# BITCOIN (PART 1)

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# Introduction to virtual currency and crypto-currency, with a focus on Bitcoin

Virtual currency is a computer-generated unit of exchange that can be used to purchase goods or services from retailers online or in the real world. It is accepted by participating vendors as a form of payment and provides an alternative to the national currency (e.g. the United States Dollar, the British Pound and the Singapore Dollar). It may be issued in return for or pegged to a national currency, as long as the vendor recognises the value of a virtual currency as a medium of payment. It does not have legal tender status (i.e., a vendor or creditor is not obliged to accept it as a means of payment in any country or state) and is not issued or backed by any central bank. Crypto-currency is a form of virtual currency created and controlled through the use of cryptography (a form of encryption software). Examples of widely-used crypto-currency include Bitcoin, Ripple, Litecoin, Peercoin, NXT and Dogecoin.

Bitcoin, established in 2009 and the first crypto-currency to be traded for real currency, is attributed to one Satoshi Nakamoto. According to the Bitcoin Foundation, Bitcoin uses "peer-to-peer technology to operate with no central authority or banks; managing transactions and the issuing of Bitcoins is carried out collectively by the network. Bitcoin is open-source; its design is public, nobody owns or controls Bitcoin and everyone can take part. Through many of its unique properties, Bitcoin allows exciting uses that could not be covered by any previous payment system". Bitcoins are created in a process known as 'mining' (a user who is able to successfully resolve a complex algorithm is rewarded with new Bitcoins), or by simply purchasing from a Bitcoin ATM using certain national currencies. Bitcoins may also be traded for certain national currencies on digital currency exchanges such as Mt. Gox, CampBC, BTC China and BTCxIndia.

Over the years, Bitcoins have gained much attention due to the wild fluctuations in value. In 2013, it was reported that the value of one Bitcoin against the US dollar fell by over US$160 in one day from US$266. Only a few months prior to that, one Bitcoin was only worth US$20. Since then, the value of Bitcoins continues to experience significant volatility. The burgeoning use of crypto-currency today warrants our attention to the trends, uses, risks and potential developments and opportunities.

## Uses of Bitcoin

As Bitcoins gain mainstream acceptance, proponents of Bitcoins view it as a single denomination currency. This obviates the need to incur costs when changing from one national currency to another (e.g. you would have to exchange Singapore dollars into US dollars when you travel to the US, losing some value of your Singapore dollars to foreign exchange costs) which in turn reduces transaction costs for travelling and cross-border business.

For businesses, Bitcoins may be used to capture spending in a particular marketplace (e.g., by recognising Bitcoins as the only form of barter to purchase certain items).
Due to its virtual nature, Bitcoins inherently carries with its anonymity. A person wishing to engage in perfectly legitimate transactions but who does not wish to disclose his identity (e.g., for the occasional legal online gambling or purchase of legitimate goods online) may choose to use Bitcoins for the anonymity it provides.

## Risks faced by Bitcoin

The complexity of Bitcoins poses difficulties in regulatory oversight and consumer protection.

Bitcoins have proven itself to be highly volatile, more so since Bitcoins are not backed by any central bank or pegged to any national currency or to any gold standard. The sudden and unpredictable increase in valuation (or devaluation) in Bitcoins potentially exposes Bitcoin users to unpredictable gains and losses. When purchasing Bitcoins, you should be aware of the risks of devaluation, and to be cognizant of safeguards to ensure that contracts involving Bitcoins do not unexpectedly expose parties to currency risks which were not intended (e.g., having some form of legal recourse or material adverse change clause in the event of a sudden devaluation).

From the perspective of regulators, the ability for users of Bitcoin to be anonymous invites and creates the potential of illicit transactions such as money laundering. This is exacerbated by the ease in which Bitcoins can now be exchanged for a national currency. In 2013, certain individuals in the United States of America ("**U.S.A**") were arrested for allegedly operating a criminal business venture which was designed to help criminals conduct illegal transactions and launder the proceeds of their crimes through Bitcoins. Further, the lack of traceability prevents regulators from effectively imposing sanctions on individuals suspected to be involved in unlawful activities using Bitcoins. It was said that Bitcoins have been used to move money from Iran (which is highly sanctioned by the international community) to other countries to import certain goods, which would otherwise not be possible using the Iranian national currency, the Rial.

Regulators, particularly central banks, would also be concerned if large volumes of Bitcoins (or other virtual currencies) were to be in circulation, as their own national currency may no longer be an effective tool in managing the state's economy. Without control over virtual currencies, central banks may not be able to back up the value, nor adjust the supply and demand, of Bitcoins and other virtual currencies to control price fluctuations and inflation. At present, though, national currencies still dominate most, if not all, markets and the potential risk to economic stability is moot.

High dependence on technology is the Achilles heel of Bitcoin. The peer-to-peer network and generation of Bitcoins require a high degree of computing power, and largely depends on the integrity of the infrastructure that supports Bitcoins. Weaknesses or inherent frailties in the infrastructure may aggravate the lack of trust and confidence in Bitcoins by most consumers. This was evidenced recently in attacks by hackers on various Bitcoin exchanges and wallets. Whenever a hacking attempt on a Bitcoin exchange or

wallet is discovered, the operator of the Bitcoin exchange or wallet usually suspends the exchange or wallet. This disrupts the use of Bitcoins and frustrates and reduces confidence in the Bitcoin exchange or wallet.

With all the risks of Bitcoins, some governments are prompted into knee-jerk reactions and may unilaterally decide to adopt a certain stance against Bitcoins. The impact of such decisions to regulate (or de-regulate) the use of Bitcoins is as unpredictable and volatile as Bitcoins themselves. An example would be on 28 February 2014 when the State Bank of Vietnam issued warnings against the use of Bitcoins. That being said, this has not deterred Bitcoin users and reports online suggest that Vietnam is set to open their first online Bitcoin trading floor.

## Bitcoin in the news

Tokyo-based Bitcoin exchange Mt. Gox has been on the receiving end of hacking leading up to its collapse in February 2014. It was allegedly hit with crippling distributed denial-of-service ("**DDoS**") attacks, whereby hackers took control of multiple computers to send a flood of data to Mt. Gox, causing Mt. Gox's servers to crash during which the hackers stole approximately US$575 million worth of Bitcoins.

Bitcoin ATMs were opened in February 2014 in the U.S.A. Customers with either a 'Bitcoin wallet' or a 'paper wallet' carrying information needed to execute a transaction using Bitcoins will have a quick response code, which they can scan into the ATM, insert cash, and receive Bitcoins directly into their 'Bitcoin wallet'.

Revenue authorities around the world are attempting to address the tax treatment of Bitcoin transactions. By publishing its views on crypto-currencies, the United Kingdom ("**U.K.**"). has become one of the first jurisdictions to confirm how transactions involving cryptocurrencies will be taxed. HM Revenue & Customs ("**HMRC**") in the U.K. has confirmed that, inter alia, income from crypto-currency 'mining' would generally be outside the scope of Value-Added Tax ("**VAT**") on the grounds that 'mining' does not constitute an economic activity, and that no VAT will be due when Bitcoins are exchanged for other currencies.

The U.S.A. has released a notice (U.S. IRS Notice 2014-21) which states that Bitcoins are to be treated as property (like shares and barter transactions) and not as currency for U.S. federal tax purposes. As mentioned by Richard Rubin and Carter Dougherty of Bloomberg, the effect of this ruling provides certainty for Bitcoin investors.

## Conclusion

While there are risks associated with the use of Bitcoins, Bitcoins can expand the possibilities of commerce and re-define the way electronic commerce is conducted. However, before hopping on the bandwagon, it is important to be aware of the risks and implications in using this new technology, particularly from a Singapore perspective (which will be explained in the second article of this two-part feature). It remains to

be seen whether an international consensus will emerge in dealing with the fiscal risks and legal issues inherent in the use of Bitcoins.