Virtual Currency: A Theoretical Review

SUSHILKUMAR M. PARMAR
Assistant Professor,
Smt. T. J. Patel Commerce College, Nadiad
Gujarat (India)

Abstract:
Surprisingly, no single sector has remained untouched from the influence of technological advancement. In fact, the global economy has completely been invaded by the information communication & technology. This paper widely talks about the emergence of virtual currency and its status in global financial system. Virtual currency is the digital representation of non fiat currency such as Bit coins. Presently, virtual currency is at its infancy stage. But, its development has created a great buzz among the regulators as dealing in virtual currency involves major risk on the part of customers and most importantly, it lacks any legal tender status. In addition, it's been reported that virtual currencies are being used for money laundering, financing terrorist activities and other illegal purposes. Though, there is a paucity of information, the author has made an attempt to offer an insight on virtual currency along with some recommendations.

Keywords: *Bit coins, Money laundering, Non- fiat currency, Virtual currency*

1. Introduction

Today, digitalization has tremendously revolutionized human life and the entire business world. To be more specific, the 21st Century has witnessed the flood of information communication and technology resulted into the emergence of e-commerce, e-learning, e-governance, facebook, tweeter, whatsapp, blogger etc. It can therefore be said that the technological advancement has triggered the significant growth and development in all sectors. Interestingly, technological invasion has brought forth the concept of virtual communities. In the past few years, there is a proliferation of virtual communities in the world resultantly the emergence of virtual currency. However, dealing in such currencies is not a safe as it lacks legal tender status and generally misused by the way of money laundering, financing of terrorists activities, drugs trafficking etc. So, it is matter of a great concern and the regulator of an economy has raised the eyebrow towards the use of virtual currency. It is believed that online gaming has given a birth to the virtual currency.

2. Concept of Virtual Currency

2.1 What is Virtual Currency?

In a general parlance, virtual currency refers to the medium of exchange that is electronically created and stored. In other words, it is the digital representation of non fiat currency for instance, Crypto currency – Bit coins. (Crypto word is associated with cryptography which means the art of solving / writing secret code). Such currency can be used like traditional currency to buy goods and services but, its usage is restricted to certain communities only (virtual communities). Virtual currency is a digital representation of value that can be digitally traded and functions as (i) a medium of exchange and / or (ii) a unit of account; and / or (iii) a store of value, but does not have legal tender status in any jurisdiction. (Financial Action Task Force Report, June 2014). While e-money refers to the digital representation of fiat currency (real money / currency which has legal tender status), so digital currency is characterised as both virtual currency and e-money.

The virtual currency can be classified as convertible (open) virtual currency and non-convertible (closed) currency. The former can be exchanged for the real currency such as Bitcoin, e-Gold, Liberty Dollar while the later has no equivalent value in real currency & cannot be exchanged for the real currency viz. Project Entropia Dollars, Q coins. In addition, all non-convertible virtual currencies are centralized virtual currencies as there is a single administering authority that controls the system (i.e.) issuance of currency, laying down rules, maintenance of a central payment ledger and authority to redeem currency.

On contrary, convertible virtual currencies may be either centralised or decentralised. Decentralised virtual currencies, commonly known as crypto currencies which are basically math-based peer to peer visual currencies having no central administrating authority and there is an absence of central monitoring, for examples, Bitcoins, Litecoin and Ripple. A crypto currency is a medium of exchange designed around securely exchanging information, is a process made possible by certain principles of cryptography. A crypto currency is a type of digital token that relies on cryptography for chaining together digital signature of token transfers, peer to peer networking and decentralization. Bit coins are nothing but the popular crypto currency and widely used.

Virtual currency has not been widely spread usage and may not be easily exchanged. Even banks do not accept such currencies and offer services for the same. Similarly, Bit coin accounts lack protections that most bank accounts have, including government-backed insurance.

2.2 Virtual Currency system consists of*....*

- An exchanger may be either a person or an institution engaged in the business in the exchange of virtual currency for real currency or other forms of virtual currency.
- An administrator is a person or an entity issuing centralized virtual currency and has an authority to redeem or withdraw.
- A user is a person or an entity using virtual currency to purchase real or virtual goods / services
- A miner is a person or an institution engaged in a decentralized virtual currency network where special software is run to solve complex algorithms in a distributed proof-of-work to validate transactions in the virtual currency system.
- Virtual Currency wallet is a kind of software application / medium for holding, storing and transferring virtual currency.
- A wallet provider is an institution that offers a virtual currency wallet service

2.3 Difference between Virtual Currency and e-Money

- The access of virtual currency is greatly limited to internet connection. Whereas the access of e-money can be through electronic devices viz. mobile phones and an agent network
- The value of virtual currency is highly volatile and determined by the demand & supply and trust in system. While value of e-money is equal to the amount of fiat currency (i.e. real money)
- Unlike e-money, in virtual currency, customer identification is anonymous. In e-money, financial action task force standards are applied for customer identification.
- The production of virtual currency is mathematically generated (mined) by peer network. On contrary, e-Money is digitally issued against the receipt of equal value of fiat currency.

- Virtual currency is issued by community of developers called miners. While e-Money is created by legally established e-money issuer.
- There is absence of any regulator for virtual currency. Whereas e-money is regulated by central authority (central bank)

2.3.1 Evolution of Virtual Currency

Development of virtual currency is the noteworthy outcome of the digitalization and technological advancement. Apparently, online gaming has given a birth to the idea of virtual currency. As the virtual currency is at its infancy stage, there has been nothing much more evolved. Evidently, in 2009 the first crypto currency, Bit coin was created by pseudonymous developer (unknown). It used SHA-256 cryptographic hash function, as proof-of-work scheme. In April 2011, Name coin was created as an attempt at forming a decentralized DNS, which would make internet censorship very difficult. Soon after, in October 2011, Lit coin was released. It was the first crypto currency to use scrypt as its hash function instead of SHA-256. It also had a much faster transaction time compared to Bit coin, making it more usable as a currency. Another notable crypto currency, Peer coin was the first to use a proof-of-work /proof-of-stake hybrid. Interestingly, the first Bit coin ATM was launched by Jordan Kelley, founder of Robocoin in US on February 20, 2014. A part from these above crypto currencies, many more such currencies have been created. But only few have been successful, as they have brought little in the way of technical innovation.

As of now, Bitcoin, Ripple, Litecoin, Darkcoin, Peercoin, Dogercoin, Mastercoin, Namecoin, Auroracoin**,** Primecoin**,** Vertcoin, Mazacoin**,** Ehtereum**,** Erocoin, e-Gold, Liberty Reserve, Second life Linden Dollars and WebMoney have been created as virtual currencies. However, some of them namely e-gold, liberty dollar are defunct now after their involvement in illegal activities came into the light. Below list gives an account of legal actions taken involving virtual currency.

a. In February 2013, Western Express International, its owner and operators were found guilty for their role in a global identity theft / cyber fraud. Approximately, 1,00,000 stolen credit card numbers and other personal identification information were sold through internet and taking payment mostly in e-Gold and Web Money.
b. In April 2013, electronic sports organization E-Sports Entertainment was accused of hijacking 14,000 computers to mine bit coins, the company later settled the case with the State of New Jersey.
c. In May 2013, the US Department of Justice charged and identified Liberty Reserve as a financial institution of primary money laundering concern through Liberty dollar, a virtual currency under Sec. 311 of the USA PATRIOT ACT.
d. In September 2013, the US Department of Justice seized the website namely Silk Road enabling its users to buy and sell illegal drugs, weapons, stolen identity information and other unlawful goods / services and charged the alleged owner and operator of Silk Road. Approximately 173991 Bitcoins were seized by the Justice Department.

2.3.2 Virtual Currency Schemes

According to European Central Bank, virtual currency scheme would consist of a type of unregulated, digital money which is issued and usually controlled by its developers and used & accepted among the members of a specific virtual community.

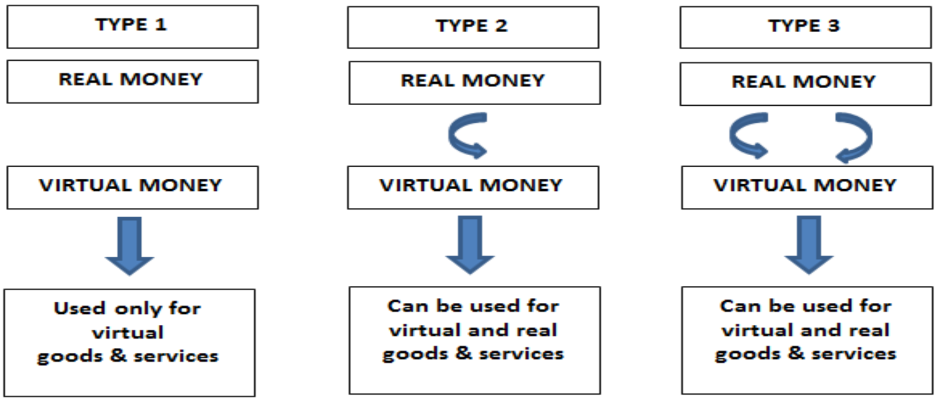
Virtual currency schemes can be classified into three types as follows:

Type 1: It is a closed virtual currency schemes for instance, the type of currency used in an online game.

Type 2: This type of currency schemes have a unidirectional flow (usually an inflow), i.e. there is a conversion rate for purchasing the virtual currency, which can subsequently be used to buy virtual goods and services, but exceptionally also to buy real goods and services

Type 3: Virtual currency schemes have bidirectional flows where the virtual currency acts like any other convertible currency, with two exchange rates (buy and sell), which can subsequently be used to buy virtual goods and services, but also to purchase real goods and services

The following diagram provides an overview of the types of virtual currency scheme



(Source: European Central Bank Publication)

3. Virtual Currency in India - An Overview

Talking about virtual currency in India, unlike fiat currency (real money) virtual currency has no legal tender status; therefore dealing in virtual currency is banned due to risk associated with its usage. Therefore, the Reserve Bank of India has issued warnings to the public about the risks associated with virtual currencies and it is examining virtual currencies under India's existing legal framework (i.e.) it is presently examining issues associated with using, holding, and trading virtual currencies, including regulations for foreign exchanges and payments systems laws. The Reserve Bank of India issues warnings to customers who buy, sell or trade in virtual currencies about security risks, absence of regulatory authority, speculation and volatility, legal risk, and use of currencies for illegal activities. In one of the circulars issued by the RBI discusses that virtual currencies are stored in digital or electronic media that are called electronic wallets. And they are therefore prone to losses arising out of hacking, loss of password, compromise of access credential, malware attack etc. As there is no single authorised centrally registered agency through which such currencies are created and traded, there is a possibility of the loss of the e-wallet leading to permanent loss of virtual currency held.

4. Limitations of Virtual Currencies

- The value of virtual currencies is more volatile.
- The virtual currency lacks legal tender status in any jurisdiction.
- Transactions in virtual currencies are untraceable which promotes more of criminal activities.
- No existence of single legal authority that monitors and controls trading of virtual currencies.
- There is a danger of stealing of digital wallets as these wallets are password protected and are prone to hack. Moreover, problem may arise if password is forgotten.
- There is no clarity about the tax liability on income earned from virtual currencies.
- There is an absence of exchange platform which provides a guaranteed deposit scheme.

5. Recommendations

In order to protect the interest of public dealing with virtual currencies, to minimize the risk associated with their usage and to act as watchdog to stop the illegal activities undertaken through virtual currencies, following is the list of recommendations made

- There should be an autonomous authority that regulates & monitors the entire virtual currencies and communities to the advantage of the economy
- A proper mechanism should be developed so that transactions taken placed can easily be traced which avoids the financing of illegal activities, money laundering etc.

- As the value of virtual currency is more volatile, there should be some specific predetermined criteria on the basis of which its value can be decided / formed. This will stop the value of virtual currencies becoming more rampant and significantly help in price formation.
- More attention should be paid on the security measures as digital wallets are prone to hack because these wallets are password protected. Therefore, some authentic security measures should be through of.
- There is a dire need of a separate Virtual Currencies Act offering guidelines, provisions and parameters for issuance, managing & trading of virtual currencies and required restrictions on the part of virtual communities as well.
- Any unit managing such virtual currencies should submit the detailed report regularly to the regulatory authority if established.
- There should be no ambiguity for tax liability (i.e.) clarity about the tax liability on income earned through virtual currencies.
- Since banks do not accept virtual currencies as deposits, there is no deposit guaranteed scheme available which leads to the loss of money. So, there should be an authorised and recognised virtual currency exchange platform which offers a safe and guaranteed depository service. Even, such service providers are required to act as per the law if enacted.
- All available virtual currencies should be categorised based on their distinguished features enabling better management of virtual currencies.
- There is a need to have virtual currency protocol providing identification and verification of participants and to generate the records of previous transactions
- There should be clear law and availability of software for AML (Anti Money Laundering) and counter financing terrorists activities compliance.
- All consumers should research about the agency or company offering the services of virtual currency.

6. Conclusion

In the nutshell, virtual currency is at its nascent stage and the development of virtual currency at global front requires more attention as it involves greater risk as compared to real currency or e-money. The need of an hour is to formulate such policies as can protect the global financial system against illegal activities undertaken by the use of virtual currencies.

References

1. CSBS Guidance note, Model State Consumer and Investor Guidance on Virtual Currency, 23 April, 2014
2. Gans, S Joshua and Halaburda, Hanna (2013), Some Economics of Private Digital Currency, Bank of Canada, working paper 2013
3. Ghanty, Jacob and Brocklehurst, Victoria, European central bank warns on risks of virtual currencies to consumers, www.blplaw.com posted on 9 January, 2014
4. Press Release of the RBI, RBI Cautions users of Virtual Currencies against Risk, 24 December, 2013
5. Report of Perkins Coie on Virtual Currencies: International Actions and Regulations, 19 March, 2014
6. http://en.wikipedia.org/wiki/Virtual_currency
7. http://rbidocs.rbi.org.in/rdocs/PressRelease/PDFs/IEPR1261VC1213.pdf
8. http://www.dnaindia.com/india/report-first-time-inthe-country-ed-raids-abitcoin-seller-inahmedabad-1941187
9. http://www.blplaw.com/expert-legal-insights/articles/virtual-currencies-on-ecbs-radar/
10. FATF Report- June 2014, Virtual Currencies, Key Definitions and Potential AML / CFT Risks