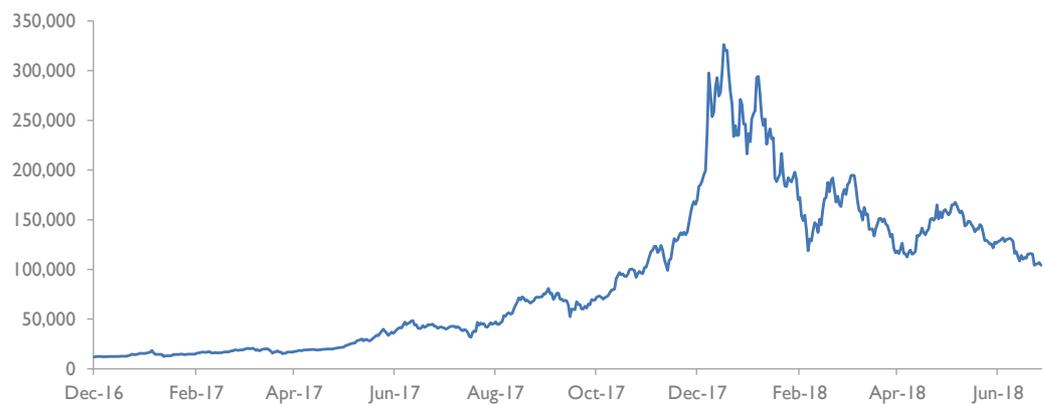


The Bitcoin Bubble: Invaluable but Overvalued

After the launch of the first Bitcoin futures by mid-2017, the total market capitalisation (number of Bitcoins multiplied by their price) has reached \$100 billion (Figure 1) after having overcome the \$300 billion threshold by late that year. In this report we try to analyse whether or not the bubble still lingers. When asked whether the Bitcoin situation is a bubble, many technologists reply stating that Bitcoin is 'invaluable'. Something similar was said of the 'tech' company terra.com in 2000 as with many Nasdaq stocks; they were invaluable, but they were overvalued.

Figure 1: Bitcoin market capitalization (in millions of dollars)



Source: Blockchain.info

A video¹ published by The Wall Street Journal presents a very practical experiment in which a person tries to make physical purchases in different stores offering Bitcoins as a means of payment. The difficulties he encounters present some of the problems with Bitcoin as a means of payment; with their high transaction costs, at times over 10%; the high volatility, even in intra-day terms; and the delay in the execution of the transactions. This is depicted through how a pizza that cost \$10 in the pizzeria can end up having a final price in Bitcoin of \$76.

1. Price and value

“Something is worth only what someone is willing to pay for it.” This paraphrase of the law of supply and demand was spoken by a former Spanish financier who ended his days in jail. It appears very suitable for the current situation with Bitcoin. The debate over whether or not this presents a bubble is based on analysing whether the price represents the value (price being what you pay, and value what you get). In general the way to assess the value of an asset is by using the following acronym:

CIMITYM

“Cash is more important than your mother”. Discounted cash flow gives us an idea of the current value of a project, company or asset. When we buy a currency, such as the pound or

Ignacio de la Torre, Ph. D.

idelatorre@arcanopartners.com

+34 91 353 21 40

Leopoldo Torralba

ltorralba@arcanopartners.com

+34 91 353 21 40

¹<http://www.wsj.com/video/what-you-can-buy-with-bitcoin-a-10-pizza-for-76/9FE251D5-1BC4-4E6B-BA0F-E3424CDA9263.html>

the dollar, we usually buy it in the form of bonds, which offer a return, and thus cash flows that can be valued. If we believe that the bonds will go down, we buy the currency in cash since it has purchasing or exchange power worldwide, i.e. I could buy goods with pounds or change pounds back to euros and buy goods with my euros.

An exception to this rule of valuation (CIMITYM) is gold. For millennia humans have accepted gold as a method of exchange. A major reason for this use is that gold is enduring (rice, for example, which has also been used as a method for exchange, is not), and that its supply is limited, dependent on its mining. The Bretton Woods system which experienced a 'temporary' breakdown in the summer of 1971 priced gold at \$35 an ounce, with it now worth around \$1,200. The question now remains as to what the current value of gold is if we cannot value it by cash flow. As Warren Buffet is quoted as saying "gold gets dug out of the ground in Africa, or someplace. Then we dig until we extract it, we transport it to big cities and we bury it again, paying a guard to stand around guarding it. It has no utility. Anyone watching from Mars would be scratching their head."

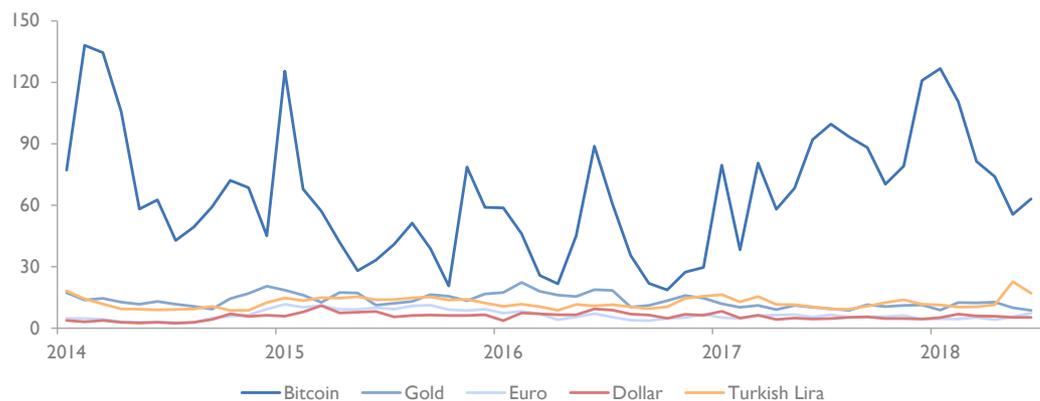
2. Financial and economic price

When it is difficult to determine a value it can be helpful to refer to classical theorists, in this case, Adam Smith, who explored the difference between economic and financial prices of assets. The latter is the relationship between supply and demand at a given moment in time. The economic price refers to the marginal cost of producing a good. For example, a small bottle of mineral water can cost about 50 cents to produce and provide the manufacturer with a decent return when sold at that price. However, if I have a small bottle of water in the middle of the desert and many others do not have one, it is then possible for me to attain a greater return, selling it at a higher price, which would give the financial price. Adam Smith theorised that sooner or later the economic price ends up converging with the financial price, since if there is a difference between the two an incentive to increase production is generated. And meanwhile, the high financial price can also reduce demand. Both processes (more supply, less demand) will make converge the financial price to the economic price.

3. The price of Bitcoin

Regarding Bitcoin, we are reaching a point where there is great confusion between the price and the value. If I buy a Bitcoin at \$6,000 I would expect a higher value that justifies the greater risk that comes with it (it is extremely volatile, over 60%; while the volatility of currencies like the euro or dollar are less than 3%), Figure 2.

Figure 2: Volatility of gold, several currencies and Bitcoin



Source: Bloomberg

When analysing the financial price of Bitcoin it is interesting to see that there is a direct correlation between its price and the number of Google searches for Bitcoin. As more people become interested in the asset, with greater media publicity, and supply remains limited, the price undoubtedly rises with more people looking to get in on this market, generating a virtuous or vicious cycle depending on which way you look at it. It is also interesting to note that given that Bitcoin's underlying technology is the Blockchain, which implies total anonymity, a part of the demand may be linked to illegal activities, such as financing an illegal referendum (such as in the case of the Catalan referendum, paid for with Ethereum, a Russian cryptocurrency), or money laundering, a sector that could represent more than 10% of world GDP. Additionally, part of the demand for Bitcoin and other similar assets stems from trust in its security, however, the markets that trade Bitcoin and other cryptocurrencies have already been hacked. Youbit, the Korean Bitcoin market lost 17% of its assets in December of last year due to a cyberattack, which has meant investors can only recover three quarters of their money. The Japanese MT Gox market declared bankruptcy in 2014 after a cyberattack which made 850,000 Bitcoins disappear, the same happened with the Hong Kong Bitfinex market, which lost \$70 million. These events have generated substantial losses for investors, which has, in some cases (China and Korea), encouraged the intervention of regulators and could result in lower future demand.

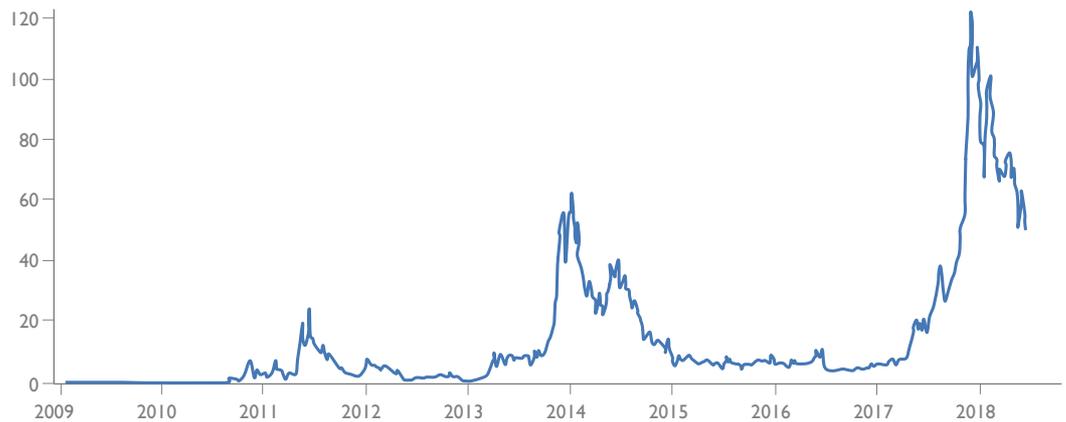
Additionally, the demand for Bitcoin is greatly dependent on trust and confidence in the system, believing that it can become a universal means of payment. However, in practice, it is not. Bitcoin is not accepted in many places and with its high volatility and the large transaction cost (which can be up to 10%) does not appeal as being a useful means for payment.

Finally, as we will expand on later, there are important reasons why governments will end up regulating and intervening in demand markets, limiting the demand, which could affect the price.

On the supply side, the most important feature of Bitcoin is that it is finite. There cannot be more than 21 million Bitcoins, of which already about 17 million (80%) are in circulation. The generation of Bitcoins requires a complicated mathematical process that involves the intensive use of computer programming, which in turn consumes a lot of energy, hence the producers (known as 'miners') are usually based in countries where energy is very cheap such as Russia or Venezuela. With limited supply and theoretically huge demand the price is bound to be very high. However, as Smith explained, high demand generates greater supply, and if Bitcoin is not able to provide this supply, other cryptocurrencies will benefit, such as EOS, Ethereum, Ripple or the numerous other recent ICOs.

It is interesting to note when analysing the economic price of Bitcoins that generating new Bitcoins requires increasingly more mathematical computing, increasing both the energy and time needed, and thus making it more expensive. If the price of Bitcoins remains high, the miner is incentivised to continue investing time and money in generating new coins. However, if the price drops, the miner has a lower incentive to do so, with a smaller profit margin, and may rather decide to dedicate his time to verify Bitcoin transaction, made through blockchain. That is to say, transaction costs will increase even more, and are already extremely expensive, which will cause a lower demand for users perceiving a transaction cost higher than expected (Figure 3). The risk here is that the situation reduces demand, generating a vicious cycle between miners and 'users'. Important to note that the inventor of Bitcoin, who goes under the pseudonym Satoshi Nakamoto (it is unknown if this is one person or a group of people) owns almost a million Bitcoins, 5% of the total, which translates to a 'fortune' of \$5.2 billion. What would happen should Nakamoto decide to sell off a large portion of his holdings? Given the narrowness of the market, it could cause a spiral, which would encourage people to return to analysing the fundamentals.

Figure 3: Cost per Transaction in Dollars



Source: Blockchain.info

4. Can Bitcoin be valued?

Valuing Bitcoin is no easy task. Some consider it to be a currency, with its characteristics of unit of account, means of payment and deposit value, while other believe that, given its enormous volatility, it does not truly satisfy the requirements of being a reliable deposit value. Furthermore, as a means of payment, it is very difficult to ever reach levels that are not even comparable to the main currencies of the world, since the network effect means that the bulk of the populations only admits the official money, being the only one that guarantees them that will be accepted by all when they want to buy goods and services (something that people do not want to "do experiments with"). Additionally, the government will only accept the official currency for tax, which will encourage citizens to always work in a preferential manner with regards to it. For these reasons, many consider Bitcoin to be an alternative investment asset rather than a currency. But again, assessing it in this manner is very complicated; there are no projected cash flows enabling discounts, nor multiples that can be used in an analysis of any comparable concept, nor income generated, and not even an industrial use that would give it some value. In this sense, it is very comparable to gold, with little industrial use, or works of art, and to a lesser extent, to raw materials – although these have a great industrial use.

When valuing a local currency, the pricing is generally determined by the expected level of supply and demand, which fluctuate freely in the market, and these in turn are dependent on factors such as productivity or inflation, affecting imports and exports, or the level of interest rates (for example, when they rise, the currency appreciates because foreign investments in local assets increase). It is worth noting that some of these factors are strongly influenced directly by the decisions of central banks. However, Bitcoin differs greatly in this respect, since it does not depend on macro fundamentals of a specific country (it is a global 'currency'), nor of any central bank (apart from being global, it is a decentralised system, not dependent on any entities such as central banks).

Another common method for valuing a currency is the so-called theory of purchasing power parity. This method assumes that, over an extended period of time, the value of a currency is determined by identical goods costing the same throughout the world; that is to say, a Big Mac should cost the same in New York as it does in London, with the dollar-pound exchange rate adjusted to ensure that this axiom is fulfilled. If a Big Mac costs \$4 in New York and £2.50 in London, then the pound should be worth \$1.60 (4/2.5). Considering that for this method of valuation, calculations are made on a bundle of homogenous products in different countries from

different stores, it cannot be used to value Bitcoin due to how it is not generally accepted as a means of payment in stores.

Regarding valuing Bitcoin as an alternative asset similar to gold (without income or cash flow etc.) rather than a currency, the valuation would depend on the expectations of the evolution of the buying (demand) and selling (supply) pressure. Since Bitcoin's only practical purpose today is as a means of payment (despite its limited acceptance), to predict the future buying pressure we would have to estimate how many people globally will adopt and accept this – its valuation evolution is dependent on the number of users, similar to social networks or large payment processing companies such as Visa or Mastercard. In this regard, the most positive factor is the discredit of many central banks after the crisis in terms of their capacity to control inflation in the future and, therefore, to put at risk the price of currencies, which in inflationary scenarios would have less ability to buy goods (after having printed the central banks large amounts of money, something that could not be done with the Bitcoin for having a rigid offer of existing units, 21 million). On the other hand, the negative side, the fact that Bitcoin will essentially have to compete with official currencies, which practically run a monopoly as being the only commonly accepted means of payment in a system where the network effect is essential, will make it very difficult for it to truly take hold. Additionally, governments will strive to support central banks' monopolistic position with regards to money creation, a very powerful economic policy tool, without which, for example, the 2008 crisis may have had a much more damaging effect on countries worldwide.

To better illustrate how a Bitcoin valuation should be conducted, as well as highlighting the difficulty of exacting the most accurate results, we will explain a possible reasonable and understandable method, based primarily on its use as a means of payment. Usual money supply for a market is defined as M3, which brings together transactional money held by the population (for use of purchases) with deposits and similarly liquid instruments (used as reserves of value-savings). Currently, given Bitcoin's high volatility, we assume that the second part of M3 valuations (deposits as a reserve of value) will hardly contribute at all. In order to carry out this valuation, it is first necessary to hypothesise what proportion of global transactional money supply Bitcoin accounts for, this would have to be over an extended period of time, and thus, given its extremely high volatility, would have to be carried out at a very high discount rate. This would give us a valuation for Bitcoin today; we will now explain the problem with this hypothesis.

There is currently neither data nor any accurate approximation for the transactional use of Bitcoin as money; its acceptance as a means of payment is not widespread, and adoption does not seem to be spreading fast; Bitcoin's principal value today is more related to the objective depositing of value, with a very high speculative aspect because of the extreme volatility. Even if one were to assume that Bitcoin's use for transaction purposes would increase in the next few years, the valuation would still be hindered greatly due to the extended time frame and by the high discount rates (probably close to 50%) that would have to be applied to the figures. Currently there are no transaction figures for Bitcoin, nor is the possibility of them foreseen for the near future, so there is no key element that can be analysed to enable creating upper and lower bands for its theoretical valuation. However, one can infer that the existing value estimations are rather inconsistent with fundamental theoretical valuation approaches, thus the labelling of the 'Bitcoin bubble', which has seen exponential growth in 2017 without near-any change to the fundamentals.

Nonetheless, the current trading value of Bitcoin makes no sense, given its potential intrinsic value as a means of payment, since American Express, Visa and Mastercard dominate a fair share of the payments market globally. Their combined capitalisation amounts to \$575 billion, whereas that of Bitcoin is of some \$100 billion, partly reflecting the (illusory) hope that it will eventually replace credit cards as a means of payment. Blockchain may achieve that, but Bitcoin will not. Therefore, it is not reasonable at all that its market value amounts to 17% of that of the big

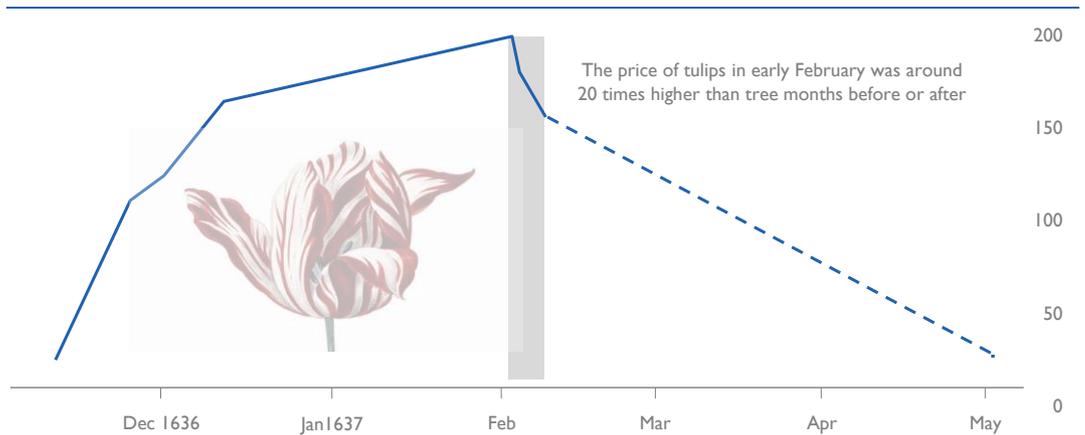
sector companies combined, let alone 60%. The reason is that it has a lower capacity to process payments. The size of each block limits the capacity to make Bitcoin transactions. The higher the weight, the higher the cost of the transaction. At present, the number of Bitcoin transactions per second ranges from three to four, well far from VISA's rate of 56,000.

It should be noted that some also give an intrinsic value to Bitcoin, associated with the advanced Blockchain technology used for the processing of the transactions. However, this value can be perfectly replicated by other cryptocurrencies, assets,... which can use the same technology to enable processing of a variety of transactions (from clearing the execution of an order to buy listed stocks to executing the purchase of a service), thus we do not see Blockchain as being ample justification for this exponential growth.

5. Analysis of the bubbles

A bubble is nothing more than a lack of harmonisation between the price and value of an asset. In general, they are formed when there is a collective hysteria that generates demand for an asset with a limited supply. A great example of this was the 'Tulip Mania' of the 17th century that saw prices for the rare 'Semper Augustus' tulip rise to exorbitant prices (Figure 4), which led to an incentive to import a great quantity of tulips to The Netherlands, which subsequently caused a drop of 95% in their price within three months.

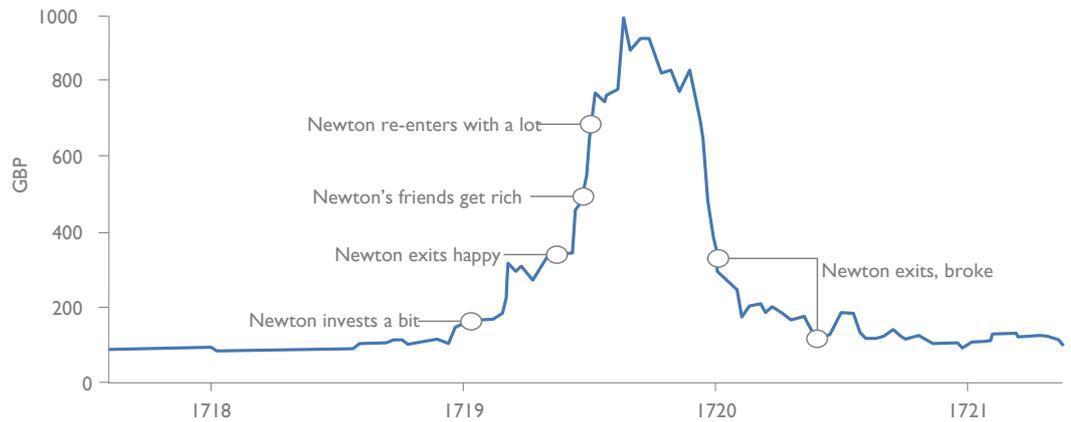
Figure 4: Tulip Price Index 1636-37



Source: Thomson (2007)

The bubbles are not formed purely by ignorant or unintelligent people. For example, Isaac Newton, one of the smartest people of the 18th Century, used to drink coffee with a group of his intellectual friends, with whom he decided to invest in a promising company on the London Stock Exchange: the company The South Sea, around 1719 (Figure 5). The stock rose dramatically, to the point that Newton sold off his shares with huge profits. However, the stock continued to rise, with his friends who had not divested becoming richer by the day and continuing to tease Newton for the money he was missing out on. Eventually, Newton bought back in at the beginning of 1720, and after a few months, the stock collapsed, before Newton had sold his shares, leaving him almost bankrupt.

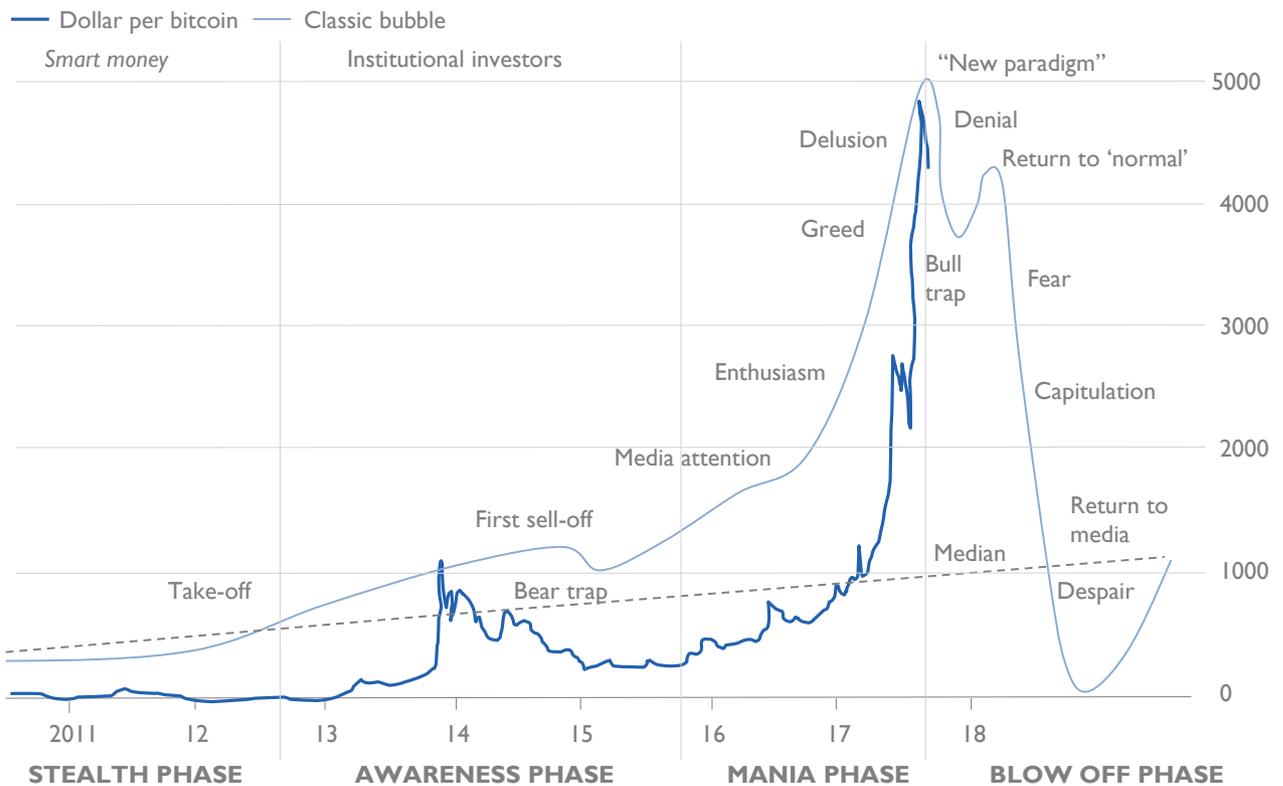
Figure 5: Share Price of The South Sea Company



Source: Marc Faber, *Gloom Boom and Doom* report

As noted by Charles Kindleberger, the process of bubble formation is often closely linked to the phenomena of financial psychology, whereby the popularity of an asset drives interest for it higher, creating a frenzy for it, which is then adjusted and a panic sell off follows; bursting the bubble. We do not claim to fully understand the psychology behind bubble formation, but we do know that bubbles growing at such a rate always do pop. We accept that the asset in question may continue to grow much more, however we do not see it ending well (Figure 6).

Figure 6: Is Bitcoin heading into classic bubble territory?



Source: Thomson Reuters Datastream

In general, many typical characteristics of bubbles can be observed in assets linked to Bitcoin and Blockchain, sharing many similarities with the 'dot-com boom' in the late 90s. The Nasdaq company LongFin, which went public for \$5 a share announced the purchase of the Blockchain

software company ziddu.com, which caused its stock to multiply by over 10, reaching \$72, without much fundamental logic behind it (its earning of the last six months were only \$2 million, and yet its market capitalisation grew to near \$6 billion). The bubble phenomena associated with ICOs, which have already attracted some \$6.1 billion in 2018, are also evident, with many of them already ‘bursting’, generating significant losses for investors. ICOs are financed through a format of non-voting shares, in the form of cryptocurrency, which, if overvalued themselves, can cause a double bubble with the underlying currency’s risk as well as the viability of the incipient business model that they intend to finance – an aspect that has encouraged regulators to warn the population about the considerable risk in these actions.

6. What will governments do?

Many wars throughout history have been fought over the power to coin money. An important aspect of this is the fact that the power of minting, or printing money, is an expression of sovereignty as well as providing important economic benefits (seignorage). Bitcoin is a threat to the monopoly of states (through central banks) in controlling the money supply. This is very important, because in situations such as were experienced in 2008, if the velocity of money (how many times a unit of currency is used in a given period of time) falls then central banks must react, injecting huge sums of money into the system to prevent the entire system from developing from a recession into a major depression. If Bitcoin were to replace the dollar as a reserve currency, then faced with a similar situation of a crisis of confidence, no central bank would be there to act as a saviour, and the recession would risk being monumental, eclipsing that witnessed in the 1930s. For this reason governments and central banks will not allow Bitcoin or other cryptocurrencies to replace them, and in our opinion, they would be right to do so.

Moreover, the anonymous nature of Bitcoin limits the ability of a state to ensure that financial and commercial transactions are not abused by money launderers nor used for other illicit activity. We believe that governments and central banks should retain their right to exercise sovereignty in hindering illegal activity such as this, and are sure that they will intervene to avoid this loss of power.

Governments have intervened in some countries’ Bitcoin markets due to hacking, which has cost markets and investors millions, as well as suspicions regarding money laundering. China has banned the practice of anonymous trading enabled by Bitcoin and similar cryptocurrencies, which negatively affected demand. Moreover, the proliferation of markets associated with Bitcoin can cause some systemic risk, as leverage is used more and more to take speculative positions, which could cause problems for low-skilled investors as well as the clearing houses of the markets and their members, which could affect the entire financial system.

The last reason governments will push to hinder the rise of cryptocurrencies is to avoid deflation. With Bitcoin rising at such rates, the value of the goods it can acquire is deflated. This can be very dangerous, as we have seen in Japan, and the government can only fight deflation by creating more money. If the governments’ power is lost, and only Bitcoin remains, we could end up in a deflation situation as was seen in 2007, an event that software would not be able to anticipate. Additionally, two-thirds of Bitcoins are purely stored, with people buying Bitcoin only as an investment rather than as a means of payment, having such vast amounts stagnant can be dangerous for economic activity. In any case other similar cryptocurrencies are appearing, such as the ethereum, which also use blockchain technology. These processes will accelerate the ability to pay without using credit cards, a project in which Apple, BitPay or Pay Pal compete.

Overall, hostility and the implementation of regulatory measures on behalf of governments and central banks is not unlikely, and could result in the prohibition of ICOs, an increase in Bitcoin taxation and the imposition of important obstacles to demand and its markets.

7. Blockchain and Bitcoin

Blockchain

The disruptive Blockchain technology is nothing more than a transaction log. It was created by a person (or group) under the alias Satoshi Nakamoto with his introduction of Bitcoin. It has the potential to entirely redefine the way any kind of transaction is processed, from real estate properties to UN donations or vote counting, and is showing a huge potential for revolutionising interaction between actors involved in the transactions. It has been argued by some that Blockchain may be the most disruptive technology since the emergence of the internet, since it could safely allow the execution of all types of transactions and immediate, direct payments, greatly reducing transaction costs, as well as traceability of all types of information, such as the identity of individuals, educational titles or verification of home/land owners.

A greatly simplified definition is that it is a technology that allows the management of a comprehensive, decentralised record of transaction, keeping an online ledger or database, through the use of internet and encryption, creating total trust between parties since any information can be verified:

- It is neither managed nor watched over by public or private institutions – that is, governments or banks. Therefore, it is a decentralised system – a feature increasingly welcomed by societies whose populations' discontent towards the power of governments and financial institutions has seemingly grown.
- It keeps a record of each and every transaction carried out among its participants in a ledger distributed amongst all participants in the Blockchain, with no one centralised base, thus providing the ability for verification.
- It is very transparent and safe, so it provides a more reliable option for those who distrust centralised management solutions, with data of who owns what accessible to all. Moreover, it is impossible to alter the information without the previous consent of the other party. Safety is guaranteed by means of an advanced cryptographic and algorithmic system, sophisticated mathematics and incredible software power.
- Intermediaries are avoided throughout the process, thus enabling the so called smart contracts, which are generated and enforced automatically by means of a program (algorithm) without the intervention of the parties. Smart contracts may be heavily disruptive for the legal sector, as we will see in the sectoral impact section.

Although Blockchain's potential is enormous, its full potential has not been yet tested on a large scale. Its current, most popular application is processing Bitcoin-related transactions, the most prevalent virtual currency globally, which given the degree of anonymity it provides may be used for money laundering purposes, prompting strong reactions and the recent closure of Bitcoin markets in China. Nonetheless, some 20% of the global population (1.5 billion people) do not have access to the financial system yet. Blockchain could radically change this situation and contribute to eradicating poverty, which is closely related to lack of access to the financial system. For everyday purchases, Blockchain will allow us to check whether the cinema ticket we are buying is genuine or not, since its origin could be traced, allowing to digitally exchange the ticket and its cost. It would take seconds to make an international payment, and at zero cost, although as we have already mentioned this application is still in its early stages. Bitcoin can process from five to eight transactions per second, whereas in the case of credit cards the figure goes up to 10,000 times that amount. On the other hand, this technology still lacks a regulatory framework and potential security risks are still to be seen.

Nevertheless, it is highly valued by experts given its huge disruptive power. It is just a question of time as to whether it will take off and fully confirm its impressive potential. It could be used to largely simplify the process of buying shares. Today, it is possible to buy stocks in just one second. However, the settlement process (delivering the code of stock ownership in exchange for the money) takes place two days later, thus tying up large amounts of money and entailing complex procedures. Many retail banks, and some central ones too, are working jointly to create a cryptocurrency that could have a 1:1 parity against the dollar, thus reducing the settlement process to a split second, with the subsequent savings and release of cash. The same concept applies to checks, why is it possible to receive an email in just one second, but it takes days to cash in a check if the process consists in changing some digits in two banking accounts? An out-of-date settlement is the reason again. Blockchain will revolutionise this, although the process will be gradual.

We will not analyse in depth the uses or the largest impacts of Blockchain, but we summarise them below so that our readers can be aware of its full potential.

Uses	Impact
<ul style="list-style-type: none"> ▪ Purchase and sale of financial assets and currencies ▪ Corporate servers and software license optimisation ▪ Identity authentication² ▪ Cloud-based data storage ▪ Contract enforcement. Smart contracts³ ▪ Digital balloting and vote counting ▪ Method of payment: transfers, cards, remittances, etc. ▪ Property registry⁴ ▪ Medical history records ▪ Data records of any big data mechanism ▪ Public service supply to reduce fraud, avoid mistakes, cut operating costs, facilitate tax collection, manage identities, distribute subsidies and keep records (real estate property...) 	<ul style="list-style-type: none"> ▪ Increased speed and reduced costs of customer transactions since the number of intermediaries is rather limited. Transparency and safety are also enhanced. Large impact on the financial (methods of payment, brokerage), real estate (purchase and sale of real estate properties) and energy (individuals will be able to commercialise their spare capacity) industries. It could mean the end of some businesses, such as betting games ▪ Diminishing operating costs for the financial system in areas such as back office (fund management) or risk appraisal (loan granting) ▪ Improved efficiency of the supply chain (process optimisation) ▪ Greater protection of innovation protection since it hinders the copy of patents ▪ Current investment: \$1.74 billion,⁵ 796 million in 2016 ▪ Economic impact: \$176 billion in 2025 and 3.1 trillion by 2030⁶

² Microsoft and Accenture have developed a Blockchain-based system to identify refugees: <http://fortune.com/2017/06/19/id2020-Blockchain-microsoft/>

³ A smart contract is a computer protocol with a fix set of terms agreed by the parties intended to facilitate the performance of a contract. As a matter of example, in an equity transaction there will be two blocks involved, one in charge of tracking who owns the stocks, and the other, who has the cash. This allows the buyer to transfer the stocks, and the seller, the cash.

⁴ The Swedish government is successfully carrying tests to record real estate transactions through Blockchain. As soon as it is fully tested and fine-tuned, it is expected to be implemented in other EU countries soon after. Brazil, Ukraine and Georgia are also testing this Blockchain functionality. Dubai has pledged to run all of its government services and transactions data on Blockchain by 2020.

⁵ Financial Times (June 2017). 'Growing scepticism challenges the Blockchain hype'.

⁶ Gartner report (technological consulting).

Bitcoin

Bitcoin is the world's most popular virtual currency. It was created in 2008 as the logical reaction to the large-scale money printing undertaken by central banks during the crisis, which led to the economy being affected by an undeniable medium-term inflation risk, which prompted the search for safe-haven currencies away from the control and dangers of central banks. Despite this consistent conceptual explanation that depicts Bitcoin as a sustainable currency with significant future growth potential, its limited volumes prevent it from properly competing with the world's main currencies as a method of payment. In some cases, it has been used for tax evasion, money laundering or capital flight derived from the anonymity provided by the Blockchain technology, as we have already discussed. Its use is more widespread in countries ruled by corrupt regimes or with higher degrees of capital control. Moreover, its high trading volatility and valuation, in bubble territory, hinder its extensive use as a value deposit or method of payment. As for volatility, we must note that early in 2017 it was trading at close to \$1,000, in June, it went up to \$3,000, then dropped down to \$2,000 one month later, grew to \$5,000 at the beginning of September, slumped to \$3,000 by the middle of the month, reach \$10,000 by late November and double its price up to \$20,000 by the middle of December. As for the bubble, many renowned economists have warned about it. In September, Jamie Dimond, JP Morgan's CEO, said to the media that Bitcoin was a fraud only comparable to the tulip mania that took place in The Netherlands in the 17th Century, considered to be the first recorded speculative bubble in history. Many influential economists have come to the same conclusion. Although it is a complex exercise, some analysts have indeed tried to value Bitcoin just to conclude that the bubble is a fact, and that the virtual currency is overvalued by 264%. BitVal, the valuation model, is based on its purchasing power parity and in the estimated amount of money laundering taking place at any given moment in time.

ICOs (Initial Coin Offering)

ICOs are a means to raise money used by advanced technological developers linked to Blockchain platforms. A main feature of investment in these types of cryptocurrencies is that they use restricted-use tokens, which are bought in exchange for funds for financing the launching of technology ventures. The token provides its holder access to and use of the project once it is launched and operating. The investment pays off when the project succeeds, either because the capital value of the digital token rises, because customers are required to pay in tokens, or out of mere speculation. The process is rather unregulated and somewhat reminds us of the internet boom in the stock markets at the beginning of the 21st Century. At that moment, it was already assumed that the internet would have an enormous impact on the economy, but it was not that obvious which projects would succeed. Incidentally, most misfired, causing the investments to lose all their value, whereas those few that did succeed took a large share of the pie, which generated colossal returns in the stock exchanges (Facebook, Amazon, Google...). In short, the risks are elevated and the scenarios, too binary – high chances of losing everything, and scarce possibilities of obtaining substantial gains). For these reasons, ICOs have been described as “financing the building of a casino with tokens which can be only used to gamble at that casino”.

8. Conclusion

During the dotcom boom of 2000, the CEO of Intel, Andy Groves, announced to analysts a major investment plan entirely revolved around the internet. An unsuspecting analyst raised his hand to ask, “What is the return on investment you expect?” Andy Groves replied “The return on investment? Are you crazy? Would you have asked Columbus on the return of discovering America?”

As value comes from cash flow, which did not come to happen, Intel’s stock fell by 82%, irrelevant of whether America was found or not.

And, that’s it...

DISCLAIMER

This document is strictly confidential and the views expressed in it reflect the personal views of the undersigned lead analyst(s) about the subject issuer and the securities of the issuer. In addition, the undersigned lead analyst(s) has not and will not receive any compensation, fees or remuneration whatsoever for providing a specific recommendation or view in this report.

This document has been prepared by Arcano Valores AV, S.A.U. ("Arcano Valores"). Arcano Valores is an investment firm duly incorporated under the laws of Spain, regulated and registered under number 243 by the Spanish Securities and Markets Authority (CNMV). This document is provided for information purposes only and must not be considered as an offer to sell, a guarantee, or a solicitation of an offer to buy, invest or divest from any financial instrument or to participate in any particular trading strategy. In addition, this document shall not serve as basis to enter into or execute any agreement, contract or commitment whatsoever. Accordingly, recipients should take their own independent decisions not based upon the content of this document and where applicable, seek for and obtain independent professional advice. The information contained herein has been compiled from sources believed to be reliable, but while all reasonable care has been taken to ensure that the information contained herein is not untrue or misleading at the time of publication, we make no representation or warranty with regard to its accuracy, completeness, thoroughness, truthfulness or integrity and it should not be relied upon as such.

This document is exclusively addressed to professional investors, in accordance with the definition of such term included in Directive 2004/39/CE, of the European Parliament and of the Council, on markets in financial instruments, and in Spanish Royal Legislative Decree 4/2015, of 23 October, approving the consolidated text of the Spanish Securities Law. Therefore, use of this document by retail investors is strictly prohibited.

All opinions and estimates included herein constitute the current judgement of the author as at the date of this report and are subject to change without notice. Arcano Valores has no obligation or commitment to update, modify or amend this report or to otherwise notify a recipient thereof in the event that any opinion, forecast or estimate set forth herein, changes or subsequently becomes inaccurate.

Arcano Valores complies with its internal rules of conduct that contain, among other things, procedures to prevent conflicts of interest with respect to recommendations. The application of such procedures include the consideration of its Research Department as a separate area, the setting up of the so-called "Chinese Walls", and the possibility of establishing specific restrictions on research activity in certain events. Arcano Valores' research reports contain a certification stating that they reflect the authors' own opinions. Arcano Valores may from time to time perform services for or solicit business from any company mentioned in this report. Neither Arcano Valores nor any other person accepts any responsibility or liability whatsoever for any direct or consequential loss or damage arising from or in connection with any use of this report or its contents. This report may not be reproduced, distributed, disclosed or published by any recipient for any purpose.

This document has been produced by:

Arcano Valores AV, S.A.U.

José Ortega y Gasset 29, 4^a floor

28006 Madrid

+34 91 353 21 40

www.arcanopartners.com