradually…"

In comparison, institutional investment in Bitcoin has been minimal, with concerns over money laundering, cyber theft and terrorist financing providing regulatory hurdles. The SEC ruled against a Bitcoin ETF in March largely due to these concerns. Going forward, we see acceptance of Bitcoin among financial institutions as occurring very gradually, as prevailing scepticism and concerns over volatility and regulation delay widespread adoption. However, the potential arrival of Bitcoin ETFs in 2018 may expedite this process.

"…younger demographics are overrepresented in this investor pool…"

In contrast to bullion, the vast majority of Bitcoin sales are made to retail investors, with registered wallets on Blockchain, the most popular wallet provider, currently standing at over 21.8m. As has frequently been noted, younger demographics are overrepresented in this investor pool, with cryptocurrency popularity strongest amongst millennials.

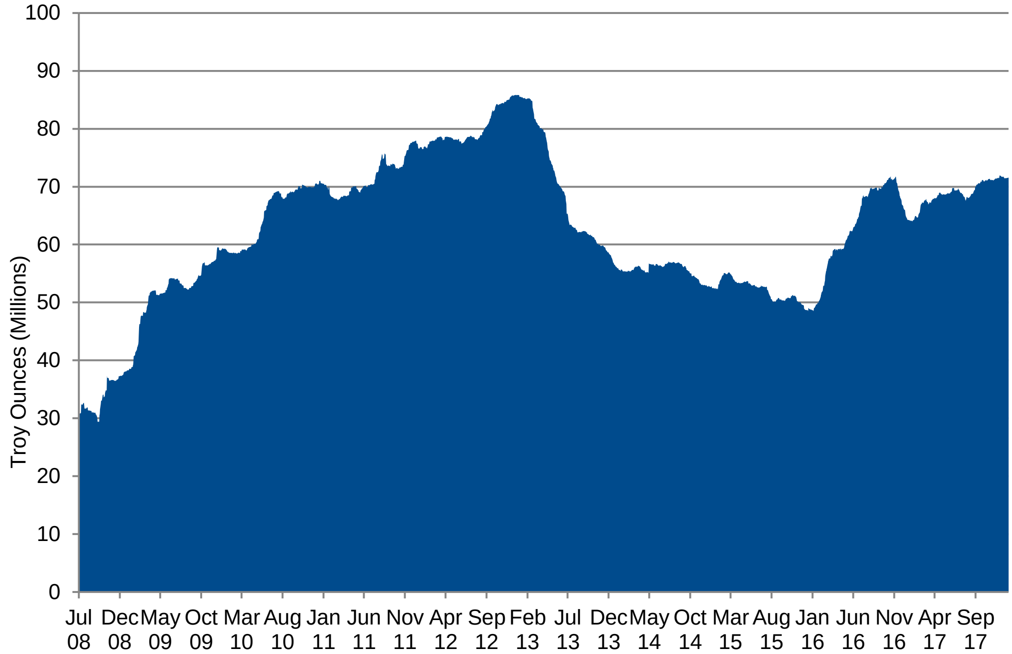
A recent Blockchain Capital survey found that 4% of US citizens aged 18-34 have invested in Bitcoin, and 16% were very likely to purchase it in the coming years. Comparatively, these figures fell to 1% and 13% for those aged 35-44, and 1% and 2% for those aged 45-54. Asset preferences are similarly split over generational lines, with 19% of millennials preferring Bitcoin investments over gold, compared to 13% and 2% for those aged 35-44 and 45-44. We expect this generational gap will slowly close as cryptocurrencies continue to gain legitimacy, with greater non-millennial involvement presenting a possible upside risk for Bitcoin and its alternatives.

World Gold Council statistics place consumer gold demand for the first three quarters of 2017 at 2212.6t, up 6% y/y. Appetite was particularly strong in China and Germany, which accounted for 705.3t and 85.6t respectively over the 9 month period. Interestingly enough, rising Chinese and German gold demand coincides with surging Bitcoin usage in these countries.

"…58% of Bitcoin mining occurs in China…"

A University of Cambridge 'Global Cryptocurrency Benchmarking' study has estimated that 58% of Bitcoin mining occurs in China, whereas Germany has recognised Bitcoin as a 'unit of account', allowing its use for tax and trading purposes. These factors suggest that, contrary to popular belief, growth in cryptocurrency usage and investment has had a minimal impact on the bullion market. Indeed, evidence for outflows from gold into cryptocurrencies is limited; ETF holdings of gold currently stand at 71.593m troy ounces, up 12% YTD.

Gold ETF Holdings: *ETF holdings of bullion saw steady growth over 2017, and remain near 2016's highs.*



Source: Bloomberg

Safe Haven: The Moon is not made of gold

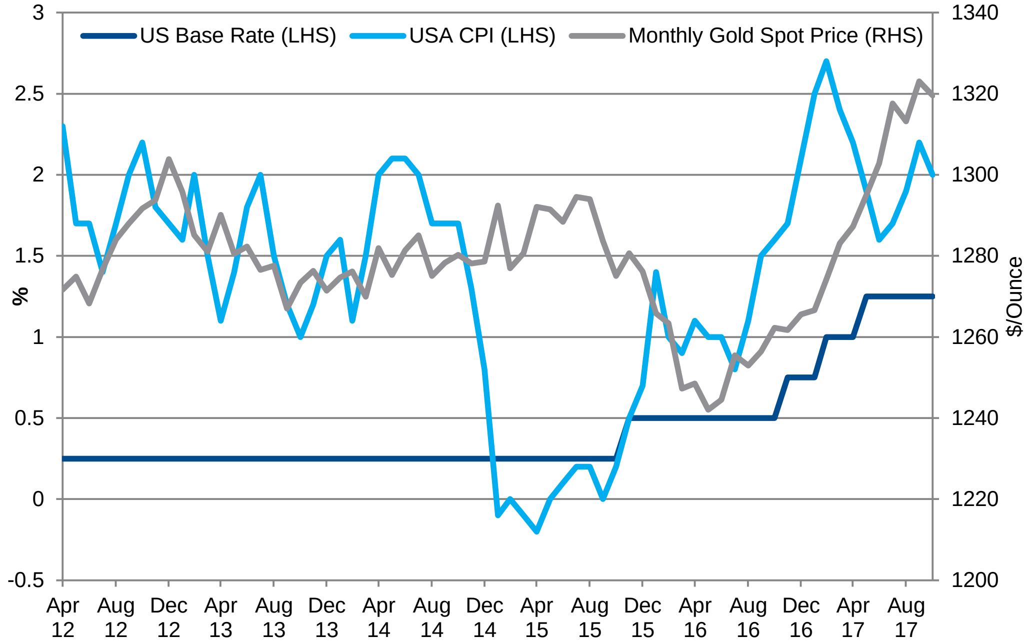
Gold is the traditional safe haven investment, representing a reliable store of value and a hedge against market volatility, inflation and geopolitical risks. Consequently, interest and demand for the metal are often higher in times of significant uncertainty. This was clearly observable in September, where trading volumes and prices for the yellow metal spiked higher following North Korea tensions, briefly reaching a high of $1357.61/oz. The emergence of similar trends in Bitcoin has fuelled speculation that the cryptocurrency also holds safe haven appeal.

Bitcoin saw a period of mass adoption in Zimbabwe as a military coup and lack of physical currency saw Zimbabweans store money in cryptocurrency assets, purchasing Bitcoin at very high premiums. Similarly, an economic crisis in Venezuela saw businesses and individuals move from depreciated fiat currency to Bitcoin. These events have commonly been interpreted as Bitcoin substituting for gold. However, we believe other factors are at play in the use of Bitcoin as a crisis currency.

"Bitcoin, unlike gold, can be widely used as medium of exchange..."

Bitcoin, unlike gold, can be widely used as medium of exchange, with online retailers such as Overstock, Newegg and Microsoft accepting Bitcoin payments. This has allowed citizens to purchase essential goods unavailable domestically, such as medicine, from international retailers. Such transactions usually only require a mobile phone and internet connection, making Bitcoin a convenient alternative in countries where these are more readily available than bank accounts. A 2017 GSMA Intelligence report found that mobile phones had a 43% penetration rate in Sub-Saharan Africa. Comparatively, gold lacks a payment mechanism and presents difficulties in transportation. Given these factors, we believe it is unlikely recent crises would have generated significant gold demand, even disregarding Bitcoin.

Gold Vs US CPI & Federal Funds Rate: *Gold prices have risen as inflation picks up, despite base rate hikes. This reflects gold's value as a hedge against inflation.*



Source: Bloomberg

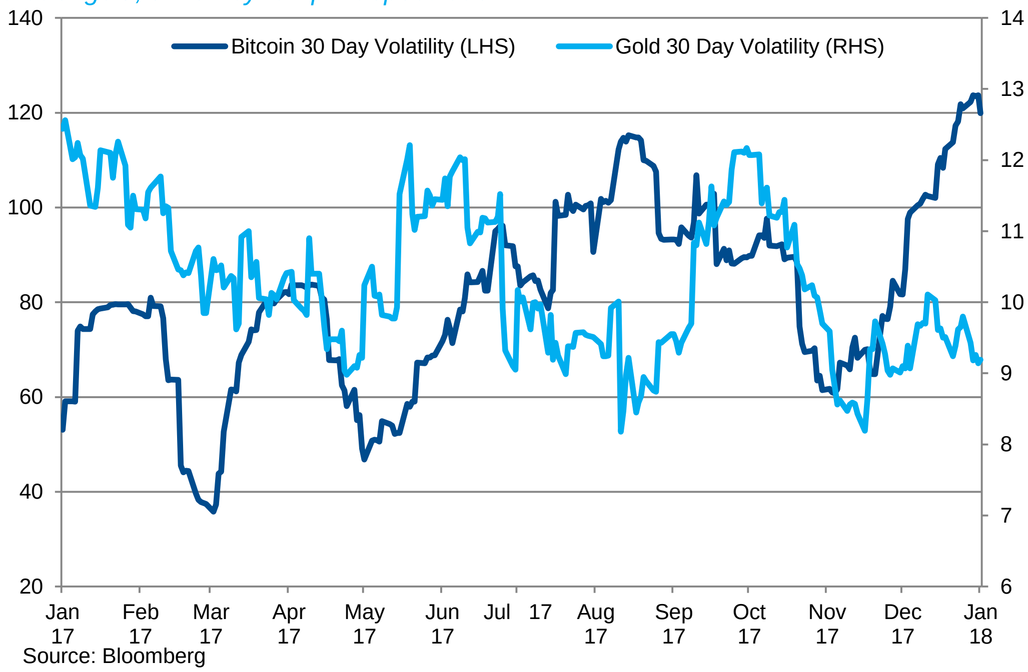
"…inflows into Bitcoin have been extremely speculative in recent months."

On a more global scale, there is limited evidence for Bitcoin as a store of value. Quantitative studies have produced mixed results, with some suggesting it could provide protection against downside movements in various currency and equity markets, while others argue it is a poor hedge and provides only diversification. However, it is clear that in practice Bitcoin has not been widely used for hedging purposes. It has been noted by numerous exchanges that inflows into Bitcoin have been extremely speculative in recent months, as evidenced by exponential growth in Bitcoin wallets registration and public interest. The phrase 'to the moon' is frequently used among investors to express this bullish sentiment.

An investor survey conducted by Bank of America in December found that long Bitcoin was the world's most crowded trade, and anecdotal stories have surfaced of mortgages and credit card usage in Bitcoin investment. This suggests completely different cash flows than those into gold; it can be said that whereas risk aversion drives demand for gold, risk appetite drives demand for Bitcoin. Rampant speculation has driven significant volatility in recent months. At time of writing, Bitcoin/USD 30-day volatility stands at 134.61. Comparatively, spot gold volatility is 9.14.

Due to its decentralised, unregulated network, Bitcoin carries a heightened risk of cyber theft, and a reputation of money laundering. High profile hacks include Mt. Gox, Bitstamp, Bitfinex, with approximately 989,000 Bitcoins stolen between these exchanges, roughly $14bn in today's prices. This lack of security is likely to act as a deterrent for investors looking for a safe haven, and consequently we do not see Bitcoin presenting a downside risk to safe haven gold demand in the immediate future.

Bitcoin & Gold Volatility: *Bitcoin regularly faces volatility a magnitude higher than that of gold, driven by rampant speculation.*



Source: Bloomberg

Supply: Scarcity vs diet scarcity

While an examination of demand reveals a clear divide between gold and Bitcoin, this distinction is arguably much less clear on the supply side. Indeed, both gold and Bitcoin bugs will cite rarity and limited supply when advocating for their respective assets. These shared qualities have formed the basis of many gold/Bitcoin comparisons, many of which fail to capture important distinctions between the asset classes.

While mineable deposits of gold are uncertain, supplies in the earth's crust are finite. According to the World Gold Council, global mine supply for 2016 came in at of 4592.9t, up from 4318.5t in 2010. In the coming years, mine supply may experience volatility as high grade ore deposits are exhausted and new mining operations begin. Much like gold, the total supply of Bitcoin is finite, with a mathematically certain limit of 21m coins. Bitcoin is currently mined at a steady rate of 1800 BTC/day, with 12.5 Bitcoins awarded per block mined.

Unlike gold, the Bitcoin network automatically adjusts the difficulty of mining to maintain production at set levels, regardless of mining activity. Furthermore, the 'block reward' is set to halve every 210,000 blocks, halving daily production. The next halving is expected in June 2020.

"…16.790m Bitcoins have been mined, and of these between 2.78m to 3.79m have been lost…"

At the time of writing, approximately 16.790m Bitcoins have been mined, and of these between 2.78m to 3.79m have been lost, according to estimates from data analytics firm Chainalysis. However, in our view the scarcity of Bitcoin is far less meaningful than that of gold; we feel it is essential to acknowledge that these assets face a variety of competitors beyond each other.

Whereas gold is the undisputed leader among precious metals, with a limited number of competing assets and few substitutes in jewellery or industrial usage, this is far from the case with Bitcoin. Recent months have seen the development of numerous alternative cryptocurrencies, many of which are based on the original Bitcoin and Ethereum blockchains.

Litecoin, Bitcoin Gold, and Bitcoin Cash are prominent examples of this. While the supply of Bitcoin remains fixed at 21m, the similarity and ease of producing substitutes potentially renders this limit relatively meaningless. The fact that the popularity and widespread adoption of Bitcoin, rather than its technical capabilities, are among the most prominent reasons it has outperformed other coins makes the threat of competition particularly concerning for Bitcoin investors.

Indeed, in terms of functionality Bitcoin is inferior in many regards, suffering from slow transactions and high fees in comparison to its 'second generation' competitors. The cryptocurrency community remains split on which token will become the leader in the cryptocurrency field, and this divide may present significant downside risk to Bitcoin over the coming months, as alternative currencies erode Bitcoin's market share. The ongoing conflict between Bitcoin and Bitcoin Cash exemplifies this. Consequently, though tight supply side fundamentals may be somewhat supportive of Bitcoin, this is likely to be a far cry from gold which has proven itself immune to technological disruption.

Mining: Plenty of ore, very expensive drills

Unlike gold mining, cryptocurrency mining is not geographically constrained. Indeed, large Bitcoin mining operations are found in a variety of countries, including Sweden, Venezuela, Estonia and Thailand. However, in reality, the significant infrastructure and energy requirements of Bitcoin mining render it unprofitable in many countries.

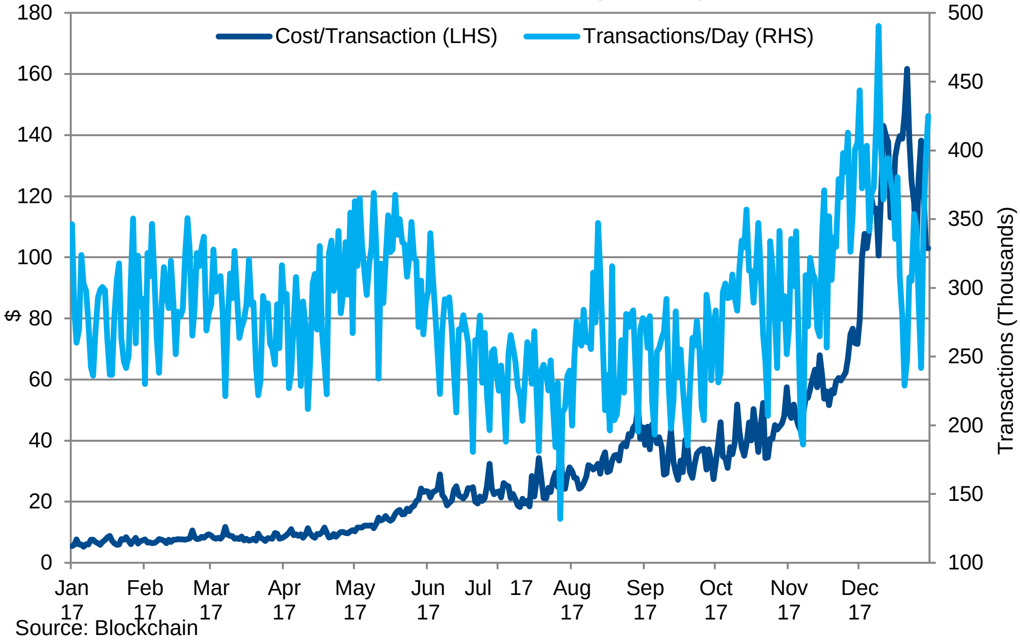
Locations with cheap electricity, stable internet and cold weather are some of the most advantageous for mining. Currently, China plays a pivotal role in both Bitcoin and gold production, accounting for approximately 58% of major mining pools according to the University of Cambridge Cryptocurrency Benchmarking study, and 14.3% of annual gold mine supply according to World Gold Council statistics.

In addition to providing digital tokens, cryptocurrency miners play the essential role of processing transactions. This is achieved through writing the details of the transaction, such as amount, recipient and provider, into a block, a collection of transactions. This block is then 'mined', added to the general blockchain ledger.

Consequently, Bitcoin's functionality as a medium of exchange relies heavily upon the continued support of miners, which is not always guaranteed. For example, the last few months have seen computation activity, hash rate, migrate from Bitcoin to alternative cryptocurrencies, particularly Bitcoin Cash and Litecoin. Given the crucial role miners play in Bitcoin's network, this may present a further downside risk as other cryptocurrencies gain a place in the market.

In prior years, miners processed transactions without charging fees, due to lower demand for transactions and a larger Bitcoin reward. However, due to the halving process and a surge of interest in digital currencies, average transaction costs have risen exponentially. The speed at which a transaction is processed is determined by the fee paid, with higher fees receiving priority. At time of writing, average transaction fees stand at $26.3, up from $0.35 at the start of 2017. Average transaction times take 70 minutes to confirm. Scaling solutions such as the Lightning network and SegWit and are being developed to address these issues, however, these have not yet seen completion or widespread adoption.

Transaction Costs Vs Number of Transactions: *As the Bitcoin network becomes more crowded, the cost of transactions has risen significantly*



Source: Blockchain

Markets and Financial Characteristics

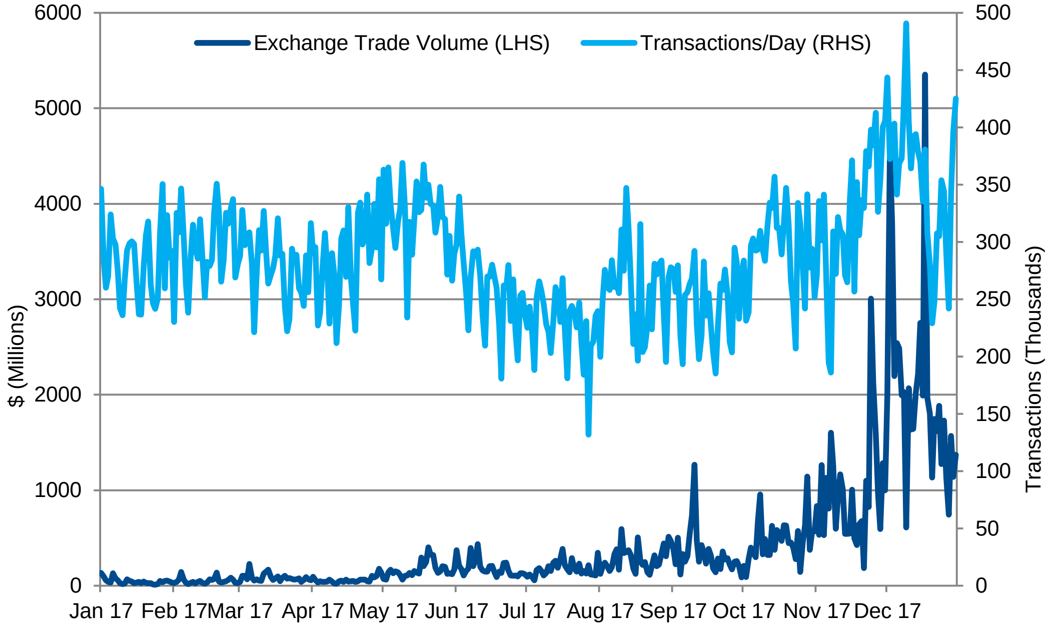
Given cryptocurrencies have no earnings, cash flow or P/E ratio, valuation techniques do not follow traditional approaches. Much like gold, price activity in Bitcoin relies primarily on demand, supply, and sentiment, rather than notions of intrinsic value. Though the price drivers of these assets may appear comparable, this view overlooks significant differences in financial characteristics.

"…we expect 2018 will see a number of additional forks."

For instance, whilst gold is a non-yielding asset, this is much less clear for Bitcoin. Bitcoin investors received a windfall of alternative cryptocurrencies over the course of 2017, through a number of hard forks of the Bitcoin blockchain. While most Bitcoin derivatives failed to attract community interest, notable examples include Bitcoin Cash and Bitcoin Gold, which are currently valued at $2,292 and $218.58 respectively. With interest in Bitcoin remaining high, we expect 2018 will see a number of additional forks.

While gold markets are some of the largest and most liquid in the world, this is far from the case with Bitcoin, or indeed any cryptocurrency. According to the World Gold Council, the gold market has a total value of approximately $7.7 trillion as of 2017. Admittedly, financial gold accounts for only a fraction of this, approximately $1.64tn when ignoring central bank reserves. However, liquidity is far greater than other major financial assets, with the value of daily gold trades exceeding that of German Bunds, UK gilts, and all stocks on the all S&P 500 combined. Daily volumes reached $25.9bn on the London Bullion Market alone in November.

Bitcoin Exchange Volumes & Daily Transactions: *Bitcoin exchange volumes experience significant volatility, reflecting interest in the asset.*



Source: Blockchain

"…daily volumes of COMEX front month gold futures currently stand at 158,000…"

"The USD, JPY and KRW account for 38.85%, 34.12% and 4.3% respectively of all Bitcoin transactions."

The Bitcoin market is small in comparison, with a total market cap of $250bn. While daily trading volumes are relatively strong at $17.6bn, the market faces significant issues with reliability and trade execution times, making it difficult to enter or exit the market at listed prices. Liquidity of the Bitcoin derivatives market is also exceptionally poor compared to gold. At time of writing, daily trading volume of CME Bitcoin futures stands at 595 contracts, with an underlying contract size of 5 BTC. Comparatively, daily volumes of COMEX front month gold futures currently stand at 158,000; the contract size is 100oz. This disparity in scale of both the physical and financial markets of these assets calls into question the influence a bullish run in Bitcoin could have had on gold prices.

Whereas gold, like most commodities, is priced in USD, Bitcoin transactions span a range of currencies. The USD, JPY and KRW account for 38.85%, 34.12% and 4.3% respectively of all Bitcoin transactions. Trading is largely dominated by a small number of exchanges, with Bitfinex, GDAX, Bitstamp and Gemini collectively accounting for over 70% of all exchange trading.

This variety in currencies and exchanges has made pure arbitrage opportunities extremely common. Indeed, during the height of Zimbabwe's political crisis in November, the Zimbabwean cryptocurrency exchange Golix saw premiums of nearly 100% above that of international exchanges. However, these arbitrage opportunities are often hard to exploit, often due to significant differences in trading volumes between exchanges, long transaction times and high fees, and difficulties in depositing fiat currency.

Additionally, differences in prices often reflect trust in the exchange. For example, prior to its collapse, prices on the Mt.Gox were low, reflecting lack of faith that money could be freely withdrawn. Comparatively, the liquidity of gold markets and common usage of the dollar has prevented these issues.

In conclusion, while on the surface gold and Bitcoin appear to be substitutes, a comparison of their characteristics, markets and recent price action may not be particularly meaningful, revealing little save for the thrill of speculation. It is admittedly improbable that the meteoric rise of Bitcoin has had no effect on gold; over the last few months it was common to hear stories of gold investors developing an interest in cryptocurrencies. The Old Mutual gold fund, which views Bitcoin as a complementary asset to gold, is a particularly prominent example. However, institutional investors that have invested heavily in Bitcoin remain few and far between. Despite significant growth in recent months, cryptocurrencies remain an emerging asset class, with huge variety in coin design and purpose. While we do not foresee it fading into obscurity in the near future, we do not anticipate that it will ever be a serious substitute for the long-established gold market.

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