Vol 2, No 1, December 2022, PP. 77-104
ISSN: 2422-4087

Legal Insights of Crypto-currency Market and State of Crypto-currency in Pakistan

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ARTICLE INFO

Article History
Received: April
Revised: June
Accepted: November
Available Online: December

Keywords:
Crypto-currency; Fintech; Financial Asset; Block-chain Exchanges; Pakistan

ABSTRACT

Crypto-currency as a medium of exchange, store of value and unit of account is still under question. However holding unique features and scarcity makes it interesting notion to study in financial academia. Although there is an ongoing debate among different schools of thought, whether take it as a currency or a viable addition to the existing financial asset classes. The study intends to highlight the insights of crypto-currency market with respect to different countries. The study covers various aspects of registration, legislation, taxation and regulation of crypto-currency and its exchanges. Secondly it aims to explore the state and scope of crypto-currency market in Pakistan. To keep on the pace of the world, every country is heading towards adopting such technologies and is bound to welcome what is being offered to it, since no country can survive in isolation. Crypto-currency is one of those offered avenues to transform financial markets through digitalization and Fintech, which definitely will take time but of-course the journey has begun. Sooner or later Pakistan and other emerging countries would have to accept and legalize crypto-currency and such technologies. The state of any country may not regulate crypto-currency due to its nature but still it can regulate the block-chain and exchanges of crypto-currency. Moreover, crypto-currency is deemed to be considered as an asset rather than currency. Hence, there should be specific financial and taxation laws regarding crypto-currency and any gain on crypto-currency should be taxed as any realized income is being taxed.

Introduction

Since, crypto-currency lies on the rules of mathematics as compared to fiat currency that is backed by tangible security. It is designed on the basis of manifold mathematical procedures centered on cryptography. Although currently due to high volatility and diverse features, crypto-currency does not satisfy the traditional definition of money. Crypto-currency as a medium of exchange, store of value and unit of account is still under question. However holding unique features and scarcity makes it interesting notion to study in financial academia. Although there is an ongoing debate among different schools of thought, whether take it as a currency or a viable addition to the existing financial asset classes.

Crypto-currency Users

Firstly, several businesses accept crypto-currencies as a unique medium of payments and several do not accept it completely due to its limited user base. Likewise a group of customers do not use crypto-currencies since it is not broadly accepted. This vicious cycle is present and restraining the opportunities for its progress since certain incidental evidences make the crypto-currency users perceive as criminals.

Secondly, there is a group that uses crypto-currency as a medium of exchange and establishes payment systems, provide guarantee of accounts and transactions. This group also contains online business dealing in illegal products on cyberspace (dark markets). The demand of this market affects the exchange of currency and transmitted the use of crypto-currencies internationally.

Thirdly, another group that is inspired by crypto-currencies is investors of ICO. These investors seek to invest in new projects of block-chain purchase crypto-currency coins and crypto-currency

tokens. Such projects aim to develop user base of crypto-currency market by gaining confidence of potential users for instance, the users from developing countries who seek to shelter against increasing inflation domestically and find ease in access to banking free system. Many large scale businesses also find it interesting to infer the use of crypto-currency system into unique and innovative applications and smart contracts.

Moreover, a group of users exchange into crypto-currency from domestic currency and find it a speculative asset rather merely a new form of currency. They hold crypto-currency without any intent to practice it as medium of exchange. Therefore as crypto-currency is treated as an option for investment, it does not pose any economic, monetary or financial stability risk to the alternative fiat currencies.

Stability of Crypto-currencies

Bonneau et al. (2015) propose that new governance structure has a disadvantage that as a structure the stability of crypto-currency is not ensured. Most of the literature provided on crypto-currencies helps to get if there is stability in crypto-currencies or not. The pioneers of crypto-currencies primarily avoid the preceding question, as they suppose that question about malicious behavior of users of such currencies is nearly irrelevant since the trust of intermediary is irrelevant. Several researchers do not accept this idea for instance; Evans (2014) argues that it is confusing that crypto-currency stands on the idea of no intermediary however block-chain itself is the intermediary that is depending upon the miners who are using it. Moreover Weber (2016) says that Bitcoin eliminates the requirement of trusted intermediary, the need for trust cannot be eliminated yet shifts to other other technological infrastructure.

It is in this perspective that we review the academic literature on the stability of crypto-currencies. It is to be noted, though, that most of the research focused so far on Bitcoin, as it is the oldest and most transacted decentralised crypto-currency. Even though most *altcoins* replicate the source code of Bitcoin, thus making the research on Bitcoin relevant, to an extent, to them, too, there are also crypto-currencies (such as Ethereum or Ripple) that bring significant innovations compared to Bitcoin. This means that many of the findings outlined in this section are not necessarily relevant for crypto-currencies in general, but just to Bitcoin and those coins that closely replicate it.

The Possible Potentials

Right after the inception of crypto-currency, it is gradually accepted by many users though online illegal financial activities also get up for instance, Silk Road. In such relation, it is being scrutinized by central authorities and public, with the perception that majority of the early adopters of crypto-currency uses the anonymity for the purpose of money laundering and other illegal trade, and hence are lawbreakers and criminals, Slattery (2014). Therefore such applications overshadowed the unique structure and innovative opportunities for decentralized block-chain system. However, in recent years this perception is started fading and crypto-currencies are now perceived to be widely accepted as innovative medium of investment with astonishing value gains.

i. Applications for Business, Financial and Other Institutions

Crypto-currencies assist small businesses, since the cost to develop a new system is cheaper than traditional payment system (Churilov, 2016). Crypto-currencies provide opportunity to start with micro transactions. It provides faster, low cost and more efficient method for international

transactions without any business account and payment terminals, low entry barriers and competition in market. Since it excludes, concept of intermediary so there is no storage cost involved. The system creates environment for cheap and easy trading in absence of regulations yet is the main hindrance in its broader adaption, as many large scale businesses do consider block-chain industry but do not put their confidence in crypto-currencies. The law varies in different countries, considering it as commodity, currency or security, whereas some countries ban the use of crypto-currencies completely. Although block-chain technology provide many opportunities and the use of its applications grow substantially like smart contracts, crowd-source mechanism of voting, future contracts and market speculations.

Moreover, these applications may possibly affect daily life of a common user by implementing Internet of Things devices, for instance to serve data transfer anonymously, sale and purchase of cars on the block-chain that eliminates the role of car dealers, which directly reduces the cost of a car, interested user deposits money which automatically approves the car key and payments are instantly authorized before getting access to the car. Block-chain applications may possibly extent their utility from merely simple transactions to complex reconciliations and settlements cases. With the help of this system royalties for intellectual properties, piracy issues and track of digital content may also be exercised and content writers may get their reward for their literary work in exchange without ads. In addition to the system may assist governments to use block-chain technology in automation of voting mechanism, registration of properties and assets. Barratt and Aldridge (2016), Georgia utilizes the system in a development project the land registry in the block-chain in 2016.

The appealing concept of the block-chain provides mechanism to regulate ownership and information systems, which is inexpensive and independent of government solutions. It seems beneficial particularly for developing countries where the scale of the problem is large and ownership and registration issues are teething troubles. Similarly, the technology may possibly be helpful in issuing birth certificates, reducing charges for immigrants in sending remittances to their families, providing access to economic, administrative and social inclusion, and proving identities for political asylums.

The applications of block-chain may also be useful in the domain of law and other legal services by reducing burden of courts and stream lining litigation mechanism (Hegadekatti 2017). The cascading effect of the block-chain technology is really appreciated by financial institutions; for instance NASQAD implements the system in Linq, to record trading of shares. Moreover, the future of the financial institutions and infrastructure under control of central and commercial banks may possibly get inspired by the decentralized system of block-chain (Ali et al. 2014).

Hence, far-reaching applications of the block-chain technology may improve systems of transactions, dealing of contracts, registration and distribution of information, financial services, voting regulations, and healthcare, economic, governmental and other industrial procedures. Such improvement of inefficient systems may possibly reduce infrastructure cost for banks; however they may possibly face greater downscaling, since Fin-Tech seems to set financial businesses and institutions at greater risk in times ahead.

ii. The New Model of Raising Capital

ICO is a new module for raising capital at early stage for block-chain based start-ups with drastically diverse opinions, gaining praises from some users as an integral component for decentralized system whereas some users compare it with a speculative bubble like tulip mania back from 17th century (Koetsier 2017). The mechanism is originally traced back to the idea of conventional IPO (Marshall 2017). As IPO functions, the tokens are purchased in ICO with some voting power, deprived of high costs and strict regulations like crowd-funding websites (work online without any identity and residency check).

During ICOs the trading tokens are different in nature, some are featured as securities, some as currencies and other exhibit completely different properties, since no default definition is been provided yet. These tokens are acquired through auctions and profits are utilized to develop platforms. However the prices of these tokens at the time of auction are not backed with anything except trust in the providers. Some tokens appreciate in value and earn return on investment (ROI) and others stay useless.

A study of Conley (2017) suggests if token is a kind of money, it should comply with anti-money laundering and know your customer laws. If token is a kind of security, it should follow regulations of Securities and Exchange Commission (SEC). This is one of the first studies that try to evaluate tokens, their economic value, and mechanisms of effective ICOs and effects of crowd-funding investment in such unique yet ambiguous assets.

With the development in the block-chain technology ICOs are growing in numbers. It is becoming great opportunity of funding block-chain based start-ups, such as new applications of social networks, cloud avenues of computing and speculative markets. Moreover ICOs may also

be done through crypto-currencies. For instance, Agrello is a crowd-funding project that provides grounds for dealing in smart contracts without using codes or any legal experience. It is deemed to fuel the development of new ventures based on block-chain technology.

ICOs may offer exceptionally high returns for investors in terms of value and liquidity rather than traditional investments and this may appeal potential investors who resist due to its regulations and uncertainty issues (Kastelein 2017). Many ICOs offer more discounts on the trade of crypto-currencies prior to make them available of exchanges independent of any authority. However some investors look for protection and structural reforms to mitigate their risks, whereas some investors believe that this framework enable investment with less capital in such accredited system. Hence, above the system of block-chain technology and value exchange, crypto-currencies provide a unique model of funding, which may possibly be valuable for non-profit organizations, networks and start-ups for a rapid development in various industries by using decentralized technology of cryptography.

The Possible Risks

Crypto-currency market lacks in independent standards and regulations and the feature of anonymity makes it to consider fallacious. Since it eases multiple illegal activities especially over cyberspace, frauds like money laundering and tax falsifying, financing illegal activities and facilitating terrorism and contributing in developing dark web markets including online markets for prohibited trades.

i. Money laundering and Tax Falsifying

There are three levels in money laundering that is, placement occurs when illegal funding is presented by depositing usually small amounts of money into different accounts, then there comes layering where multiple transactions are made to hide the source of this money and then integration, here this money is reverted back into legal circulation in the market (Brown 2016).

Crypto-currencies may possibly be used in each of these levels, and it may simply be integrated with different types of digital currencies. At second level, layering is the circulation on the cyberspace. The market of dark web for money laundering activities and crypto-currency handling that reflects the activities available on surface web. Similarly, crypto-currency laundering activities increase the movement of money by mixing the wallets due to anonymity, and transfer the crypto-currency of a user in micro-transactions through the network, which is hard to catch (Ciancaglini et al. 2015). The users may access services of making payments that allow them to exchange crypto-currencies for any currency through ACH, Western Union, Paypal and cash, similar mixing services are also available over the surface web. These services are utilized to mix user's money with others and stop any third party to track transactions generating from a certain address (Gruber 2013).

Most commonly, online token purchase and gambling activities are executed. In crypto-currencies the block-chain technology is able to track the transactions record in order to figure out the malicious addresses through analysis of the transactions beside the timings of criminal activities. Yet linking a fake name to the original name seems impossible to prove, by such means crypto-currency provides a safe way to money launders and criminals.

In addition there are some institutions that use this system for money laundering and tax evasion since there are no regulations. These services are utilized without validating the identity of users, which makes it easy to open anonymous and fictitious accounts that allow money laundering and tax evasion across borders. That is the reason; law-making authorities put pressure to categorize these institutions to take legislative measures internationally.

Hence, the decentralized nature of crypto-currencies lack centralized body to monitor and control suspicious activities. Marian (2013) argues that crypto-currencies are probably becoming tax haven for users by choice. Crypto-currencies provide assurance that the profits are not exposed to tax and anonymity of the users is preserved. Since it does not rely on any intermediary or financial institution and thus, independent of any inquiry of government and regulators.

ii. Financing Illegal Activities

The anonymity of the users and instant transfer of funds across the globe are the profound features of crypto-currencies that opens many opportunities for different kinds of criminal and illegal activities. Irwin and Milad (2016) claims that the scope is difficult to estimate due to anonymous user base but crypto-currencies may possibly be the easiest method of financing, since stable cash-flows and financing for criminal activities are the challenging tasks for terrorists and criminal groups.

Similarly, dealing with crypto-currency brokers, payment providers like Paypal and one to one exchanges are some other methods for terrorists and criminal groups. With the development of crypto-currencies online dark markets and illegal economy flourish simultaneously. The conventional search engines (Google) on the surface web are not able to access dark markets;

therefore these markets operate on the cyberspace which is called as deep web (Ciancaglini et al. 2015). Stroukal and Nedvedova (2016) state that dark web is a part of darknet markets, that provide limited access to networks by using special software like The Onion Routed (TOR), which provides maximum security and anonymity and crypto-currencies allow emergence of such market places.

In 2011, Silk Road appeared as the first dark net market, right after two years of the inception of the first crypto-currency (Bitcoin). Initially only Bitcoin was used for making payments for purchases, yet in subsequent years several other crypto-currencies emerged like Monero and Dash (Greenberg 2017). According to Ciancaglini et al. (2015) about 86.14% of the users of the dark markets purchase pharmaceuticals, drugs and seeds (the size of drugs trading is greater than the size of the network), about 6.93% buy games and 6.93% buy stolen accounts.

Furthermore, crypto-currencies are used in malicious trades and multiple cyberattacks (ransomware) like CryptoLocker. For instance, the Armada Collective attack in 2015 on Greek banks (Brown 2016) and the WannaCry attack in 2017 on multiple organizations across the globe (McGoogan Titcomb and Krol 2017) are known examples of ransomwares where Bitcoin (crypto-currency) is used as payment method.

Additionally, crypto-currencies provide easy way to purchase fake money, stolen details, replicated credit cards, passports, citizenships, pornography, weapons, and other services like assassination and leakage of personal identifiable information of officials, government and celebrities (Paxton 2017). While apart from such services, it is projected that block-chain

technology may contribute in the development of sophisticated contracts based transactions and decentralized malicious attacks (malware attacks) systems.

Regardless of many profound advantages offered to terrorists and criminals, crypto-currencies are not recognized as a substantial threat by legal and law enforcement authorities in 2016 (Brown 2016). Whereas in 2015, National Risk Assessment of Money Laundering and Terrorist Financing UK, regards it as low risk for money laundering, and indicates that the use of crypto-currencies is limited to online markets, yet it is probable to become a viable weapon in hands of terrorists in future. Hence, crypto-currencies are potential threat and technological challenge for authorities. Levin, O'Brian and Zuberi (2015) state that the administrations, governments and central authorities are managing to acquaint legislations against the imposed challenge. Investigatory Powers Act 2016, UK and Digital Economy Bill 2016/17, UK etc. are such a response, and several other countries are still trying to define the grounds.

Designing Grounds for Execution of Crypto-currencies

Nevertheless crypto-currencies proved to be valuable with distinct integration into financial markets, while currently targeting niche class of the users. However the prime idea of the crypto-currency is its adoption on the large scale as alternative form of money and unique payment system. The academic literature catches equally negative reviews about crypto-currencies to become widely accepted form of money. As discussed earlier, the potential to recognize crypto-currency as money, it is deemed to compare it against the neoclassical functions of money such as, medium of exchange, unit of account and store of value. Ali et al, (2014), Evans (2014), Yermack (2015) and Weber (2016) share that the crypto-currencies are unable to perform the

stated functions due to low governance, high risk, lack of regulations, and lack of concern to manage supply so as to reduce high volatility. Sachs (2014) report that crypto-currency, on the boundaries between commodities, currencies and financial assets, is best defined as a speculative financial asset which can be used as medium of exchange. However, the difficulties to consider it as a store of value are the main roadblocks to its scope to be adopted as a medium of exchange.

Consequently despite of the prime idea of the creation, crypto-currencies are not perceived as money and there are certainly no chances to replace it with fiat currency. Though this does not indicate that crypto-currency would die, yet there is the potential in the governance arrangements and technology of the crypto-currencies to stay alive in the system to gain wide acceptance. In addition, the idea is brought forward by the Bank of England that an issuance of crypto-currency by central banks to apply block-chain technology to redundant the need to manage accounts for commercial banks.

Spotting Crypto-currency in the Financial System

The significance of the newly established technology is determined by considering the elementary module of the completely new model of financial structure that is Digital Finance. It is obvious that until recent the three fundamental models of financial structure include, the Classical Finance, the Corporate Finance and the Islamic finance, and now the Digital Finance constitutes the fourth structure.

Initially, the Classical Finance counts from the time of issuance of banknotes. This system specifies that the value of money does not change over time, for instance the value of one unit of currency remains same in value over a year. Secondly, the Corporate Finance counts since the

start of the time of rapid growth in financial markets. The system specifies that the value of money depreciates over time. In addition, the Islamic Finance counts since the rapid growth in economic development of Muslim countries. The system specifies the exceptional principle of impermissible interest. Moreover each of the three models assumes central authority of central banks and strict control of state over the domain of financial structures. Therefore, these models are generally categorized as centralized structures of finance.

These financial structures are allied with the development of the economic and political spheres of a country. The Classical finance set the grounds for financial systems, whereas Corporate Finance relates with the development of finance systems. This pace of development creates wide horizons for alternative means for investments that emerged into different ways of establishing business specifically in case of increasing cost of capital. In the meantime, the Islamic Finance finds room to flourish with the rapid economic growth and development among certain Muslim countries. The system permits the Muslims countries to make Shar'iah compliant investments.

Subsequently, as the time heads towards virtual and cloud avenues. The rapid development of financial systems and inherent internet in financial sectors embellishes Block-Chain, Big Data, Smart Contracts, Peer to Peer Networking, Space distribution etc. Such development opens incredibly enormous opportunities for business over the internet. It allows evolution of an entirely unique and novel financial system that is the Digital Finance. Hence, one of the revolutions of Digital Finance is the best known crypto-currencies, primarily the decentralized structure of finance.

From the Lenses of the World

The distinguishing characteristic of crypto-currencies is the absence of regulations to address the use, which is explicitly the basis of its implementation extensively, Barrdear and Kumhof (2016). Deprived the regulations, it requires struggle to ensure legitimacy for its wide acceptance, or else its unrecognized status is supposed to provide benefit illegal activities and prevents adaption by legal businesses and trade activities. The decentralized governance attracts many users to gain confidence in crypto-currencies since they value anonymity as compared to fiat currencies. Yet on the other hand it is likely insecure if hacked. Resultantly, victims turn towards legal and central authorities to retrieve. Therefore many countries do not permit the use of crypto-currencies, and many others do not prohibit the use, though the legal interpretation significantly varies under various authorities and administrations.

Marshall (2017) reports, Bitcoin (crypto-currency) is used as private money in United Kingdom, since value added tax (VAT) is charged on the commission earned but not on the exchange of crypto-currency for sterling Pound. HM Revenue and Customs (HMRC) releases policy paper stating the use of crypto-currency and how taxes are imposed on the transactions depending upon the circumstances. Legally regulations are not imposed on the users. The Bank of England states in an official statement that currently digital currencies (crypto-currencies) do not pose any material threat to financial and monetary stability in the country.

There is a substantial advancement towards forming a workable framework for digital currencies (crypto-currencies) in United States. It is treated as property for taxation purpose Barrdear and Kumhof (2016). Slattery (2014) proposes to enfold Bitcoin (crypto-currency) in the existing tax

regime is US. In 2013, the exchange of crypto-currency indicted under the definition of a money service business (MSB) announced by the Financial Crimes Enforcement Network (FINCEN). This means the users of crypto-currencies are required to follow the existing requirements provided for the MSBs. California and New York lead in providing regulatory framework. Fargo (2015), California Assembly Committee approves a bill in 2015 for regulation of crypto-currencies and in the same year BitLicense regulatory framework is implemented by New York State Department of Finance in order to adopt crypto-currencies' businesses. This regulation however faces many critique and threats of closure of operations in New York from existing digital currency businesses. Khidzev (2016) states, since the regulations impose the obligation to hold reserves of the same size, and the same size of crypto-currency as the amount deposited by the customers of the company along with the provision of the real name of the customers and reporting central authority for every transaction that exceeds $10,000 or equivalent.

Either from legal or economic perspective crypto-currency or any other digital currency is not recognized as money by the European Central Bank. According to the law, euro bank-notes and coins are considered legal and any electronic money is not considered as legal, yet it is accepted as payments of any kind by choice. Currently, crypto-currencies are not regulated in European Union, therefore it is not subject to the Earnest Money Deposit regulations or Payment Services Directives as ECB does not aim to change or expand EU financial legal framework. However the bank alters the former definition of any virtual currency by dropping the words money and unregulated in order to avoid any misunderstanding. In 2014 the Financial Action task Force (FATF) releases a report directing to provide conceptual framework for crypto-currencies in order to address financing of terrorism and anti-money laundering risks postured by the system.

Baille (2016) states that crypto-currency is also been under discussion by European Commission and EUROPOL, since EC proposes implementation of the database constitutes the real identities of the crypto-currency users and the addresses of the providers of the online crypto-currency wallets. However the opponents of crypto-currencies view it as an attempt to harm the existing system.

Firstly, Singapore is one of the countries that enable launch of the block-chain system and use of crypto-currencies nationwide. In 2017 the report of Monetary Authority of Singapore releases an outline of their project Ubin, which is a prototype of Distributed Ledger Technology (DLT) for inter-bank payments and cooperation with financial institutions and other banks. Their token is based on Ethereum, which is used for transactions among customers of banks and exchanges the part of their fiat money. Moreover the electronic currency that is being used in their project Ubin is totally backed by the Singapore dollar as it is the tokenized version of their fiat currency.

Secondly, in terms of crypto-currencies and framework of regulations Canada turns out to be progressive country. Barredear and Kumhof (2016), claim that Canada is the foremost country to establish tax system on any virtual currency. Arnfield et al., (2015), states that the parliament of Canada approves a bill that amends their existing laws of anti-money laundering and financing terrorism to make it applicable for users of crypto-currencies. In another report Pearson (2017) says the National Bank of Canada adjoins the Ethereum Alliance Enterprise to develop unique applications of business on Ethereum based block-chain. Hertig (2017) reports the Bank of Canada launches inter-bank payment system based on block-chain technology in their project Jasper likewise Singapore, yet later the plan is postponed.

In 2017, the government of Japan starts recognizing and accepting Bitcoin (crypto-currency) as legal tender of making payments. The crypto-currency exchanges follow anti-money laundering as well as know your customer regulations to classify it as prepaid instrument of payments.

The government of Australia set plans to position their country as the global leader by investing billions of Australian dollars into Fin-Tech industry. In 2015 Bitcoin's world market is controlled by Australia. The central authority eliminates digital currencies from taxation as goods and services since 2017 and treats crypto-currency as money.

Whereas in case of Marshall (2017) states that inflation predicted by IMF hit the highest and several companies accept Bitcoin as sole way of making payments. Rands (2017) claims that the President of Venezuela Nicolas Maduro accepts policies that allow Bitcoin on a broader scale.

Developing countries like Nigeria and India report rise in the use of crypto-currencies. Rivlin and Gebron (2016) states that the implementation of Ethereum based block-chain is India is considered as alternative of currency and a system to solve many issues like voter fraud, broken identity system and exceptionally high remittance charges. Campbell (2017) refers the report of the inter-government committee provided by Ministry of Finance India to design the legal framework of crypto-currency market to make it open for public.

Contrary to the above, there are several countries that pursue otherwise, for instance, Carata (2017) state that Thailand stood the first country to ban the trade of crypto-currencies and any transaction while using this system of payment, since the absence of appropriate laws to cope with the system.

Similarly, Russia adopts the same stance yet government of Russia applies the law that forbids use of anything as substitute for the Ruble. The representative of the Central Bank of Russia states the plan to develop their national crypto-currency (RT 2017). The testing set on the Hyperledger and Materchain platforms and one of their stock exchanges plan to permit trade of virtual currencies. The Ministry of Finance, Russia confirms to recognize and accept crypto-currencies by the year 2018.

In case of China, the People's Bank of China warns the financial institutions to use and trade in crypto-currencies (Hern 2013). Yet the government modifies the stance and rather prohibiting the use imposes regulations on the crypto-currencies and the exchanges (Arnold & Chen, 2017 and Tian, 2017). Though in 2017, the decision reverts back to the earlier position and the crypto-currencies market put back to disarray.

However, He et al. (2016) refers to the report of IMF that states policy and regulatory challenges in order to legalize crypto-currencies for countries. The report claims that virtual currencies do not fulfill legal interpretation of money and hence, holds risks for financial systems. Moreover, it depicts regulatory challenges and troubles in monitoring the projects, the transactional reach and the absence of abiding laws to formulate strategies for such decentralized system.

Regulation of Crypto-currencies

From the above discussion, different countries employ exotically different interpretations towards legal classification and application of crypto-currencies. The academia is also divided in their stances to draw legal definition of crypto-currency. Srokosz and Kopyscianski (2015) claims that crypto-currencies should be categorized as private money, whereas Enyi and Le (2017) argues to

classify it as personal property especially securities and money. Such differences are resultant of the dependency of each country on their common and civil laws.

Enyi and Le (2017) states when crypto-currencies are considered as securities; generally it refers to crowdfunding sales by means of ICOs. According to the US law specifically the Jumpstart Our Business (JOBS0 Act and the securities Act 1922, the definition covers crypto-currencies. Therefore, subject to the Commodity Futures Trading Commission (CFTS) most of the crypto-currencies qualifies as commodities for making ICOs.

However, crypto-currency is defined distinctively depending upon the context due to the structure of the block-chain technology and the governance. Since the lack of legal recognition as equivalent to cash, as there is no increase or decrease of money between the wallets actually, it just place indicators in the block and records the transaction on the block-chain.

Therefore, it seems difficult to regulate the entire system, though exchanges are easier to control. The countries that formulate explicit regulations may possibly concentrate primarily on such exchanges. International Monetary Fund (IMF) 2016 states, regulators may execute regulations for market participants from providing interface or restrict regulating entities (banks) from interacting with crypto-currencies and the market participants while providing legal framework for crypto-currencies.

In another study Chambers (2016) suggests that English law interprets the trade of crypto-currencies on exchanges as securities; hence the regulations of securities should be drawn down to crypto-currencies.

Even though, if crypto-currency is regulated following appropriate laws, crypto-currency exchanges and crypto-currency wallet regulators may possibly be perceived legally uncertain since they hold users' key. Meanwhile if any case of hack occurs on any such institution, the effective solution is to report contract claim or proprietary restitution claim against such institution regarding breach of terms and conditions. For such a system, it is important to define and execute self-imposed standards and regulations by crypto-currency exchanges themselves.

Drawing the State of Crypto-currency in Pakistan

Certainly there is market of crypto-currency in developing countries including Pakistan, but definitely far away to arrive as accepted and trusted widely. In a country like Pakistan, which has yet to catch a way to operate Paypal, crypto-currency can never be the urgent priority. Since crypto-currency seized the attention of the rest of the world in early 2016 yet a very few people know and seem to understand in Pakistan about the applications of digital currency. However reportedly there is climb in the price of Bitcoin observed in 2016, which is accredited commonly to the community of freelancers of Pakistan. As they generally face issues when dealing in international payments. Since Pakistan is one of the most popular country in freelancing industry but payment choices are limited in the country. The regulations of crypto-currency in the country may help freelancers to exchange such transactions simply into fiat money. In addition to this the flow of remittances in Pakistan is multiplied over the last decade and this has made remittances an important source to get foreign exchange besides exports. Therefore crypto-currency adoption could be certain for remittance providers as it offers less transaction costs. Moreover, there is variety of bank free mediums to transfer money by using cellular technology including

EasyPaisa, MobiCash and UBL Omni etc. These mediums have faced more or less similar issues like crypto-currency is facing now, but once these mediums are offered, are adopted around trust. If people realize crypto-currency they may possibly start trusting just like they realize and trust other mediums of mobile payments. Hence this market could easily transfer to crypto-currency which may become a new thing.

However these avenues are quite sophisticated and suppose sophisticated users. Inconveniently crypto-currency has been banned by the state bank of Pakistan as crypto-currency is an untrusted peer to peer decentralized transaction. It is generally prone to unsecure means like money laundering, dark-web and still lacking in specific law enforcements. A simple argument in this debate is, whether without crypto-currency the country is free of money laundering, corruption and dark-web issues? The answer is absolutely no, since we are facing these issues specifically money laundering and corruption since independence. If we talk about financial markets, there is speculations and presence of arbitrage in equity markets which make any security volatile or sensitive to market changes.

Conclusion

Thus, none of the side is absolutely right and none is absolutely wrong, rather it depends how to make the right beneficial and the wrong least destructive. The state bank of Pakistan may not regulate crypto-currency due to its nature but still it can regulate the block-chain and exchanges of crypto-currency. It may register exchanges and users and apply limit to the transactions on such exchanges. Though crypto-currency provides soft corner to the money launders and dark-web users, which is just a medium. The government of Pakistan and the state bank of Pakistan

jointly should make and enforce strict laws against terrorism and money laundering issues. Moreover, crypto-currency is deemed to be considered as an asset rather than currency. There should be specific financial and taxation laws regarding crypto-currency and any gain on crypto-currency should be taxed as any realized income is being taxed. Hence, as the government of Pakistan started supporting mediums of mobile payments and micro banking, there is hope soon crypto-currency and its technology will arise as legal in the near future. Furthermore, as the world is transforming into a global village and everything is revolving around cloud and cyber technologies. To keep on the pace of the world, every country is heading towards adopting such technologies and is bound to welcome what is being offered to it, since no country can survive in isolation. Crypto-currency is one of those offered avenues to transform financial markets through digitalization, which definitely will take time but of-course the journey has begun. Sooner or later Pakistan and other emerging countries would have to accept and legalize crypto-currency and such technologies.

Therefore, the study offers beforehand understanding for academic research to understand such digital asset with thoughtful and generalized arguments for risk managers, practitioners and, institutional and individual investors alike, to take crypto-currency as a practical investment opportunity.

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