# Accounting Treatment to Crypto-Assets

Okafor, Victor Ikechukwu PhD.

Department of Accounting, College of Management Sciences

Michael Okpara University of Agriculture, Umudike

## ABSTRACT

*For companies who make transactions and report crypto-related balances as part of their financial statements, determining if a transaction authenticates a crypto-related balance can be difficult, especially for forensic accountants. In general, there is a lot of misconception and misunderstanding surrounding crypto-assets which has contributed to the lack of full acceptance of crypto-assets and how they are used. The aim of this study is to examine crypto-assets in general and what it entails, and also identify how this crypto—assets are are reported.*

**Keywords:** *Crypto-assets; Accounting Treatment; Cryptocurrency; Forensic accountants*

**Introduction**

Historically, crypto-assets have been generally referred to as cryptocurrencies, which is misleading, as it is not all crypto-assets, that function as a form of payment. There are various classification frameworks and the most common categories include utility tokens, which serve as means of providing access to a service or an application by way of a blockchain-based infrastructure for its users, asset or security backed tokens; whose role is to function as bonds, stocks and other traditional securities, and crypto-collectibles, that are limited in quantity and cryptographically unique. Cryptocurrencies like bitcoin can be referred to as "any publicly available electronic medium of exchange that features a distributed ledger and a decentralized system for exchanging value (UK Financial Conduct Authority, 2018). They are viewed as exciting innovations that offer certainty, transparency, and security that does not involve any government regulation or any central authority being involved. The very first cryptocurrency bitcoin was launched approximately 11 years following a white paper that was published by an unidentified developer under the pseudonym Satoshi Nakamoto. Though bitcoin was the first original cryptocurrency and is still the most widely known, presently, thousands of cryptocurrencies now exist, each based off on the fundamental technical concepts that were introduced in Satoshi Nakamoto's paper and implemented using the Bitcoin Network's open-source code. Hence, online businesses no longer need to rely solely on financial institutions as trusted third parties because electronic payments can now be processed without the presence of any central authority or third parties stepping in to mediate or authenticate the transaction. The key advantage of a cryptocurrency distinguishing it from the traditional concept of payment which most of the time is money is the method in which verifiability and security are ensured. Over the years, bitcoin has gradually become more integrated within the mainstream financial system. cryptocurrency transactions could be accounted (documented) for as an inventory if and only if an entity "holds cryptocurrencies for sale in the ordinary course of business." The term "crypto-asset" is extensive and, varies widely in associated terms and conditions depending on the token or coin that is being evaluated. These terms and conditions could also, evolve and therefore need to be reevaluated for the appropriate accounting treatment. Other things that could be considered include the business model of the entity in question and the purpose of the holder. Cryptocurrencies meet the definition of an intangible asset, with potential settings for investment or inventory accounting by an investment company. Because, the appropriate accounting standards, were composed before the birth of crypto-assets, thus there is no provision for the crypto- asset's unique economic makeup. Careful consideration and documentation should thus be given to the details and settings of each crypto-asset case after consulting with professionals who study and understand their intricacies and one of these professionals is the forensic accountants. Although cryptocurrency is viewed as discreet, it creates trails that forensic accountants and digital investigators can trace and use to identify the user.

**Statement of Problem**
Crypto-assets are relatively still a new concept and although in recent years there has been a rise in cryptocurrency's popularity, cryptocurrency is just one aspect of crypto-assets so there is a need to provide more insights on other aspects of crypto-assets. Also, although cryptocurrency is more popular there is still little information on how this type of transaction can be documented by forensic accountants.

**Objectives of the Study**
1. To ascertain what crypto assets entail

2. To identify how cryptocurrency transactions can be documented

**Crypto-Assets**
Crypto-assets is a broad term, which covers all assets that are stored on distributed ledgers. This includes; All cryptocurrencies and Non-currency assets.

**Cryptocurrencies**
Cryptocurrencies can be defined as "any form of currency that only exists digitally, that usually has no central issuing or regulating authority but instead uses a decentralized system to record transactions" (Merriam-Webster, 2018). Presently, no governing body issues cryptocurrencies, and in the United States, and most countries are not considered as legal tender (Rooney, 2018). This implies "there are no protections measures put in place for both the consumer and the merchant, and that the use of cryptocurrencies as payment is completely discretionary" (Acheson, 2018).

A cryptocurrency is the result of a cryptographic computational, proof of the chronological order of transactions in the form of a peer-to-peer distributed timestamp. Hence, cryptocurrency is a chain of digital signatures and this

system is secure as long as honest nodes collectively control more CPU power than any cooperating group of attacker nodes (Nakamoto, 2008). The main intention of developing blockchain was not to create a new type of currency but to ascertain the principles of a functional decentralized cash payment system (Rosic, 2017). The cryptocurrency which then surfaced was a by-product of this process, then it began to serve as a medium of exchange and which is also the principal function of money (Kiyotaki & Wright, 1989). Ten years after its initial release, economic agents and brokers are acquiring cryptocurrencies not only for online cash transactions purposes but also as an investment option to realize future capital gains. Cryptocurrencies satisfy the second function of money, which is "a store of value" (Mccabe, 1989; Ram et al., 2016). Like other new investment assets, price systems are highly unpredictable and are subject to abrupt increases and rapid declines. Additionally, their elusive (digital) nature gives room for serious doubts about their real (intrinsic) value and boosts, thus, the magnitude of price fluctuations. Cryptocurrencies are not referred to as true currency because they are not official money, also known as "fiat currency".

Cryptocurrencies are essentially a combination of four technologies:

**1. Distributed ledgers**
which are also known as the transaction record. For bitcoin and many other cryptocurrency systems, the ledger is structured in a "blockchain". Each participant will have a copy of the whole ledger.

**2. Decentralized control**
There is no controlling entity or central authority. Participants make transactions directly with each other.

**3. Use of cryptography**
This protects participants and authenticates transactions and balances

**4. Automation**
This involves the ability to programmatically automate transactions like smart contracts or trigger payment of interests on a bond once a specified event transpires.

**How Does a Cryptocurrency Transaction Work?**
Like fiat(money), cryptocurrencies could be given in exchange for goods and/or services between two parties that are willing to make a transaction. The main difference between these two medians of exchange is how the transaction is processed and monitored. Since the transfer of cryptocurrency takes place in the blockchain, the environment where a cryptocurrency transaction occurs differs greatly when compared to where a fiat transaction takes place. A traditional fiat transaction would normally take place within a heavily regulated, monitored, and centralized banking system. While a cryptocurrency transaction is held over an unregulated algorithm12, which has very minimal oversight associated with it.

A very simple description of how a typical cryptocurrency transaction occurs is as follows
  1. DD wants to send cryptocurrency to TT
  2. This transaction will be represented online as a block
  3. The block will then be distributed to everyone on the network
  4. A miner within the network confirms the validity of the transaction
  5. The block is then added to the blockchain or public ledger
  6. Then the cryptocurrency will move from DD to TT

The preceding process requires both the public and private keys connected with the sender's digital wallet to coincide for the transaction to be processed. The main identity marker of the receiver and sender is their public key.
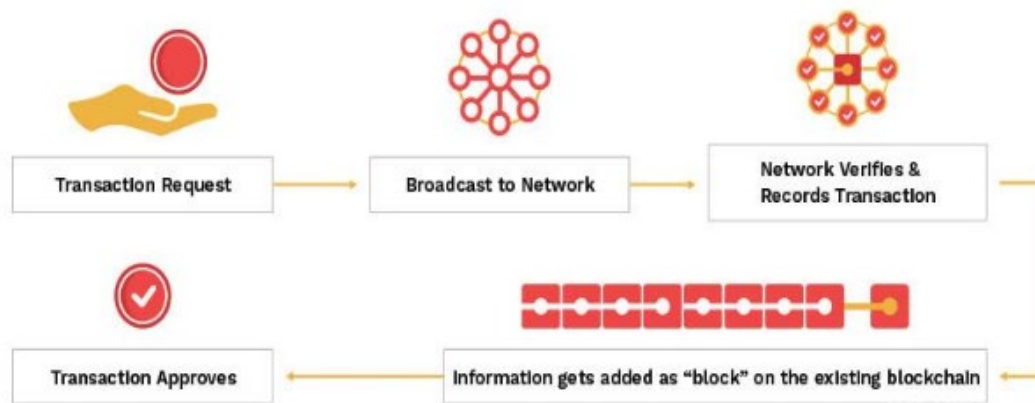
**Fig 1: A Simple Visual Illustration of a Cryptocurrency Transaction**

**Bitcoin**

Presently, bitcoin is the most popular form of cryptocurrency. Bitcoin is not a physical coin but rather a decentralized cryptographic currency consisting of a chain of signatures that record and provide the transactional history of the bitcoin. To circulate bitcoins, Individuals are known as 'miners' crack complex mathematical algorithms which then verify the transactions each Bitcoin engaged in. Over time, this leads to an expansion of the number of Bitcoins in circulation. it has a preannounced limit of twenty-one million which is estimated to be reached by 2040 (Hughes & Middlebrook, 2014). Bitcoin makes use of peer-to-peer networks to circulate a master copy of the public ledger to all the participants, this public ledger will contain all the Bitcoin transactions recorded and verified. This public ledger is called a blockchain and it guarantees that all transactions are not counterfeited nor duplicated. Using blockchain signifies that all transactions are publicly recorded, thus verifying that no identical Bitcoins are used or "double-spent" (Trautman, 2014).

The introduction of Bitcoin to the world in 2008 and was met with suspicion and admiration, especially because, its introduction was in the seminal paper by an entity called "Satoshi Nakamoto" (Nakamoto, 2008). The paper began by explaining the then deficiencies of the commerce system on the internet, noting that commerce relies almost entirely on the participation of financial institutions who acts as trusted third parties in any financial transactions online. Nakamoto then proceeded to note that one of the inbuilt weaknesses of this system is the impossibility for there to be complete non-reversible transactions reason being, the costs associated with it are undesirable (Nakamoto, 2008). The probability of reversible transactions implies that fraud is ultimately accepted as being unavoidable. Nakamoto proposed that to get rid of the need for a trusted third party (financial institutions), there is a need for an electronic payment system that is based on cryptographic proof instead of trust. This would allow any willing parties to make transactions directly with one another without involving a trusted third party. These transactions when made will be computationally impossible to reverse, thus protecting the sellers from any form of fraud.

The primary intention for the creation of bitcoin was attaining security for all online financial transactions by creating inexpensive non-reversible payments that would help to extremely reduce or even eliminate the instances of fraud. Yet, even good intentions can be corrupted to advance more unscrupulous ends not minding the initial intention.

Anyone with access to the Internet and a good amount of computer memory space could use Bitcoin. For this purpose, on the official website users has the option to choose "wallet" and to install it. This wallet can be installed on a personal computer, mobile phone, or any device with access to the Internet. Wallets have specific addresses and contain information about closed keys "seed" for all Bitcoin belonging to a particular user. By installing the aforementioned wallet user make use of them to do any transactions.

All owners of Bitcoin's accounts, wallets, and participants of transactions, are holders of individual accidentally generated numbers. These generated numbers become a key or password for the element or activity. Any key or password is anonymous and unique because it does not require the user's data and the owner of that key automatically becomes the owner of the cryptocurrency account, wallet, or transaction. The Peer-to-peer system utilized by Bitcoin allows the users to do all transactions between themselves without the need for a third party. Operations are checked by network nodes and records to a distributed ledger database – blockchain.

This blockchain automatically passes across the information to one party that another party has paid for goods or services. Everyone participating in cryptocurrency commerce has the same capability to control the movements of cryptocurrency. All verified transactions are included in the blockchain.

### Ethereum

Ethereum is currently the second-largest cryptocurrency in the world. Like Bitcoin, Ethereum exists as part of a blockchain-based network same as Bitcoin. Ethereum makes use of decentralized computing software which enables its users to run codes and programs to develop smart contracts. Contrary to a standard contract in which the terms of a relationship (which are usually enforceable by law) are outlined, a smart contract essentially enforces the relationship by virtue of the program executing exactly as it has been set up by its creators. This enables various developers to create various types of distributed apps and technologies not compatible with Bitcoin.

Other major cryptocurrencies include, but are not limited to, the following:

I. Ripple

II. LiteCoin

III. EOS

IV. Cardano

V. Stellar Lumens

VI. NEO.

### Blockchain/Distributed Ledger Technology (DLT)

A DLT serves as a database (a ledger) and/or an accounting system that is implemented across a network, this gives participants the ability to track the ownership and transfer of tokens and crypto-assets from one party to another in the absence of traditional financial intermediaries. These digital ledgers are maintained by participants in a decentralized network of computers. Blockchains make use of cryptography to both processes and verify transactions on the ledger, making it difficult to compromise the data in the ledger and to provide independent and verifiable proof of both payment and ownership.

### Token

Tokens are the digital representations of crypto-assets that are conferred on during the process of a sale that is aimed at raising capital for an organization or a business. Tokens are most of the time bought in exchange for existing crypto-assets i.e. bitcoin, ether. In the presence of sufficient demand, some tokens can be traded on a secondary market. i.e. cryptocurrency exchange platforms and, then will consequently start to bear characteristics of a cryptocurrency or payment token like bitcoin, instead of a utility or security token.

The two main sub-categories of token

### 1. Security token

This type of token is designed as an investment opportunity, with characteristics that are associated with traditional financial instruments. E.g. includes a situation where the token owner expects future returns or profits from the token, either through interest payments, price appreciation, or some other form of profit. The most common security tokens are either equity or debt tokens.

### 2. Utility/access token

This type of token entitles the contributor to use a product, function, or service provided by a particular business or organization, i.e. loyalty points.

### 3. Payment or exchange token

An example of a payment token is bitcoin; in this guidance, payment tokens will be referred to as cryptocurrencies.

### Initial Coin Offering (ICO)

An ICO is a fundraising tool used by some businesses, a new future digital token is created and offered to contributors in exchange for fiat(money) or other crypto-assets of immediate and liquid value (e.g. Bitcoin or Ether). Normally, tokens are both created and sold to raise money for a business to cover both its technology development and operating costs. While ICOs tend to occur before the business platform is launched officially. ICOs can either be

a public (e.g. open to all potential investors) or a private (i.e. presented only to select investors) affair. The nomenclature is deliberately close to the well-known 'IPO' in public equity markets.

### Forensic Accounting

The definition of forensic accounting is changing in response to the growing needs of corporations. According to Bologna and Lindquist (1985), forensic accounting is "the application of financial skills, and an investigative mentality to unresolved issues, conducted within the context of rules of evidence". As it is an emerging discipline, it encompasses financial expertise, fraud knowledge, and a sound knowledge and understanding of business reality and the working of the legal system. This implies that forensic accountants should be talented in both forensic accounting, and also in the law, interior control frameworks, investigative capability, other institutional prerequisites, and interpersonal aptitudes.

### Classification of Crypto-Assets in Accounting

Most people assume that cryptocurrencies are financial instruments because the word contains the term "currency" and thus translates to cash. This assumption is wrong because under the application guidance of IAS 32 (par. AG3) "currency" is categorized as a financial asset, because

I. It represents the medium of exchange

II. It is also, the basis on which all financial transactions are measured and recognized in any financial statements.

However, for cryptocurrency, the following applies:
I. Although it can be used in exchange for goods or services, it is not yet widely accepted.

II. It is not used as the monetary unit in the pricing of goods or services.

III. Cryptocurrencies are a poor store of value due to their high volatility.

Thus, cryptocurrency holdings cannot be classified as either cash or cash equivalents, financial instruments, property, plant, and equipment, or investment property. This leaves just 2 remaining classification categories, which are intangible assets and inventories.

### Intangible Assets

IAS 38 'Intangible Assets' defines an intangible asset as "an identifiable non-monetary asset without physical substance". The definition can be categorized into three components. The table shows below shows how each part of the definition is met.

| Definition | |
| --- | --- |
| **Identifiable** | Looking at the first aspect of this definition, IAS 38 states that an asset is identifiable "if it either:<br>a  is separable, ie is capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable asset or liability, regardless of whether the entity intends to do so; or<br>b  arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or from other rights and obligations".<br><br>Cryptocurrency holdings can be traded on an exchange or in peer-to-peer transactions, and therefore meet this part of the definition. |
| **Non-monetary asset** | As discussed above, cryptocurrency holdings can be traded on an exchange or in peer-to-peer transactions and an entity can therefore expect an inflow of economic benefits from them meeting IAS 38's overall definition of an asset.<br><br>In terms of whether they are a monetary asset or a non-monetary asset, IAS 38 defines monetary assets as "money held and assets to be received in fixed or determinable amounts of money". The value of a cryptocurrency is not fixed or determinable but subject to major variations that arise from supply and demand and cannot be predicted. Therefore it is not monetary but non-monetary in nature. |
| **Without physical substance** | Cryptocurrencies are a form of digital money and do not have physical substance. |

**Fig 2: Categorized Definition of Intangible Assets**

To summarize, given that cryptocurrencies are a form of digital money and they have no physical form, in most cases "intangible asset" will be the most appropriate classification for them. The table below shows a summary of how an entity reporting under IFRS might account for holdings of cryptocurrencies, and whether these are acceptable or not under IFRS.

| Standard | Categorisation | Acceptable under IFRS |
|---|---|---|
| IAS 7 Statement of Cash Flows | Cash and cash equivalents | No |
| IAS 39 Financial Instruments: Recognition and Measurement | Financial asset at Fair Value Through Profit or Loss | No |
| IAS 40 Investment Property | Investment property | No |
| IAS 16 Property, Plant and Equipment | Property, plant and equipment | No |
| IAS 38 Intangible Assets | Intangible assets | Yes |
| IAS 2 Inventories | Inventories | Yes* |

**Fig 3: Summary of cryptocurrency classification under IFRS**

**How to Account for Cryptocurrencies in Line with IFRS?**
There are two types of entities that have interests in accounting for cryptocurrencies.

1. Holders of Cryptocurrencies
This category is for those that purchase cryptocurrencies to store value or to make an investment return but are not involved in any "mining" activity

2. Miners of cryptocurrencies
This category is for those that invest in all the hardware (i.e computers, graphic cards), electricity, and other resources, with the aim of serving the network and creating new cryptocurrency units.

**Accounting for Cryptocurrencies by the Holders**
In line with the standard IAS 38 "Intangible Assets," cryptocurrency meets the definition of an intangible asset, which is an asset is a resource controlled by an entity as a result of a past event from which future economic benefits are expected to flow to the entity. Also, under IAS 38, an intangible asset is classified as an identifiable non-monetary asset without physical substance and cryptocurrency has no physical substance and is a non-monetary asset.

There are 2 categories under accounting cryptocurrency holders

**1. Cryptocurrency held for Trading**
If the cryptocurrencies will be used for sale in the ordinary course of a business transaction or if a business is to act as a broker-trader of cryptocurrencies, IAS 2 Inventories s applied, more specifically IAS 2.3b for commodity brokers and traders.

**2. Cryptocurrency not held for Trading**
If the acquired cryptocurrency units are for keeping purposes, storing value over an extended time, or for other purposes, then the standard IAS 38 Intangible Assets is applied.

The main consideration where models permitted by IAS 38 applies:

**1. Cost Model**
To use this model, the cryptocurrency needs to be held at cost less accumulated amortization less impairment. This is doable because cryptocurrencies have an indefinite useful life in general hence, there will probably not be any amortization. But, with any decline in cryptocurrency's fair value, any impairment that occurs needs to be accounted for. The problem with the model is if the fair value of cryptocurrency increases above the cost, the increase won't be recognized and that is not very intuitive when the cryptocurrency is being held for capital appreciation purposes.

**2. Revaluation model**
In this model, if an active market exists, the cryptocurrencies can be revalued to their fair value and any increases can then be accounted for directly in the comprehensive income, or for any decreases in profit or loss. This model is not very symmetric, but if the cryptocurrency is being held for capital appreciation, then this model is more appropriate than the cost model.

**Accounting for cryptocurrencies by miners**
Cryptocurrency miners are different from normal miners, and therefore the standard IFRS 6 Exploration for and Evaluation of Mineral Resources does not apply to them.

A cryptocurrency miner is responsible for verifying the transaction and creating the new block of transactions. They carry out this task by gathering the transactions broadcasted by participants, organizing them to form a block, and then solving a mathematical puzzle with a cryptographic hash function to add the proof of work to that block. In other words, miners guess the correct authentication digital code that meets the algorithm criteria.
1. Updating the distributed ledger by including a newly verified block of transaction.

2. Then the miners communicate their "proof of work" to the network of participants and each participant updates their ledger (blockchain) blockchain is decentralized hence, each participant has its copy of it.

There are 2 ways miners get rewarded for their work

1. Block reward: Reward earned for creating the block

2. Transaction fees: Reward earned for validating a specific transaction.

Because, there are a lot of transactions in one block, thus a miner can get both types of fees from solving one puzzle. Also, when miners "mine", or do the computational work to verify transactions and update the blockchain, they use huge resources, like, graphic cards, loads of computers, high electricity bills, etc. These resources have to be accounted for.

**Accounting for Block Rewards by Miners**
In every transaction, when the miner guesses the hash or digital code, verifies a transaction, and updates the general ledger with the new block, he earns a small amount of cryptocurrency. This small amount of cryptocurrency is given to any miner as a reward automatically at the end of a transaction because the system is set up that way. This is usually the first part of a miner's reward, it is referred to as "block reward" because it deals with creating new valid blocks (including more transactions).

However, this process will not go infinitely for instance for Bitcoin, with time, there is a decrease in the blockchain reward as the total number of blocks increases. After a while, the block reward will become zero, and miners earn only the transaction fees. This process is all set in the blockchain algorithm as programmed by its creators. Because there is no customer hence, no contract, and the miner are paid by the algorithm, the revenue standard IFRS 15 to accounting for block rewards cannot be applied.

However, when the block reward is received by the miner, it undoubtedly represents the inflow of economic benefits, hence meeting the definition of income as stipulated in "Conceptual Framework". It is thus, Included in the profit or loss.

The journal entry is

Debit Intangible assets - cryptocurrencies;

Credit - Other income in profit or loss.

(If the miner happens to be a trader with cryptocurrencies, then Debit is Inventories).

**Accounting for the Transaction Fees by the Miners**
The miner earns the transaction fee for validating a transaction and including it in the individual block of transactions. These fees are earned for the individual transaction, unlike block reward that is paid for by the algorithm and paid by the specific network participant. Because there is the originator of the transaction (specific

network participant) the IFRS 15 can be applied and the transaction fee is recognized as revenue when the miner validates the transaction and becomes entitled to the fee.

**Disclosure**

Entities holding any cryptocurrency assets will have to comply with the disclosure requirements of either IAS 38 or IAS 2. Because cryptocurrencies are not an easy fit in the IFRS framework, entities may need to put into consideration additional disclosures to comply with the overall IAS 1 objective 'Presentation of Financial Statements' which is providing useful information to any user of the financial statements. Given this, entities should put into consideration disclosing factors like:

I. The nature of the cryptocurrency assets held

II. The accounting policy that applies to them and how it was determined

III. How the fair value was determined with appropriate reference to the disclosure requirements of IFRS 13 'Fair Value Measurement', particularly those relating to the fair value hierarchy.

All entities adopting a cost model approach under IAS 38, should consider disclosing the fair value of the assets held as additional information. Disclosure of changes in the fair value of the assets after the reporting date (non-adjusting events) and historical information on the volatility of the cryptocurrency should also be considered irrespective of whether the assets are accounted for at cost or at revaluation.

**Techniques Forensic Accountants Use to Investigate Cryptocurrency Transactions**

There is a common misconception that digital currency is completely anonymous and is untraceable. Although, there is a degree of truth to the fact that wallets (digital currency's store) are stored in form of anonymous computer addresses within the technical cryptocurrency framework, there are numerous ways to connect these wallets to the parties that control them. These techniques could include some traditional forensic investigation techniques, like transaction pattern analysis or simply obtaining information from co-operating parties. Other more advanced techniques include internet traffic analysis through IP addresses and particular servers.

Because, almost every transaction is permanently recorded in the blockchain, tracking cryptocurrencies transaction becomes easier for forensic accountants. And for bitcoin, there is a freely-available and accessible public ledger making each transaction easy to see and analyze.

This lets forensic accountants use network theory and graph technology to analyze the recorded transactions, also with the help of sophisticated graph database systems. So, once the technology behind cryptocurrencies is understood, a forensic accountant can then use a range of both traditional and new tools to crack open its transaction secrets. And once anonymity in the cryptocurrency system is successfully breached the cryptocurrency public ledger becomes a treasure trove of accurate and complete information.

**Conclusion and Recommendation**

Crypto-assets are not the same as cryptocurrency, cryptocurrency is digital or 'virtual' money, which uses cryptography to secure its transactions, control the creation of additional currency units, and verify the transfer of assets. Cryptocurrencies are a relatively new innovation, but they have quickly transitioned from a niche market to a global commodity. The accounting treatment of cryptographic assets and related transactions requires significant judgment and a thorough understanding of the underlying facts and circumstances because there is no accounting standard specifically addressing the accounting for those types of assets. Hence, a more defined accounting standard should be put in place, which will help facilitate crypto-asset recognition and immersion into the financial system.

**References**

Acheson, N. (2018, July 5). *Is bitcoin legal?* Retrieved from Coindesk: https://www.coindesk.com/information/is-bitcoin-legal/

Dai., W. (1998). *Bmoney*. Retrieved from http://www.weidai.com/bmoney.txt

Hughes, S., & Middlebrook, S. (2014). Regulating cryptocurrencies in the United States: current issues and future directions.

Kiyotaki, N., & Wright, R. (1989). On Money as a Medium of Exchange. *Journal of Political Economy,* 97(4): 927–954.

Mccabe, K. A. (1989). Fiat Money as a Store of Value in an Experimental Market. *Journal of Economic Behavior & Organization*, 12(2): 215–231.

Merriam-Webster. (2018). *Cryptocurrency Anti-Money Laundering Report*. Retrieved from Merriam-Webster dictionary: https://cdn2.hubspot.net/hubfs/4345106/crypto_aml_report_2018q2.pdf?submissionGuid

Nakamoto, S. (2008, November 1). *Bitcoin: A Peer-to-Peer Electronic Cash System.* Retrieved from Bitcoin.org: http://bitcoin.org/bitcoin.pdf

Ram, A., Maroun, W., & Garnett, R. (2016). Accounting for the Bitcoin: Accountability, Neoliberalism, and a Correspondence Analysis. *Meditari Accountancy Research*, 24(1): 2–35.

Rooney, K. (2018, March 27). *Your complete guide to cryptocurrency regulations around the world and where they are headed*. Retrieved from CNBC: https://www.cnbc.com/2018/03/27/a-complete-guide-to-cyprocurrency-regulations- around-the-world.html

Rosic, A. (2017). *What is Cryptocurrency: Everything You Need to Know*. Retrieved from https://blockgeeks.com/guides/what-is-cryptocurrency/

Trautman, L. (2014). *Virtual currencies bitcoin and what now after Liberty Reserve, Silk Road, and Mt. Gox?* Retrieved from Rich. J.L. & Tech.: http://jolt.richmond.edu/v20i4/article13.pdf.

UK Financial Conduct Authority. (2018, June 11). Dear CEO letter. *chief executives of regulated institutions,*

.