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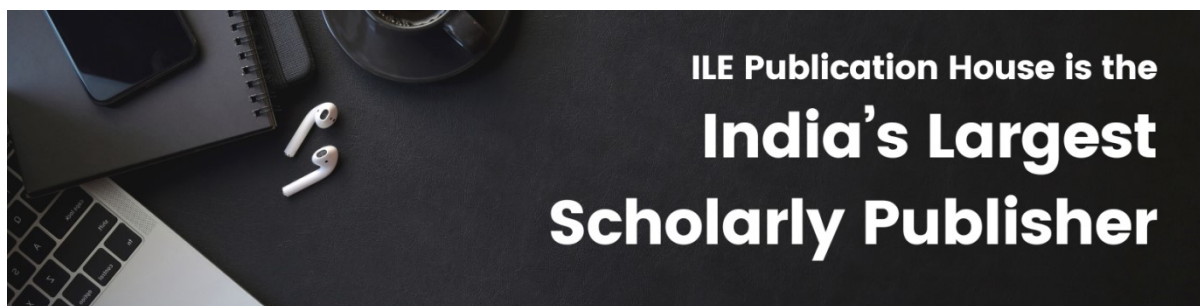
Chairman of Institute of Legal Education

No. 08, Arul Nagar, Seera Thoppu,

Maudhanda Kurichi, Srirangam,

Tiruchirappalli – 620102

Phone : +91 94896 71437 – info@iledu.in / Chairman@iledu.in



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AUGMENTATION OF THE NETWORK OF CRYPTOGRAPHIC ASSETS: A COMPREHENSIVE ANALYSIS ON THE ESCALATION OF FINANCIAL FRAUD THROUGH CRYPTOCURRENCIES

AUTHOR – SUBHRA DAN, STUDENT AT ADAMAS UNIVERSITY

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Abstract

The globe has been witnessing a drastic transposition in every aspect of trading, commerce, fintech and other media after the advancement of technology. With the course of modernization and digitalization, the world glimpsed the creation of blockchain technology in the late nineteenth century. The invention of Bitcoin stemming from blockchain or e-ledger technology is considered the cornerstone of crypto trading throughout the world. The decentralized e-ledger technology allows all the traders and investors to regulate and spectacle all the transactions that go on in the blockchain. However, as the identity of the traders is anonymous in the crypto market, so in the past few years this market has been exclusively explored for exercising the evil practice of money laundering or financial fraud. The notable toolboxes that are used by the malefactors include tumbling or mixing, chain hopping, Burner's wallet, privacy escalating cryptos like Monero, money mules etc. The rapidly evolving world is modernizing the methodology of committing malfeasance. Due to the dearth of suitable legitimate guidelines or legal frontiers to regulate the crypto market or any sort of trading through cryptocurrencies, there is a noticeable surge in the transgressions related to monetary transactions through crypto trading platforms. The paper has exclusively adopted the doctrinal methodology of research and has studied the contemporary trends of crypto-market along with the factors that contribute in an escalation of money laundering through crypto trading platforms. A kaleidoscopic prospect of cryptocurrencies and their extreme usage in money laundering has been analysed in-depth throughout the chapter. This analytical piece endeavours to explicate the contemporary scenario of the filigree of financial fraud through the crypto transaction along with the urgent need for legitimate frontiers to secure the prospect of the entire globe in the online trading platform through crypto coins.

Key words

Cryptocurrency, money laundering, blockchain, cybercrime, digital transaction, white-collar crime.

Introduction

Modernization goes on with evolution of human needs and satisfaction. Since the invention of computers, technology and broadbands, people came up with thoughts and innovations which directly or indirectly affected the world of trade, commerce, fintech, data privacy, data analysis, business etc. During 1990s, the world

witnessed a massive change in the world of technological innovation that is blockchain technology or decentralized e-ledger technology. The groundbreaking innovation was followed by the inventors of bitcoin. It is believed that 'bitcoin' is a very prominent example of utilization of blockchain technology in decentralized finance or defi. The market structure of bitcoin or cryptocurrency has faced

an escalated growth since 2015. Parallely bitcoin, the market has evidenced thousands of other cryptocurrencies that work and get regulated by the blockchain technology like Polkadot, Solana, Ether, Dogecoin, Litecoin, Ripple etc. The expansion of the crypto-market and the frequent hindrances in other digital commercial platforms led investors or traders to grab and practice trade in decentralized crypt market. The advantages and the policies to bypass the government or the centralized banking system of a certain nation has eventually attracted the stakeholders with ignoble mindset to launder their black money or practice other white-collar crimes freely as there is fainty in sort of control of the government or any monetary authorities.

As the progression of market continues, it has been evidenced that there is sudden escalation in the varieties, severity and dynamics of white-collar crimes through the crypto transactions. There is a severe lack of specific provisions and legitimate framework throughout the world to regulate the trade, bidding, contracts and transactions through crypto currencies in blockchain platforms or databases. This research article analyses the white-collar crimes that are continued throughout the world by misusing the cryptos or digital currencies. The analysis initiates with the part one of this chapter which highlights impetus behind emergence of cryptocurrencies and the sole impact of blockchain in promoting the decentralized nature of the market. The following part cultivates an in-depth study of the market structure of cryptos along with recent technological innovations in the field of digital currencies due to the intense demand of the traders. Part three underlines the factors behind emergence of delinquencies or offences in the mentioned market and part four underscores the updated regulatory frameworks that are prevalent throughout the world in the crypto giant countries like Singapore, Japan, India, and other notables.

Impetus behind emergence of cryptos

The technology of cryptography safeguards virtual currencies known as cryptocurrency through decentralized networks, which usually depend on blockchain technology. Cryptocurrencies operate under encryption and distributed ledger verification, which stops both fraud and duplicate transactions in the system. Bitcoin, together with Ethereum and Litecoin, represent popular cryptocurrency examples that function as digital investment assets for payment transactions, along with implementing smart contracts. Through cryptographic procedures, the payment system integrates blockchain systems to perform distributed management protocols and secure operations. Free control mechanisms cannot operate within crypto transactions because decentralized systems enable secure transactions with transparent actions that prevent censorship attempts. Cryptographic cryptocurrency functions with decentralized operations and encrypted information and peer-to-peer networks while applying data logging for unchangeable permanent record storage²⁴⁶.

Digital currencies got their basic elements from cryptocurrency innovations that occurred during the 1980s and 1990s. Before cryptocurrency technology was developed, David Chaum established Digital Cash, which served to shield user transactions. The foundation of modern cryptocurrencies originated from Bit Gold, which Nick Szabo developed, and B-Money, which Wei Dai proposed, resulting in the current cryptocurrency foundations. Digital money products that came before Bitcoin did not reach commercial success due to regulatory barriers combined with weak trust-based security features. Bitcoin entered public awareness after its inaugural successful cryptocurrency launch by an unspecified scientist naming Satoshi Nakamoto occurred during the 2008 market crisis.

²⁴⁶ The Investopedia Team (2024, June 15). Cryptocurrency Explained with Pros and Cons of Investment. Investopedia. <https://www.investopedia.com/terms/c/cryptocurrency.asp>

Blockchain operates as Nakamoto described in his work "Bitcoin: A Peer-to-Peer Electronic Cash System" to validate electronic transfers between decentralized users in their wallets. His conceptualized open framework stopped transactions from repeating while taking funds away from the banking organization's control. The launch of Bitcoin in 2009 led to a mass emergence of alternative cryptocurrencies that brought about Ethereum, together with Ripple and Litecoin, as well as thousands of other altcoins. The laboratory-originated crypto system has evolved to become a universal financial industry which now dictates banking protocol and investment decisions concurrently with governing global legal framework

Market structure of crypto world

The cryptocurrency market operates within a very different and unique method than the traditional markets. It is a decentralized highly volatile technology-based market which has few key components as an integral part of the market. There are numerous participants that take part to escalate the trade in crypto trading platforms. The participants include retail investors, institutional investors, miners and validators, exchange and brokers and most importantly data analytics and software developers. Though the crypto market is famous for the usage of decentralized e-ledger technology yet there are several popular crypto trading platforms that are operated by the traditional centralized manner. Binance, Kraken are some popular centralized platforms which follow the traditional way of trading and have hardly adopted the technology of smart contract, peer-to-peer transaction and least involvement of intermediaries. The recent massive growth in the crypto market has influenced the traders and the market owners to develop trading mechanisms like spot market for instant buying and selling purposes, derivatives market for future options and contracts and lastly over the counter trading for avoiding market manipulations.

Emergence of delinquencies in crypto world

White-collar crimes include a range of crimes that are generally committed by highly professional and skilled personnels who are engaged in practices that include huge amounts of monetary transactions. There are ordinary criminal activities that involve threat to physical health or coercion but the concept of white-collar crime revolves around threats to an individual's financial status or authority over any asset. The white-collar crimes or often termed as sophisticated crimes involve money laundering, financial scams, frauds involving money and others. In recent years, there has been an evolving market known as the crypto market which involves trading by using crypto currencies. Pseudo-anonymity and decentralized e-ledger technology provide a suitable condition to the cyber offenders or evil-minded individuals to continue the delinquent activities in the crypto market. It is evident that the transactions are recorded in the blockchain and the data are entirely regulated in public domain but there are a huge number of features and technicalities that enhance the anonymous nature of the crypto coins like Monero. Unlike the fiat currency, crypto currencies are subjected to high risk of volatility and fluctuations²⁴⁷. The crypto wallets are highly susceptible to cyber fraud and theft by illegally controlling and regulating stake holder's accounts. One of the most popularly practiced evil activity by the offenders is the mis-usage of crypto currencies solely for money laundering. As there is no direct control of any authority or any government and no visible intermediate check post, so the criminal profits are laundered using the cryptocurrencies. In recent years, the payment of ransoms or criminal activities are transformed into virtual assets. As cryptos are outside the ambit of government and other regulatory authorities or statutes, so it provides

²⁴⁷ Chainalysis Team (2025 January 15). Crypto Crime Trends: Illicit Volumes Portend Record Year as On-Chain Crime Becomes Increasingly Diverse and Professionalized. Chainalysis. <https://www.chainalysis.com/blog/2025-crypto-crime-report-introduction/#:~:text=Stolen%20funds%20and%20scams%20still%20proliferate&text=Private%20key%20compromises%20accounted%20for,amount%20tolen%20for%20the%20year.>

a safe platform to the hackers and criminal offenders to purchase, transfer and ultimately launder their black funds. Another mentionable misconduct that has escalated in past few years is the fraudulent activities of the crypto trading enterprises or platforms. It is often found that the criminals potentially utilize the popular platforms or blockchains to fraud the money or in some extreme cases they set up their own schemes with attractive returns or immense profit margins. The well-known pyramid scheme is used by the offenders to attract the capitalists and investors with a sole promise of high return in a very short time than other platforms or companies. The most mentionable scam in the crypto world was done by FTX which was an amount of more than \$300 million dollars. Drug trafficking is another illegal practice that has also utilized the crypto world as a medium to carry out the mischief. According to the reports and analysis, mostly the nations of European Union have suffered from the evil practice of drug trafficking through crypto currencies. Hence, the nations have come up with numerous provisions, security guidelines and long-term investigations. These massive scale scams are generally continued by the experts or professional crypto currency service providers²⁴⁸.

3.1 Market Manipulation- As the entire market runs in online platform so there are immense chances of market manipulation. There are numerous tactics like wash trading, pump-dump scheme or spoofing. It is often found that the market regulators or whale investors inflate the trading volumes by using artificial intelligence or inflate the price of the cryptocurrencies. This creates a disturbance in the market and disturbs the demand of coins. This causes financial losses and scams with the investors and beginner traders.

3.2 Ponzi and Pyramid scheme- the investors have shifted to the defi from traditional banking system solely due to an increment in the return.

The trading platforms use this intention of the traders and influence the investors by promising a high return or immense profit. There are several incidents in which the venture capitalists or the stakeholders have faced huge monetary losses due to the fake promises of the crypto enterprises regarding the high return policies.

One of the largest financial frauds in the history of cryptocurrencies is the FTX scam of 2022. The owner of FTX i.e. Samuel Bankman Fried was sentenced to an imprisonment for twenty-five years for his fraudulent practice worth 11 billion dollars. The enterprise promised a high return to the investors and gradually invested their capitals in Alameda as a part of personal investment and luxury expenses. There was a massive use of artificial intelligence and data manipulation by the company which tampered all the data related to transactions, investments and other financial statements.

3.3 Inside Trading- as there is a severe lack of any government regulatory mechanism or there is hardly any involvement of any national banking body, so insight trading is a very common and significant issue. In case of centralized platforms, the employees of the enterprise have access of all the secret data and minute details of the transaction process hence the tampering of information and data either in the blockchain or in other areas become feasible. In past two years, numerous cases have been listed which have highlighted the engagement of company executives in pre-listing purchase of tokens. This caused them a huge profit and those assets were listed with a surged price.

3.4 money laundering- as the cryptocurrencies are pseudonymous in nature, so the laundering of illicit funds becomes easier. As there are hardly any interrogations related to the source of the money or any KYC (know your customer), so it is feasible for the criminals or evil traders to launder their black money. The technologies involved with the cryptos include decentralization, mixing services and

²⁴⁸ Christopher Bosch & Maxwell Earp-Thomas (2025 February 28). White Collar and Government Blog. Sheppard Mulin. <https://www.whitecollarlawblog.com/category/cryptocurrency/>

anonymous coins like Monero, Z-cash etc. which also benefit the criminals to hide their identity and continue trading like other investors. The nations of European unions and the USA have come up with numerous cases related to money laundering and terrorist financing by using the crypto currencies. The US government has taken strict legal actions against several crypto platforms which include the giant platform called Tornado cash for the practice of money laundering.

Comparative analysis of nations coming up with crypto regulations

4.1 Legitimate Frontiers in the U.S.A.²⁴⁹

The cryptocurrency trading platforms exclusively uses the technology called cryptography to secure the transactions. But the USA has no specific statute or set of rules that deal with the regulations of all sorts of activities including money laundering compliances, taxation, securities and consumer protection. Till today there is faintly any suitable regulations that I prevalent in the USA at federal or state levels. In 2024 an initiative was adopted by the house of representatives which is termed as the Financial Innovation and Technology for 21st Century but the regulation has not been enforced. As there is no direct regulatory charter available, so the crypto market inside the United States is regulated by the already existing laws which includes the Securities Exchange Commission, Commodity Future Trading Commission, Internal Revenue Services, US Department of the Treasury's Financial Crimes Enforcement Unit etc.

4.2 Crypto-regulations in Japan²⁵⁰

The leading light of the world of technology has stepped in the world of defi almost two decades ago. The cryptos are neither equated as a legal tender nor considered as a fiat currency. But,

the first ever crypto i.e. Bitcoin has achieved a standard of legal tender in Japan. The laws emphasize an entity to register as a crypto asset exchange provider if it engages itself as a medium for crypto trading in Japan. The sole objective of this regulatory charters is to secure the customers from huge financial scams and prevent crimes like money laundering and terrorist financing through cryptos.

4.3 Legal Framework in Singapore

Like other nations, Singapore is an arising star in the world of cryptos. In recent years the nation has stepped in the world of metaverse, fintech, web3, NFTs, treasure NFTs etc. To come up with the rapidly changing and evolving financial market, the monetary authority of Singapore has formulated and executed set of rules and suitable regulations to control the fintech by attracting crypto trading companies and imposing suitable licence on them. The most famous example is the crypto trading company named Wazir-X who has its company office at Singapore.

The nation is rapidly flourishing as a crypto hub by attracting the crypto trading platforms and other sectors related to digital currencies or asset trading. Crypto currencies are considered as property under the laws of Singapore. The leading statute that acts as a chief controller of cryptos is the Payment Services Act²⁵¹ of 2019. The nation came up with the Financial Services and Market Act in 2022 solely to regulate the financial institutions inside as well as outside of Singapore²⁵². The act is fundamental in regulating the crypto businesses, money laundering and counter-terrorism financing throughout the territory of Singapore.

4.4 Regulatory provisions in India

²⁴⁹ Sneha Solanki (2025, March 30). Cryptocurrency laws — Legal glossary. Thompson Reuters. <https://legal.thomsonreuters.com/blog/cryptocurrency-laws/#:~:text=No%20defined%20regulation%20is%20used,has%20not%20yet%20been%20enforced.>

²⁵⁰ Liz Mills (2024, November 8). Will Crypto Policy Change Following Japan's Election? Crypto Council for Innovation. <https://crypto4innovation.org/will-crypto-policy-change-following-japans-election/>

²⁵¹ Andrea Balasa (2024, September 3). How Successful is Singapore Crypto Regulation? Comply Cube. <https://www.complycube.com/en/how-successful-is-singapore-crypto-regulation/>

²⁵² Weiyi Tan (2023, January 11). Crypto regulations in Singapore and the EU: an overview . Clyde & Co. <https://www.clydeco.com/en/insights/2023/01/crypto-regulations-in-singapore-and-the-eu-an-over>

After the judgement of the *Internet and Mobile Association of India v. Reserve Bank of India*²⁵³ there was a sudden change in the thoughts and executions of government of India related to trading and commerce of crypto currencies. Though the government has not yet declared crypto currencies as a legal tender but there have been numerous regulations that has directly or indirectly influenced the trading strategies or investment policies in the crypto market. The banning of crypto currencies regulation was withdrawn by the government as it was declared void and the authority came up with the cryptocurrency regulation bill in 2021. According to the legal provisions, the traders from India are allowed to carry out their investment and business in the SEBI authorized crypto platforms but for any violation or unlawful activities, there are strict penalties and sanctions.

The recently developed taxation policies have also spread their filigree to regulate the crypto traders. The power to levy taxes is secured under Article 246 of the Constitution²⁵⁴ which depicts that the parliament and the state legislatures can impose taxes on any certain good or commodity or service. There is a deduction of 1% at the initial stage which is termed as TDS or tax deducted at source. Then during the buying selling or spending cryptos, there is a tax of 30% which is imposed on the traders or stake holders who trade for more than fifty thousand INR.

The government has brought trading of crypto currencies under the ambit of PMLA²⁵⁵ i.e. Prevention of Money Laundering Act. The sole reason was to bring transparency in crypto market. The stance of the government is not only encircling the security of the investors but also of the nation and its ever-changing business patterns. The virtual digital assets or cryptos are controlled in several ways like the exchange between two digital assets or

between an asset and a fiat currency, transfer of virtual assets, financial services related to cryptos etc.

Conclusion

The cryptocurrencies are no doubt a symbol of immense progress in the development of digital market throughout the world with the help of blockchain technology. There has been numerous issues, crimes and other evil practices that has developed in recent years. The illegal or fraudulent activities are not limited within a single nation, rather it is a cross-border practice. Hence there is a need of a global level settlement among all the nations who come at the creamy layer in the matters related to crypto trading. In India, the population has immense enthusiasm for investment in cryptos, NFTs and other digital trading platforms. So, the economy is getting depended on these day by day. It can be expected from the contemporary data analysis that in future, a major portion of the economy will be depended on crypto trading. But with the escalation of trading, the mischiefs are also progressing their network for which there is a huge need for suitable legislative provisions, regulations, laws and statutes. The government of India has come up with several legitimate frontiers but these are hardly sufficient to cope the exponentially escalating difficulties in the trading market. The policy makers and analysts should come up with active plans and strategies so that the developing virtual creative and business world can be regulated with suitable charters and legal boundaries. In a nutshell, it can be derived that the advancement in crypto currencies signify a fascinating blend of digital creations, assets, technology, business and ethics which depict an amazing future that includes all the nations of the globe on a single market i.e. the crypto trading market. But as the technological advancement promotes and spreads its filigree throughout the world, it is of absolute importance to regulate the advancements with suitable legislative steps and provisions so that innovation may not turn destructive to the entire business world.

²⁵³ *Internet and Mobile Association of India v. Reserve Bank of India*, (2018) SC 528.

²⁵⁴ The Constitution of India, 1950, Article 246, Government of India.

²⁵⁵ *Prevention of Money Laundering Act* 2002 (India).