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Nature of Bitcoins and It's Accounting Issues: A Proposed Model of Accounting for Bitcoins

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Abstract: This research aims to examine the current practices of accounting for bitcoins by reviewing some studies which related to this topic, and thus for achieving the main objective of the study, which is to develop a proposed model to account for bitcoins that harmonizes accounting practices of bitcoins. The main objective of the study is to develop a proposed model to account for bitcoins that unify accounting practices of bitcoins. To achieve this objective, the researchers divided the research include the following: "Introduction" which aimed to gain a holistic view for the research, And then "Literature Review." In this chapter the researchers clarify the nature, characteristics, pros and cons, and also how the bitcoin system works, through reviewing number of papers, accounting academic journals, professional publications. After that, the researchers reviewing different current accounting practices for bitcoins, and the efforts of some formal organizations in accounting for bitcoins. Finally, the researchers represented A proposed framework for unifying the accounting practices for bitcoins; the proposed framework consisted of five main pillars, recognition and classification of bitcoins, measurement of bitcoins and disclosures for bitcoins. The study hypotheses were empirically tested, using descriptive statistics, Chi-Square and Mann-Whitney test, also a One-Way ANOVA test was done to examine the significant differences between the different groups in each category of the population, the academics, the issuers of financial statements and the accountants. By examining the proposed Model for accounting for bitcoins empirically, the hypotheses were accepted which determined that the proposed model provides a unify model can be used in accounting for bitcoins, and thus it will increase the quality of financial reports.

Keywords: Cryptocurrencies, Bitcoins, Accounting for Bitcoins

1. Introduction

There are many opinions on the role of bitcoin in the economy. It is regarded as a viable alternative to fiat currencies and even as a component of an alternative economy. Market experts have questioned bitcoin's role as a currency, owing to its volatility and the speed with which transactions are processed. [1], However, as of April 2019, Bitcoin is by far the most valuable cryptocurrency, with a capital market share of around $92 billion. [2]

Bitcoin is no longer a financial curiosity, according to a variety of metrics. Since the genesis transaction of 50 bitcoins in January 2009, there are now over 17 million bitcoins in circulation. An estimated 35 million Bitcoin wallets are held globally, with 10, 0 0 0 companies accepting bitcoin payments, some through the newly issued bitcoin debit card. [3]

Interestingly, bitcoin was released around that time as a solution to the fragile global financial system, and academic literature emphasizes bitcoin's role as an investment shelter during stressful periods such as the 2010 European debt crisis. [4]

Bitcoin has recently been observed to function as a speculative asset rather than a medium of exchange. Bitcoin is considered an investible asset because of its low spreads and sufficient market depth. The literature on bitcoin price formation is growing, and the existing literature shows that bitcoin has relatively independent price behavior from other traditional financial assets such as stocks, bonds, and commodities, and thus may be beneficial for portfolio diversification. [5]

1.1. Statement of Problem

Now that more people know about bitcoins and are using them, we have started hearing more questions about how businesses should account for the transactions denominated in bitcoins or for the holdings of bitcoins. *As one would expect, there is no guidance when it comes to using bitcoins such as bitcoins on an official level. Thus, any person or organization using bitcoins will have to go back to the first principles and play the hit-and-trial method to find out what is appropriate*. [6]

So, the Research Problem Can be Clarified as Follows:

Existing IFRS Standards do not explicitly refer to cryptocurrencies. The primary accounting questions are whether cryptocurrencies are assets and, if so, what type of asset in terms of IFRS Standards? (Jennifer & Ronald, 2018, pp 112-116). As a result, there are different accounting practices issues for Cryptocurrencies as follows: [7]

Issue 1: Is bitcoin an asset?

In the Revised Conceptual Framework for Financial Reporting issued by the IASB in April 2018, paragraph 4.4 defines an asset as follows:

"A present economic resource controlled by the entity as a result of past events. An economic resource is a right that has the potential to produce economic benefits."

The Revised Conceptual Framework notes that an asset is an economic resource and that the potential economic benefits no longer need to be 'expected to flow to the entity – they do not need to be certain or even likely (but if this is the case, the recognition and measurement of the asset may be affected) the economic benefit embodied in an asset is the potential to contribute, directly or indirectly, to the flow of cash and cash equivalents to the entity.

Issue 2: Assuming a bitcoin is an asset, what is the appropriate asset to be classified as, and what is the accounting model to apply?

There are many classifications in the practical life for the bitcoins as there is no specific standard to treat these new currencies and classify them:

a) Cash

Bitcoins are not issued or baked by any government or state.

b) Cash equivalent

Volatile because there is a significant risk of change in its value.

c) Intangible asset

If the bitcoins are recognized as intangible assets, then the default position would also be to measure them at cost. There is the possibility that if the bitcoins are accounted for as intangible assets, an entity might be able to justify that there is an active market for the bitcoins, in which case the bitcoins would be able to be measured at fair value.

But the problem here is that the movements in that fair value would be recognized through other comprehensive income and the gain would not be recycled through profit and loss when the bitcoins are realized. Does it lead to future economic benefits other than being a medium of exchange or investment, which means IAS 38 is also not applicable?

d) Financial asset

bitcoins need to meet the accounting definition of a financial asset. And that's where the back wheels fall off because bitcoins are (As Mentioned Above):

1. Not legal tender (i.e., cash as defined);
2. Not cash equivalents because their value is exposed to significant;
3. changes in market value; and
4. Not a contractual right to receive either cash or a cash equivalent.

e) Inventory:

Inventories do not need to be in a physical form, but do need to be held for sale in the ordinary course of business. However, bitcoins may not be traded frequently enough such that trading activity would be an entity's ordinary course of business bitcoins would fail the definition of inventory unless this test is met.

f) Investment Property:

It has no physical form, certainly no land or building, and its use does not result in the production of goods or services, as required for assets under IAS 16. Cryptocurrencies are easily recognized as assets because their holders can derive future economic benefits from them and the amount is easily quantifiable. When cryptocurrencies are examined as a medium of exchange, a unit of account, and a store of value, they qualify as tokens serving these three functions and can be considered money, possibly as "cash or cash equivalent." Given the historically high potential returns and volatility associated with cryptocurrencies, it can be classified as a financial asset used for investment[8] .

Issue 3: Disclosure Activity: [9]

Disclosure Activity The basic objective of financial reporting is to provide useful information about organizational activities to investors and creditors who have at least a basic level of comprehension of business activities. According to the full-disclosure principle, businesses are required to provide all information that could influence the decisions of an informed user in an understandable and non-misleading manner. Given the bitcoin system's complex technicalities and experimental nature.

Because of the significance of this topic, the department of "the Treasury Financial Crimes Enforcement Network" issued some rules and guidelines to organize work in this environment and define the various parties involved with cryptocurrencies as:

FIN-2015-R001 Issued: August 14, 2015

Subject: Application of FinCEN's Regulations to Persons Issuing Physical or Digital Negotiable Certificates of Ownership of Precious Metals.

FIN-2014-R001 Issued: January 30, 2014

Subject: Application of FinCEN's Regulations to Virtual Currency Mining Operations.

FIN-2013-G001 Issued: March 18, 2013

Subject: Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies Despite its increasing popularity, no official guidance on the financial reporting of Cryptocurrencies transactions has been

provided by standard setters, although tax accounting guidance began to appear in 2014. Designed as a decentralized currency, Cryptocurrencies are not intended to become a reporting currency and will instead complement fiat money.

So, the researchers can summarize the initial research questions as follows:

1. What exactly is bitcoin, and what exactly is someone investing in? Is it a currency, a commodity, an online payment system, a transaction record, a store of value, or some combination of these?
2. Will bitcoins hold their value? and, is the currency here to stay?
3. Are the bitcoins meeting the current definition of an asset?
4. If so, how to classify it?
5. What is the proper model to account for bitcoins?
6. Are the existing standards suitable to account for bitcoins with some new updates, or it needs a new special standard for it?

1.2. Research Objectives

Accounting for bitcoins at fair value with movements reflected in profit or loss would provide the most useful information to investors. However, existing accounting requirements do not seem to permit this.

So, the research's main objective is to develop a proposed model to account for bitcoins that harmonizes accounting practices of bitcoins.

This objective can be divided into the following sub-objectives:

1. To determine the current accounting practices for bitcoins.
2. To explain how bitcoins should be recognized in the financial statements.
3. To determine the proper accounting model used in the initial and subsequent measurement of bitcoins.
4. To show how bitcoins should be disclosed.
5. To determine the probability of the proposed accounting model for bitcoins.

1.3. Research Hypotheses

According to the research objectives, the following main hypotheses and several sub-hypotheses are formulated:

H1: There are motives for proposing an accounting model for investment in bitcoins.

H2: The proposed model harmonizes accounting for investment in bitcoins.

This hypothesis is tested through the following dimensions:

a. The proposed accounting model improves the requirements of recognition and classification of bitcoins.
b. The proposed accounting model improves the requirements of measurements for bitcoins.
c. The proposed accounting model improves the requirements of disclosures for bitcoins.

H3 - There are some expected benefits from the proposed model of accounting for bitcoins.

2. Literature Review

2.1. History of Bitcoin

"On Halloween of 2008, an entity named Satoshi Nakamoto distributed a white paper through metzdowd.com," [37]. The term "entity" is used in relation to Satoshi Nakamoto, as the true identity of Satoshi is not known.

The paper bitcoin: A Peer to Peer Electronic Cash System described the system as well as its underlying technology, the block chain database. The paper primarily addressed, and was the first to solve, the double spending problem associated with electronic currencies. The paper also discussed a peer-to-peer transaction system that eliminates the need for a third-party trust agent. According to bitcoin.org's 'About Us' page, Nakamoto then created a website with the domain bitcoin.org, and he continued to work with other developers on the code base through this site until around mid-2010. Gavin Andresen received control of the source code repository and the network alert key from Nakamoto at this time. [9]

2.2. Bitcoin the Currency

Bitcoin is a special type of asset known as cryptocurrency. Satoshi Nakamoto (allegedly a pseudonym for one person or a group of people) created it to function as a medium of exchange. [1] So it is a virtual monetary unit and therefore has no physical representation.

A bitcoin unit can be divided into 100 million "Satoshis," the smallest fraction of a bitcoin. However, the currency unit used in Bitcoin network payments is bitcoins, not a fiat currency. As a result, bitcoins are a digital currency in the sense that they exist "digitally" and, for the most part, satisfy the economic definition of money: they are a medium of exchange, unit of account, and store of value. [35] However, unlike "traditional" fiat currencies, bitcoin does not have a central authority and instead relies on cryptography to control its creation and management. [1]

Transactions take place directly between clients and are recorded in a central database called a ledger. If a client chooses to use an anonymous server to complete the transaction, the transaction's owner is unknown; however, the transaction is always recorded in the open ledger.[10] Bitcoins can be obtained in three ways: by exchanging money, selling goods and services, or mining. The first two methods, exchanging money and selling goods or services via e-commerce sites that accept bitcoin units, cause bitcoin to behave like a fiat currency. [11]

2.3. The System of Bitcoin

The transaction database known as a blockchain is the technology principle underlying Bitcoin. Because bitcoin is a

mathematical currency, transactions necessitate an algorithmic process known as block building. The blockchain records every transaction involving bitcoin and adds a hash of the most recent transaction to the chain's next block. So there is a numerical and sequential record that cannot be easily changed without affecting all of the other chains in the block. [10]

To the uninitiated, bitcoin is a digital currency that is created and stored electronically. These bitcoins are sent and received using a bitcoin wallet provided by a mobile app, computer software, or service provider. The wallet generates an address, similar to a bank account number, but a Bitcoin address is a unique alphanumeric sequence of characters where the user can begin receiving payments. Bitcoins are typically obtained by purchasing them at a Bitcoin exchange or vending machine, or as payment for goods and services.

The blockchain is a publicly accessible authoritative record of all transactions ever completed, allowing anyone to use Bitcoin software to verify the transaction's validity. Transfers of bitcoins, or transactions, are broadcast to the entire network and are added to the blockchain after successful verification, ensuring that spent bitcoins cannot be spent again. New transactions are validated against the blockchain to ensure that the bitcoins have not already been spent, thereby preventing double-spending [12].

2.4. Parties Involve in Bitcoins Transactions [13]

In several leading jurisdictions, including Singapore, a sizable and vibrant cryptocurrency ecosystem has developed over time, with a number of prominent venture capital firms investing in and continuing to invest in various cryptocurrency start-ups and businesses. This ecosystem includes many stakeholders, including miners, users, exchangers, transaction service providers, and software developers:.

1. Miners: are individuals or organizations that use specialized software to solve complex algorithms and verify transactions in the cryptocurrency network.
2. Users: are individuals or entities who obtain cryptocurrency and use it to buy goods or services, transfer value to another person, or hold for investment purposes.
3. Exchangers: are individuals or entities that trade cryptocurrencies for real or fiat currency, such as the US dollar or the Japanese yen, or for other cryptocurrencies or virtual currencies.
4. Transaction service providers: are websites that offer transaction services, allowing users to store and transact with Bitcoins without having to install the Bitcoin client on their own computers. Wallet and vault providers are included.
5. Software developers: are individuals or organizations involved in the development, design, manufacture, or testing of computer software that uses cryptocurrencies.
6. Other participants in the cryptocurrency ecosystem: include market data and chart providers, as well as merchants who accept cryptocurrencies in exchange for real goods and services.

2.5. Advantages of Bitcoins over Fiat Money [14]

1. No Regulating Authority: The first and most important advantage of bitcoin over traditional money exchange systems is that there is no regulating authority to control transactions because it operates on a peer-to-peer basis and does not require any centralized banks because it is not issued by any bank.
2. Fungibility: is the ease of exchange of one good with another,
3. Durability: It lasts longer than paper currency because it cannot be destroyed because it is stored electronically.
4. Hard to counterfeit: Bitcoins are difficult to counterfeit when compared to money because they are not printed but rather stored in a password-protected chain of crypto currency mathematical algorithms that cannot be easily accessed unless and until there is no hacking..
5. Reliability: The benefit is that there is no settlement risk and it is irrevocable. The cost savings of a large settlement team.

2.6. Accounting Practices for Bitcoins According to the Standard Setters' Bodies

Cryptocurrencies are becoming more popular around the world. They have been used in a variety of ways, from payment to speculative trading assets, and, most importantly, investments as stores of value. [15] Cryptocurrencies, like other economic phenomena, must be addressed in the financial statements of entities that use them, albeit without any accounting guidance in current financial reporting standards. [6]

bitcoin is regarded as a standard example of a cryptocurrency and was chosen for this study because it is the largest cryptocurrency by market capitalization [16] The market capitalization (at the time of writing) of bitcoin is over US$1.8bn [16]

Companies use bitcoins in their daily operations, and as such, they must be accounted for and presented in financial statements. Accounting standard-setters, like other new phenomena, are lagging in the delivery of accounting guidance. [6]

Despite central bankers' claims that cryptocurrencies are not money, a transaction involving a cryptocurrency must be accounted for as a transaction in a foreign currency in certain scenarios. Similarly, despite having a digital (virtual) form and regulators urging for such a treatment, cryptocurrencies cannot be recognized and reported as intangible assets. Mining cryptocurrencies must therefore adhere to different accounting principles than receiving payments or investing in cryptocurrencies. [6]

With no authoritative guidance for accountants on bitcoins, the only option is to identify and adapt existing accounting standards. How should a bitcoin transaction be recorded in the sight of an accountant? So, let us present the various current practices in bitcoin accounting, with a focus on IFRS

practice because it is the more widely used standard around the world.

2.6.1. Accounting Practices According to IASB

There is no mention of cryptocurrencies in IFRS as of January 1, 2018. In such cases, a general procedure for selecting an accounting policy is followed. In the absence of IFRS that specifically applies to a transaction, other event, or condition, management must use its judgement in developing and applying an accounting policy, according to IAS8.10. A chosen policy should produce information that is relevant to users' economic decision-making needs and is reliable. Management is limited in its decision-making because it must refer to and consider the applicability of the following sources in descending order. [17]

1) The IFRS requirements dealing with similar and related issues;
2) The Framework's definitions, recognition criteria, and measurement concepts for assets, liabilities, income, and expenses. [6]

In determining an appropriate accounting treatment, an entity must adhere to the fundamental principle of useful accounting information, which states that it is not important which item an entity acquired, but why it was acquired. The primary determinant of its presentation in financial statements is the purpose of acquisition and the expected use of the item within the entity. Theoretically, bitcoin transactions can be recorded in financial statements as:

1) Cash or cash equivalent;
2) A Financial asset (other than cash);
3) A non-financial investment;
4) Inventory;
5) Leases/right-to-use;
6) An intangible asset;
7) Property, Plant, and Equipment.

The following section analyzes the conditions under which each treatment would be relevant, along with a description of the impact of respective policy on financial statements under IFRS standards:

i. Cash or cash equivalent:

Cash is categorized as a financial asset under IFRS principles. A financial asset [18]is an asset that is:

a. Cash;
b. An equity instrument of another entity;
c. A contractual right to receive cash or another financial asset from another entity, or to exchange financial assets or financial liabilities with another entity under conditions that are potentially favorable to the entity;
d. A contract that will or may be settled in the entity's equity instruments, and is: anon derivative for which the entity is or may be obliged to receive a variable number of the entity's own equity instrument.

Certain settings allow bitcoins to be treated as cash. According to IAS7.6, cash consists of cash on hand and demand deposits. Unfortunately, this definition is only an enumerative list. There is no other attempt to define cash positively in IAS7 or any other standard. As a result, a broad definition of cash (money) will be used. The approach was taken by [19], i.e., a definition of cash in terms of legal tender is not entirely appropriate for two reasons. Firstly, legal tender (or fiat money) covers only one stage in the evolution of payment systems. Which may be overcome by more efficient or secure systems. Secondly, treating cash as legal tender is a purely technical (legal) view that contradicts the fundamental principle of the economic substance over legal form [20].

Money is commonly defined in economics as anything that is commonly accepted as payment for goods and services or in the repayment of debts. Bitcoins are capable of meeting such a definition. Using this economic exposition in accounting, bitcoins shall be presented in financial statements as cash if acquired as a medium of exchange in a business transaction, i.e., as payment received for goods or services sold by an entity.

In such cases, IAS 21 will be used. Because bitcoins are not widely accepted as a medium of exchange at the moment, any payment received in bitcoins must be treated as a transaction in foreign currency and converted into functional currency using a spot exchange rate at the time of the transaction. [21] Any holdings of bitcoins are monetary items, and, in preparation for financial statements, they shall be translated using a closing rate [21].

The majority of payments in certain communities are made in bitcoins. If a member of such a community is an accounting entity that reports under IFRS, it is possible that certain bitcoins will become a functional currency of that entity in extremely rare circumstances.

A functional currency is the currency of the primary economic environment in which the entity operates [21]. Transactions not processed in bitcoins (meeting the definition of functional currency) will be treated as a foreign currency transaction in that case. However, it should be noted that this is a speculative situation, as we are not aware of any such company at this time. [6]

ii. Cash equivalent

A cash equivalent is defined as highly liquid investments, undeposited checks, savings accounts, and so on. The key point here is the extremely high level of liquidity. However, bitcoins are volatile because their value is subject to significant fluctuations.

iii. Financial Asset:

Referring to the definition of a financial asset, bitcoins do not meet the definition of a financial asset in the form of an equity instrument or a contractual right to receive cash. For that reason, three measurement models defined by IFRS 9:

a. A financial asset at fair value through profit or loss;
b. A financial asset at fair value through other comprehensive income;
c. Amortized cost.

Are not directly available. However, the main motive for the purchase of bitcoins is based on speculation to realize a future capital gain. This kind of transaction does not fulfill the definition of a financial asset, but the economic factors

surrounding the ("buy and hold") transaction are comparable to trading with financial instruments. Using the provision of IAS8.11, an accounting policy adopted for investment-like bitcoins can refer to the measurement models of IFRS 9. From applicable models, the amortized costs cannot be employed, as bitcoins do not have any maturity date. Only FVPL or FVOCI models can be applied and shall be applied as a relevant source of useful information for the users of financial statements.

Financial assets must be remeasured at their fair value as of the reporting date under both models. The main distinction between the methods is that the gain or loss on remeasurement is reported in the comprehensive income statement The first method is used primarily for recognition in the profit and loss section. [22], the second within other comprehensive income with a subsequent reclassification adjustment from equity to profit and loss [22].

When selecting an appropriate model, the entity's business model test and the contractual cash flow test shall be performed [22] Their applicability to bitcoins is impossible, it can only result in the selection of an FVPL model. The sole application of the FVPL approach may, however, not be fully appropriate under all situations. Therefore, the choice between FVPL and FVOCI can be done once again by setting one's accounting policy. To justify the selection, it can be supported by the provisions of IAS 39 (the old standard on financial instruments replaced by IFRS 9).

The wording of IAS 39 provides a better understanding of the differences between two basic investment horizons when trading with financial instruments than the terminology of IFRS 9 and the new conceptual framework, which contradicts a new fundamental principle of economic substance over legal form.

According to [23], a financial asset is classified as held for trading if it is acquired or incurred primarily for the purpose of selling or repurchasing it in the short term. Furthermore, available-for-sale financial assets are non-derivative financial assets that are designated in this manner, i.e., they are acquired to realize capital gains in the distant future rather than immediately.

iv. Non-financial investment

Because bitcoins do not meet the exact definition of financial assets, they can be treated similarly to non-financial investments (e.g., art, gold coins, investment gold, etc.). Again, non-financial investments are not governed by any specific piece of IFRS4, and entities must develop their own accounting policy [6]. In practice, two methods prevail.

To begin, a conservative historical cost (HC) model is used, in which investment is measured at its acquisition cost, and any holding gain is realized and reported in the income statement once the asset is sold. Second, under other comprehensive income, the FVOCI model is used with continuous recognition of unrealized gains and losses. When the current market value of the investment cannot be reliably determined, the HC model is preferable.

Non-financial investments are purchased to invest money in the long term, and bitcoin investments fall into this category only if the purchase is not compelled by short-term speculation. FVOCI is a more relevant measurement model because the market value of bitcoins is easily accessible. [6] In such cases, treating bitcoins as non-financial investments produces the same result as treating them as an available-for-sale-like financial instrument.

v. Inventory

Two scenarios, leading to the recognition of bitcoins as inventory can be identified:

Firstly, a company may purchase bitcoins in order to resell them to customers. Bitcoins will be treated similarly as merchandise or as a commodity held by broker-traders in this case. Broker traders are those who buy or sell commodities for others or on their behalf, and such inventories are primarily acquired to be sold in the near future in order to profit from price fluctuations or the broker traders' margin [24]. Despite the fact that there is no exact definition of commodities under IAS2, their description corresponds to the economic model of bitcoin brokers, and this model is more relevant and reliable than bitcoin brokers' merchandise.

Bitcoin brokers offer investors an alternative OTC platform to buy and sell bitcoins rather than through a traditional exchange. [25] meeting an IAS 2 requirement for broker traders to buy or sell commodities for others In terms of measurement, IAS 2 assumes that commodities are primarily measured at fair value less costs to sell, and changes in fair value less costs to sell are recognized in profit or loss in the period in which the change occurs. [24]

The required measurement model is similar to the FVPL model and produces comparable income statement results. The comparability of both models is important because it may be difficult to distinguish whether an entity acts as a broker to buy or sell bitcoins on its behalf in practice. [24] or whether trading is made to sell or repurchase it soon. [22]

The accounting treatment of bitcoins purchased for brokering purposes poses no significant challenges. Bitcoin mining is a more interesting and sophisticated case. IAS 2 guidance on the cost of conversion will be applied to the accounting treatment of bitcoins obtained through mining. The cost of inventories must include all conversion costs incurred in bringing the inventories to their current location and condition.

The costs of inventory conversion include costs directly related to production units as well as a systematic allocation of fixed and variable production overheads incurred in converting raw materials into finished goods. [24] Electricity and labor costs (if any) directly related to mining are the main examples of direct costs. Indirect production overheads will be formed by the depreciation of hardware and mining software, depreciation of the mining "factory" (if any) and other mining equipment (e.g., fans to cool the spaces), wages of programmers and service workers, etc.

IAS2.13 requires the allocation of fixed production overheads based on the normal capacity of the production facilities when determining production costs. Normal capacity is the average output over several periods under

normal conditions, taking into account capacity loss due to planned maintenance. There is, however, no normal capacity in bitcoin production because mining is a competition in which the winner takes all. The exact output of a miner is determined by its computational power in comparison to the power of other miners. The first miner who obtains the resulting hash for a given block declares victory to the rest of the network. All the other miners immediately stop work on that block and start trying to find the encryption for the next one [26].

The issue is how to account for costs incurred during unsuccessful mining conquests. Such costs are considered waste and must be deducted from the acquisition cost and immediately expensed [24].

vi. Lease/Right-to-use:

Instead of direct mining, the necessary equipment, which is hosted at the premises of a provider, can be leased. There are three types of remote mining:

a. Hash mining: a person/an entity sends their own hardware to a provider; the provider is responsible for the software, electricity, cooling, and other issues. Alternatively, hardware can be also leased.
b. Virtual hosted mining: a virtual private server is created, and one's mining software is installed.
c. Leased hashing power: a specified amount of hashing power is leased; no physical or virtual computers are needed.

The majority of third-type contracts would be classified as operating leases under IAS 17. A lease contract of less than a year meets the "time-test" exemption from being recognized as a "right-to-use" asset and a lease liability under new IFRS 16, and the lease payment is allocated on a straight-line basis. Accounting treatment of leased equipment/hashing power for less than a year would thus have the same impact under IAS 17 and IFRS 16. If a contract is signed for more than 12 months, IFRS 16 requires the lessee's balance sheet to include a "right-to-use" asset and a lease liability. Accounting treatment under IAS 17 would depend on whether the contract constitutes an operating lease or a finance lease. Regardless of which standard is applied, the cost associated with the lease will form an acquisition cost of the mined cryptocurrencies, and the benefits from these leases will be treated under IAS 2.

vii. Intangible Asset:

State authorities and regulators (such as central banks) typically disagree that bitcoins should be treated as cash and that they do not meet the (legal) definition of money [6] Because bitcoins are digital currencies with no physical form, some authors prefer to classify them as intangible assets on the balance sheet, with the cost model as the default treatment and the revaluation model as an option [19].

According to IAS 38.6, an intangible asset is defined as an identifiable non-monetary asset without physical substance. In a subsequent treatment, an entity needs to resolve two aspects – amortization and measurement.

Firstly, Amortization necessitates determining whether an intangible asset's useful life is finite or indefinite. When there is no foreseeable limit to the period over which the asset is expected to generate net cash inflows for the entity, the asset is identified as having an indefinite useful life. When bitcoins are viewed as intangibles, this is the case.

An intangible asset with an indefinite useful life is not amortized, according to [27]. IAS 36.10 adds the requirement that an entity test such an intangible asset with an indefinite useful life for impairment annually or whenever there is a reasonable suspicion that the intangible asset may be impaired.

Secondly, for any subsequent measurement of intangible assets, an entity may choose between the cost model and the fair value model. In contrast to tangible assets under IAS 16, IAS 38 contains strict conditions that allow for the use of a fair value model.

Only if fair value is determined by referring to an active market can a revaluation model be used. Bitcoin meets the requirement of being traded in active markets.

However, based on a previous analysis of economic reasons for acquiring bitcoins, there are few circumstances in which an entity would use and be able to use bitcoins as intangible assets. Bitcoins, without a doubt, cannot be used in the same way as software, patents, or licenses, nor are they a trademark, customer list, or anything else. [7]

Furthermore, if bitcoins are mined, their classification under IAS 38 would imply that they cannot be recognized as an asset at all. IAS 38.51 requires an entity to apply the requirements and guidance in paragraphs IAS38.52–67 to all internally generated intangible assets, despite the fact that no entity can demonstrate fulfilment of all six conditions for the development phase of IAS38.57. Recognizing bitcoins as intangibles is not appropriate for externally purchased bitcoins or mined bitcoins for the reasons stated. Despite the fact that bitcoins "technically" meet the definition of an intangible asset under IAS 38, they lack the economic characteristics of intangible assets, as assumed by the IASB when developing the standard. Thus, the issuance of bitcoins may necessitate a future redefinition of an intangible asset in an IFRS context, or it may necessitate the development of a new standard dealing with it and all other types of cryptocurrencies.

vii. Plant, Property, and Equipment:

Bitcoins are not covered by IAS 16, 'Property, Plant, and Equipment,' because they are not tangible items. It has no physical form, least of all land and buildings, and the use of bitcoins does not result in the production of goods or services, as required of Assets under IAS 16. Bitcoins are easily recognized as assets because their holder can derive future economic benefit from them and the amount is easily measured. [8]

ix. Disclosure for bitcoins:

Entities should comply with the disclosure requirements of the IFRS Standards they use in accounting for bitcoins (e.g., IAS 2, IAS 38, and IFRS 13). However, given the complexity and volatility associated with bitcoins, entities should consider whether additional disclosures about their bitcoin's holdings are necessary. [13]

IAS 1.9 states: "The objective of financial statements is to provide information about the financial position, financial performance and cash flows of an entity that is useful to a wide range of users in making economic decisions" and that the notes shall "provide information that is not presented elsewhere in the financial statements, but is relevant to an understanding of any of them."

According to IAS 1.17, an entity must "provide additional disclosures when compliance with the specific requirements in IFRS is insufficient to enable users to understand the impact of specific transactions, other events, and conditions on the entity's financial position and financial performance." However, IAS 1.31 specifies that disclosure is not required if the information obtained as a result of the disclosure, is not material. In addition to the disclosures required by an IFRS Standard, there are some additional requirements imposed by CPA as guidance for bitcoins, which will be discussed later.

Table 1 summarizes the different possible classifications and their associated measurement considerations under different IFRS standards for accounting for bitcoins:

Table 1. *Different Classifications of bitcoins.*

Used Standard	Initial Measurement	Subsequent Measurement	Movements In Carrying Amounts
Inventory (IAS 2)	Cost	Lower Cost and Net Realizable Value (NRV)	Movements above cost: N/A. Movements below cost: Profit and loss
Inventory (IAS 2) Commodity broker or trader	Cost	Fair value Less Cost to Sell	Profit and loss
Intangible Assets (IAS 38) Choose revaluation model Accounting which Requires the existence of active market.	Cost	Fair Value Less any Accumulated Amortization and Impairment (noted that bitcoins not expected to has amortization)	Movements above cost: other Comprehensive Income. Movements below cost: Profit and Loss
Intangible Assets (IAS 38) Cost Model	Cost	Cost less any Accumulated Amortization and Impairment (noted that bitcoins not expected to have amortization)	Movements above cost: N/A Movements below cost: Profit and Loss

(Source: [36] with Acting).

2.6.2. Accounting Practices According to FASB

After reviewing and analysis, two current alternatives appear to be promising according to FASB practices: Non-monetary Exchanges and Foreign Currency Transactions: [26]

A. Non-Monetary Exchange:

The argument that virtual currency transactions should be classified as non-monetary exchanges is based on the idea that virtual currency is similar to barter credit. [26]

Given this opinion, ASC 845 Non-monetary exchanges, in general, include an "Exchange of products held for sale in the ordinary course of business (inventory) for other property as a means of selling the product to a customer." [28]. More specifically to barter transactions per the ASC "In a barter transaction involving barter credits, an entity enters into a transaction to exchange a nonmonetary asset (for example, inventory) for barter credits. These transactions may occur directly between principals to the transaction or include a third party whose business is to facilitate those types of exchanges (for example, a barter entity)." [28]

Non-monetary exchanges are based on the fair value of the assets (or services) involved, according to ASC 845-10-30-01. In general, the fair value of the assets provided is used to measure the transaction's value, with any difference between fair value and carrying value recognized as a gain or loss. However, if the fair value of the asset received is deemed more reliable, it is used to measure the transaction's value.

One of the contributing arguments for viewing a virtual currency transaction as a non-monetary exchange would be the currency's lack of reliable value (similar to a barter credit). Thus, in a typical transaction in which inventory is sold to a customer, the likely value to be used is the inventory's fair value.

This is consistent with ASC 845-10-30-17, which states, "In reporting the exchange of a nonmonetary asset for barter credits, it shall be presumed that the fair value of the nonmonetary asset exchanged is more clearly evident than the fair value of the barter credits received and that the barter credits shall be reported at the fair value of the nonmonetary asset exchanged."

The existence of quoted market values for barter credits, however, does not disqualify a transaction from being considered a non-monetary exchange. Per ASC 845-10-30-18, "However, that presumption might be overcome if an entity can convert the barter credits into cash in the near term, as evidenced by a historical practice of converting barter credits into cash shortly after receipt, or if independent quoted market prices exist for items to be received upon the exchange of the barter credits. It also shall be presumed that the fair value of the nonmonetary asset does not exceed it carrying amount unless there is persuasive evidence supporting a higher value." For a bitcoin, the infrastructure via merchant services, to trade the virtual currency for dollars is in place. Additionally, several exchanges providing current market prices are available.

B. Foreign Currency Transaction:

Foreign Currency Matters, ASC 830, provides accounting guidance for the alternative method under consideration herein for bitcoin transactions. If this viewpoint is adopted, the virtual currency is assumed to be a type of currency and a foreign currency to the entity entering into a transaction. [26]

Per ASC305-10-20 (Glossary), cash is defined in part as "not only currency on hand but demand deposits with banks or other financial institutions. Cash also includes other kinds of accounts that have the general characteristics of demand

deposits in that the customer may deposit additional funds at any time and also effectively may withdraw funds at any time without prior notice or penalty “A strict interpretation of this definition may exclude virtual currencies from being considered cash because most existing forms are not associated with a financial institution and effective withdrawal of funds may not always be possible; however, the invention of virtual currencies, as previously stated, is to provide a method of payment that does not rely on a financial industry—a method of electronic payment from one person to another without the need for a third party." Similarly, from a practical standpoint, if people accept virtual currency as payment, it is a currency. Virtual currencies, like government-issued coins and currency, have value primarily as a means of transacting business (and secondarily as an investment).

Given that virtual currency is considered a type of currency, it would then have to pass another test to determine if it is a functional or foreign currency. Per ASC 830-10-20 [29], a foreign currency is defined as “a currency other than the functional currency of the entity being referred to.” The functional currency referred to within this definition is simply the currency in which the company typically transacts business and presents its financial statements.

It “is the currency of the primary economic environment in which the entity operates; normally the environment in which an entity primarily generates and expends cash.” [29] At the moment, no company can claim that virtual currency is its functional currency because financial statements are not presented in virtual currency and virtual currency is not widespread enough for any company to claim it as the currency in which it primarily generates and expends cash. As a result, virtual currency is a form of foreign currency.

Given that virtual currency is a foreign currency, using the foreign currency method necessitates a known exchange rate between the functional and foreign currencies. “At the date, a foreign currency transaction is recognized, each asset, liability, revenue, expense, gain, or loss arising from the transaction shall be measured initially in the functional currency of the recording entity by use of the exchange rate in effect at that date.” [29]. Such exchange rates between bitcoin and the U.S. dollar are known and published.

As a result, the researchers discover the distinction between the two methods. According to this study, whether bitcoins can be accepted as a medium of exchange like fiat money backed by central banks is crucial. In other words, if the virtual currency used has no known value, the other assets associated with the transaction must be used to determine its value. This is the foundation of non-monetary transactions. If the virtual currency has a known, comparable value, it can be used to measure the value of the business transaction. This is the foundation of foreign currency accounting. [26]

2.6.3. Issues in the Current Accounting Practice for Bitcoins

After the previous analysis of different accounting practice for bitcoins the researchers can summarize an opinion as follows:

If bitcoins are used as payment methods, they must be treated as "foreign currencies," which means that transactions must be translated at a spot rate, and any closing balances must be restated at a closing rate. Profit or loss must include any gains or losses recognized at the end of the fiscal year. Bitcoin as a functional currency is also possible, but unlikely in today's business and market conditions.

The most intriguing scenarios involve the purchase of bitcoins in order to realize future capital gains from an expected increase in market price. In terms of IFRS guidance on similar items, three models are available: the historical cost model (with impairment testing), the fair value model through profit or loss, and the fair value model through other comprehensive income.

Even though IAS 8 allows for the use of a cost model, it cannot adequately describe the economic nature of bitcoin investments (either by trade brokers or "normal" investors). The assertion is supported by the high volatility of bitcoin market prices, which prevents the historical cost model from providing useful information to users. Ignoring increases in bitcoin price over acquisition costs increases the risk that users will be unable to identify the source of earnings persistence. [6], because the accrual and cash-flow components of performance differ significantly under the historical cost model, which reduces the magnitude of the accruals.

All proposals of the application of the cost model for the measurement of bitcoin (either as inventory under IAS 2 or as an intangible asset under IAS 38) are unattainable from the perspective of decision-usefulness.

Withholding information about steep price increases and subsequent massive corrections prevents financial statement users from making correct economic decisions. The logic behind this assertion stems from the universal characteristics of fair value measurements, even in volatile economic conditions, and their utility in an investor's decision-making process. Fair value accounting is indispensable when it comes to providing useful information on financial instruments. [6]

Buying and selling bitcoins follows a similar pattern to investing in financial instruments or other non-financial investment instruments. If bitcoins are acquired for short-term speculative or long-term investment purposes, the accounting treatment must include a reference to fair value measurement. A fair value model can also be justified by referencing the accounting treatment of bitcoin short-selling. From the standpoint of symmetry, it makes no sense to have a different accounting treatment when the speculator expects a price increase (traditional trading) or a price decrease (short-selling derivative), and fair value must be applied to all transactions of an investing or speculative nature.

There are two open issues when applying the fair value model:

1) The presentation of fair value gains/losses – within PL or OCI.

2) The reliability of the measurement.

A. The presentation of fair value gains/losses – within PL or OCI:

The first issue is the general question of whether net income (profit and loss) or total comprehensive income (including components of other comprehensive income) provides more useful information to users.

Depending on the context in which accounting information is used and how the income concept is defined, empirical studies provide mixed evidence on the value relevance of OCI components. [30] On the other hand, [6] shows that when explaining equity returns, comprehensive income dominates net income, but when explaining executive compensation, net income dominates comprehensive income.

Because the importance of different levels of income statements varies depending on the context, the choice between the FVPL and FVOCI models for presenting changes in the market value of bitcoins shall be the same as under the guidance for financial instruments. If a company invests in bitcoins for short-term (speculative, trading) purposes, all changes in fair value must be reported as part of the company's net income (profit and loss). If a longer investment horizon is used, fair value changes must be accounted for through other comprehensive income.

Whether the FVPL or FVOCI model is used, documented high price volatility poses a significant risk that reported financial position and performance will change dramatically. As a result, extensive disclosures about all risks, as well as an estimate of their impact under potential scenarios of future economic development, must be provided, similar to the disclosures required by IFRS 7 on financial instruments and risk management. [6]

B. The Reliability of the Measurement;

The second issue related to the usage of fair value accounting for bitcoins refers to the potentially low reliability of their market prices because of:

Firstly, many cryptocurrencies have no active market. According to Coinmarketcap.com data, more than half of all cryptocurrencies have a monthly trading volume of less than $1,000,000. A low trading frequency and an insufficient number of willing sellers and buyers can contradict the conditions of IFRS 13 on Level 1 inputs in the fair value hierarchy, requiring adjustments. However, even in low-activity markets, a deviation from quoted market prices may raise users' concerns about the accuracy of mark-to-market measurement.

Secondly, Low market activity raises the possibility of price manipulation. A single market participant managed to manipulate the Bitcoin/USD exchange rate from $150 to $1000 in two months, as documented by[31] . Evidence of Bitcoin price manipulation, the most important CC in terms of market capitalization and trade volumes, suggests that unregulated cryptocurrency markets are still vulnerable to manipulation. [31]

The high risk of manipulation resulting in an "unfair" market value can have a negative impact on the accuracy and precision of accounting measurements. However, the solution to this problem lies outside of the scope of financial reporting. However, this is not a major issue in the case of bitcoins because it already has an active market due to the large number of transactions made daily and because it has a high capitalization of the total cryptocurrency market.

2.6.4. Efforts of Professional Organizations in Accounting for Bitcoins

1. The Efforts of The International Accounting Standard Board (IASB):

Through the Board's Agenda Consultation process in 2015, the topic of digital currencies was identified as a potential new project for the IASB. The Board, however, decided not to act immediately and instead to continue to monitor developments.

In December 2016, the Accounting Standards Advisory Forum ('ASAF'), an IFRS Foundation advisory forum comprised of representatives from national and supranational accounting standard setters, discussed digital currencies as part of that process. The discussion centered on the classification of a cryptographic asset from the standpoint of the holder. Conversations have continued in various accounting standards boards, but the IASB has yet to issue formal guidance.

The IASB agreed at its July 2018 Board meeting to ask the IFRS Interpretations Committee to consider guidance for the accounting of cryptocurrency transactions, possibly in the form of an agenda decision on how an entity might walk through the existing IFRS requirements.

At its meeting in September 2018, the Interpretations Committee discussed two technical papers prepared by IASB staff. These papers addressed the accounting of a cryptocurrency holding entity as well as the accounting of a cryptocurrency issuing entity in an initial coin offering. Although the Committee was not asked to make any decisions, the members generally agreed with the explanations in the staff papers. These explanations are consistent with the publication's principles. The Committee also went over an IASB staff paper that looked at various standard-setting options. The IASB will discuss the Committee's findings at a later date.

On 15 March 2019, The IFRS interpretations committee discussed on the Committee's tentative agenda decisions holding of cryptocurrencies, and then on June 2019 the Committee discussed how IFRS Standards apply to holdings of cryptocurrencies.

The Committee noted that a range of crypto-assets exists. For its discussion, the Committee considered a subset of crypto-assets with all the following characteristics that this agenda decision refers to as a 'cryptocurrency':

a. A digital or virtual currency is recorded on a distributed ledger that uses cryptography for security.
b. Not issued by a jurisdictional authority or other parties.
c. Does not give rise to a contract between the holder and another party.

The IASB members determine the nature of cryptocurrencies and Which IFRS Standard applies to

holdings of cryptocurrencies but, there are many judgmental areas will require further investigation as entities determine the applicable accounting treatment and as the technologies and markets continue to develop. For some topics, no uniform or definitive answers currently exist.

2. The efforts of the Australian Accounting standard board (AASB):[13]

The AASB published the paper, Digital currency – a case for standard-setting activity, in December 2016. The AASB reviewed current IFRS literature to determine whether digital currencies should be classified as cash or cash equivalents, financial assets (other than cash), intangible assets, or inventories.

According to the paper, digital currencies should not be considered cash or cash equivalents under [17] IAS 7 "statement of cash flows" at this time. It was specifically stated that a digital currency lacks widespread acceptance as a means of exchange (at the moment) and is not issued by a central bank.

Furthermore, due to the lack of a contractual relationship that results in a financial asset for one party and a financial liability for another, a digital currency is not a financial instrument as defined in IAS 32 "Financial Instruments: Presentation." The paper also discovered that digital currency meets the definition of an intangible asset as defined in IAS 38 "intangible assets," because it is an identifiable nonmonetary asset with no physical existence. Paragraph 3 of IAS 38 includes a scope exception for held for sale in the ordinary course of business such intangibles are subject to IAS 2 Inventories and henc are accounted for the lower cost and net realizable value (except for inventories held by commodity broker traders, as discussed below) rather than using the cost or revaluation model under IAS 38.

However, the paper noted that it is not always clear how "held in the ordinary course of business" should be interrupted in the context of digital currencies in general. It is unclear, for example, whether entities that accept digital currencies as payment should be considered to hold them for sale in the ordinary course of business.

Furthermore. IAS 2 does not apply to commodity broker traders who measure their inventories at fair value less costs to sell and recognize changes in fair value less costs to sell in profit or loss in the period of the change. Broker traders are individuals who buy and sell commodities on behalf of others or for their own accounts. However, it is not always clear whether digital currencies should be classified as commodities under IAS 2.

The AASB also mentions a lack of accounting guidance for intangible assets and commodities held for investment purposes. The AASB concludes that there is a lack of guidance on digital currencies and that measurement guidance under IAS 2 and IAS 38 does not provide users of financial statements with relevant and useful information (except for instances where an entity is considered to be a commodity broker trader). It proposes accounting for digital currencies at fair value, with changes in fair value recognized in profit or loss. As a result, standard-setting activity is required.

The AASB'S paper was discussed at the accounting standard advisory forum (ASAF) a consultive body of the IASB (The Board). In December 2016 it was suggested that the IASB continue to monitor developments in this area.

3. The Efforts of the Financial Accounting Standard Board (FASB):

Accountants look to the Financial Accounting Standards Board (FASB) for authoritative accounting guidance. Because virtual currencies are still in their early stages, any guidance should be found in the FASB Accounting Standards Codification (ASC) Updates or as an agenda item for the Emerging Issues Task Force (EITF).

The FASB noted in its chairman's report from 1 July 2017 to 30 September 2017 that the FASB staff conducted significant research on digital currencies. The FASB, however, has not yet discussed this research.[13]

The only recent ASC Updates possibly related to the issue of virtual currencies or virtual currency accounting are:

1) Update No 2013-05—Foreign Currency Matters (Topic 830):

Parent's Accounting for the Cumulative Translation Adjustment upon Derecognition of Certain Subsidiaries or Groups of Assets within a Foreign Entity or of an Investment in a Foreign Entity (a consensus of the FASB Emerging Issues Task Force).

2) Update No. 2010-19—Foreign Currency (Topic 830): Foreign Currency Issues: Multiple Foreign Currency Exchange Rates (SEC Update) (Financial Standards Accounting Board 2014).

Neither of these updates is concerned with virtual currencies. According to the FASB Emerging Issues Task Force list of current issues as of the November 14, 2013, meeting (Financial Standards Accounting Board 2014), virtual currency is not on the FASB radar.

4. The Efforts of the Internal Revenue Service (IRS): [7]

For better or worse, the Internal Revenue Service (did clarify how to manage bitcoin accounting in IRS Notice 2014-21). Because the IRS regards bitcoin as property, it must be treated as such for accounting purposes. As a result, company-owned bitcoin should be recorded in the general ledger to non-cash asset accounts.

Bitcoin account valuation changes, like other non-cash asset accounts, can be tracked as appreciation/depreciation. Bitcoins, on the other hand, do not necessitate the complex depreciation scheduling that fixed asset do.

Active bitcoin exchanges make determining fair market value easier. Tracking bitcoin accounts as foreign currency accounts appears to be another option. Aside from the IRS's declaration that bitcoin is not a currency (despite behaving in many ways like one), there's a more mundane reason why this isn't always possible. Virtual currency is considered property for federal tax purposes. General tax principles that apply to real estate transactions also apply to virtual currency transactions. Under current law, virtual currency is not treated as currency capable of generating foreign currency gain or loss for federal tax purposes in the United States.

5. The Efforts of the Accounting Standard Board in Japan (ASBJ):[13]

The ASBJ issued an Exposure draught for public comment in December 2017, the exposure draft, "practical solution on the accounting for virtual currencies under the payment service act." The period for public comment will end in early February 2018.

6. *The Efforts of the CPA Canada*: [13]

CPA Canada had the following Disclosures activities for bitcoins:

Entities must adhere to the IFRS Standards' disclosure requirements when accounting for cryptocurrencies (e.g., IAS 2, IAS 38, IFRS 13). Given the complexity and volatility of cryptocurrencies, entities should consider whether additional disclosures about their cryptocurrency holdings are required. So, in addition to the disclosures required by a specific IFRS Standard, the following disclosures, among others, may also be relevant:

1) A description of the cryptocurrency, its key features, and the reason for holding it (e.g., investing, buying goods, and services).
2) The number of cryptocurrency units held at the end of the year.
3) The method by which the accounting policy was established.
4) If the cost model is used, the cryptocurrency's fair value, as well as the necessary IFRS 13 disclosures.
5) Data on the market risk associated with cryptocurrency (e.g., historical volatility).

Furthermore, there may be disclosures required by securities regulators that are not included in financial statements. Entities should think about what disclosures might be required for management's discussion and analysis or other documents filed as continuous disclosure under securities regulations.

2.7. The Proposed Framework

2.7.1. The Model Objectives

The objectives of this model can be presented as:

1. Developing and improving an accounting treatment related to bitcoins.
2. Concentrating on accounting for the investments in the bitcoins other than accounting for bitcoins as a medium of exchange or mining.
3. Providing an accounting model that can be used for other types of cryptocurrencies that have the same features as bitcoins.
4. Improving the quality of financial reporting by providing more useful information about bitcoins.

2.7.2. Elements of the Proposed Model

(i). Recognition of Bitcoins

* Definition of an Asset in the Conceptual Framework:

Recognition is the process of capturing for inclusion in a statement of financial position, an item that meets the definition of one of the elements of financial statements—an asset, a liability, equity, income, or expenses. [20]

The Framework defines 'asset' as follows: 'An asset is a present economic resource controlled by the entity as a result of past events. An economic resource is a right that has the potential to produce economic benefits. The definition discusses three aspects which are:

(a) Right
(b) Potential to produce economic benefits; and
(c) Control

A. Right: [20]

Rights that have the potential to produce economic benefits take many forms, including:

1) Rights to receive cash.
2) Rights to receive goods or services.
3) Rights to exchange economic resources with another party on favorable terms.
4) Rights to benefit from an obligation of another party.

B. Potential to produce economic benefits:[20]

It does not need to be certain, or even likely, that the right will produce economic benefits for that potential to exist. The only requirement is that the right already exists.

C. Control: [20]

Control is what connects an economic resource to an entity. An entity controls an economic resource if it currently has the ability to direct its use and obtain the economic benefits that may result from it.

Whether reading different papers, bitcoin can be defined as follows: "Bitcoin is a cryptocurrency. It is a decentralized digital currency that can be sent from user to user on the peer-to-peer bitcoin network without the need for intermediaries."

The researchers cleared the definition of asset in accordance to the conceptual framework, and also define bitcoins in accordance to various studies which resulted in considering bitcoins as an asset, because it meets all the aspects of asset definition which can be clarified as follows:

(1) it's a present economic resource controlled by the entity as a result of past events;
(2) bitcoins have the potential to produce economic benefits as they can be:
   a) sold for a certain amount of cash,
   b) exchanged for a service or good,
   c) used to buy another asset,
   d) used to extinguish a liability,
   e) can be held to verify gains from speculation in its price.

Also, the bitcoins are controlled by the entity which owned them. The control conditions can be verified by assessing the ability of the entity to access bitcoins using its private key of bitcoin wallet by asking the following questions:

a) Is the private key kept in a location where it can be accessed if the storage location is compromised or taken offline?
b) Does the company have direct access to the private key, and do multiple people know where it is kept?
c) If a third-party custodian holds the private key, does the custodian have controls in place to transfer key access

to another party if the custodian is unable to perform his or her duties?

After answering these questions, the entity will have the present ability to prevent other parties from directing the use of the bitcoins. So, from what was mentioned above the definition of the asset can be applied to bitcoins, and the researchers can consider bitcoins as an asset.

(ii). Recognition Criteria

1. Relevance:

The researchers consider that the information related to bitcoins is relevant as it can make a difference in the users' decisions because:

a) It will be included in the profit & losses statement (Income Statement) of the entity.
b) Classifying them as an asset in the financial position statement will affect the financial position and the total value of assets.
c) The users will be able to predict future economic benefits (gains or losses from the change in bitcoins value).

2. Faithful representation:

Financial information must not only represent relevant phenomena, but it must also faithfully represent the substance of the phenomena in order to be useful. In many cases, the substance of an economic phenomenon and its legal form are identical. If they are not the same, providing only information about the legal form will not accurately represent the economic phenomenon. A depiction must have three characteristics in order to be a perfectly faithful representation. It would be complete, neutral, and error-free. [20]

The researchers see that information about bitcoins is:

a) Complete as it includes all information necessary to users to understand bitcoins as its value, classification, and other information.
b) Neutral and Free from error as it depends on the market price of bitcoins in the exchange market as most of the time the bitcoins have an active market without any estimation by management.

(iii). Classification of Bitcoins

1. Type of Asset to be classified:

Before determining the Proper Accounting Model to measure bitcoins and after the coincidence of the definition of an asset on bitcoins the researcher must determine which type of asset to classify the bitcoins, So the researcher will clarify her opinion and justify it in the following lines.

The researcher will classify bitcoins as Intangible assets which is an '*identifiable non-monetary asset without physical substance*'. [27] this can be justified by:

a) bitcoin is separable and identifiable as it can be separated from the entity and sold, transferred, or exchanged individually;
b) it can be acquired or created through mining;
c) It is not cash or a non-monetary asset; and
d) It has no physical form.

So, it is considered as an intangible asset in accordance to IAS 38.

(* the most we can talk about that the proposed classification is similar to Goodwill which is: Under US GAAP and IFRS Standards, "Goodwill is an intangible asset with an indefinite life and thus does not need to be amortized". However, it needs to be evaluated for impairment yearly, but the main difference between bitcoin and Goodwill that G. W represents assets that are not separately identifiable. Goodwill does not include identifiable assets that are capable of being separated or divided from the entity and sold, transferred, licensed, rented, or exchanged, either individually or together with a related contract. Goodwill is also only acquired through an acquisition; it cannot be self-created.).

2. Classification of investments in bitcoins:

The variety of possible classifications, as well as the associated measurement, emphasizes the significance of understanding the nature and characteristics of bitcoins, as well as the entity's business model/purpose for holding them. [38]. The researcher will use the business model test to classify investments in bitcoins (which is a new accounting concept in which the assessment of a business model is based on how key personnel actually manage the business, rather than management's intent for specific assets), As the purpose of holding bitcoins is a key consideration in determining the subsequent accounting treatment, and this will appear in the disclosures section, not on the balance sheet.

So, the researcher classified investments on bitcoins in 2 categories depending on the purpose management from holding bitcoins by the management as follows:

A. Buy and Hold bitcoins (long – term bitcoins):

Many people invest in bitcoin simply by buying and holding them. These are the people that believe in bitcoin's long-term prosperity, and see any volatility in the short term as little more than a blip on a long journey. So, they hold the bitcoins for a long term (which is more than 12-months or one accounting period the longer) to benefits from volatility in its price.

B. Hit and Run bitcoins (Short -Term bitcoins):

Some investors want a more immediate return, by buying bitcoin and selling it at the end of a price rally. There are several ways to do this, including relying on bitcoin's volatility for a high rate of return. So, they hold bitcoins for a short-term time) and sell them when it's value increase to realize a capital gain from the price difference.

(iv). Measurements of Bitcoins

Elements recognized in financial statements are monetary in nature. This necessitates the choice of a measurement basis. A measurement basis is a distinct feature of an item being measured, such as its historical cost, fair value, or fulfilment value. [20]

Fair value as a measurement base for bitcoins:

The researcher sees that fair value is the most applicable measure basis to be used for bitcoins, as it will provide more relevant information about bitcoins, with fair value accounting, valuations are more accurate, such that the valuations can follow when prices go up or down, also fair

value accounting utilizes information specific for the time and current market conditions, it attempts to provide the most relevant estimates possible.

"Fair value is the price that would be received to sell an asset, or paid to transfer a liability, in an orderly transaction between market participants at the measurement date". The asset is measured using the same assumptions that market participants would use when pricing the asset or liability if they acted in their own economic best interests. Fair value can be determined directly in some cases by observing prices in an active market. In other cases, measurement techniques are used to determine it indirectly. [32]

(v). Measurement Model for Bitcoins

1. Initial Measurement:

As bitcoins are classified as an intangible asset so the initial measurement of them will be the cost incurred initially to acquire it from the exchange market (including broker commission and any other expenses), in exchange for selling goods or providing services, or generating them through mining.

2. Subsequent Measurement:

The useful life of an intangible asset is used to account for it. Intangible assets with finite useful life are amortized, whereas intangible assets with indefinite useful life are not. [27], So bitcoins can be considered as an intangible asset with an indefinite useful life as there is no foreseeable limit to the period over which it expected to generate net cash inflows for the entity.

The researcher will introduce the subsequent measurements for each category of bitcoins as follows:

Buy and Hold bitcoins (Long -Term bitcoins):

The researchers using the revaluation model as it will provide more relevant information about bitcoins.

*Revaluation model**:** Following initial recognition, bitcoins must be carried at a revalued amount equal to their fair value on the date of revaluation less any subsequent accumulated impairment losses. (There is no amortization for bitcoins to be deducted from its F. V as it is considered an indefinite intangible asset. [27]

For the purpose of revaluations under IAS 38, the fair value shall be measured by reference to an active market at the end of each reporting date. [27]

(vi). Disclosures for Bitcoins

According to the presentation and disclosures objectives mentioned in both: the revised conceptual framework and the discussion paper 2018 "disclosure initiative – principles of disclosures" by IASB [20, 30] The entity must communicate effectively by identifying useful information to present and disclose them in financial statements.

As a result, any entity that owns bitcoins must include them in its financial statements and disclose any information about them that will be useful to financial statement users and influence their decision-making.

Because there is no accounting standard that specifically addresses the accounting for those types of assets, the accounting treatment of bitcoins and related transactions requires significant judgement and a thorough understanding of the underlying facts and circumstances. As a result, there are no disclosure requirements designed specifically for bitcoins and related transactions.

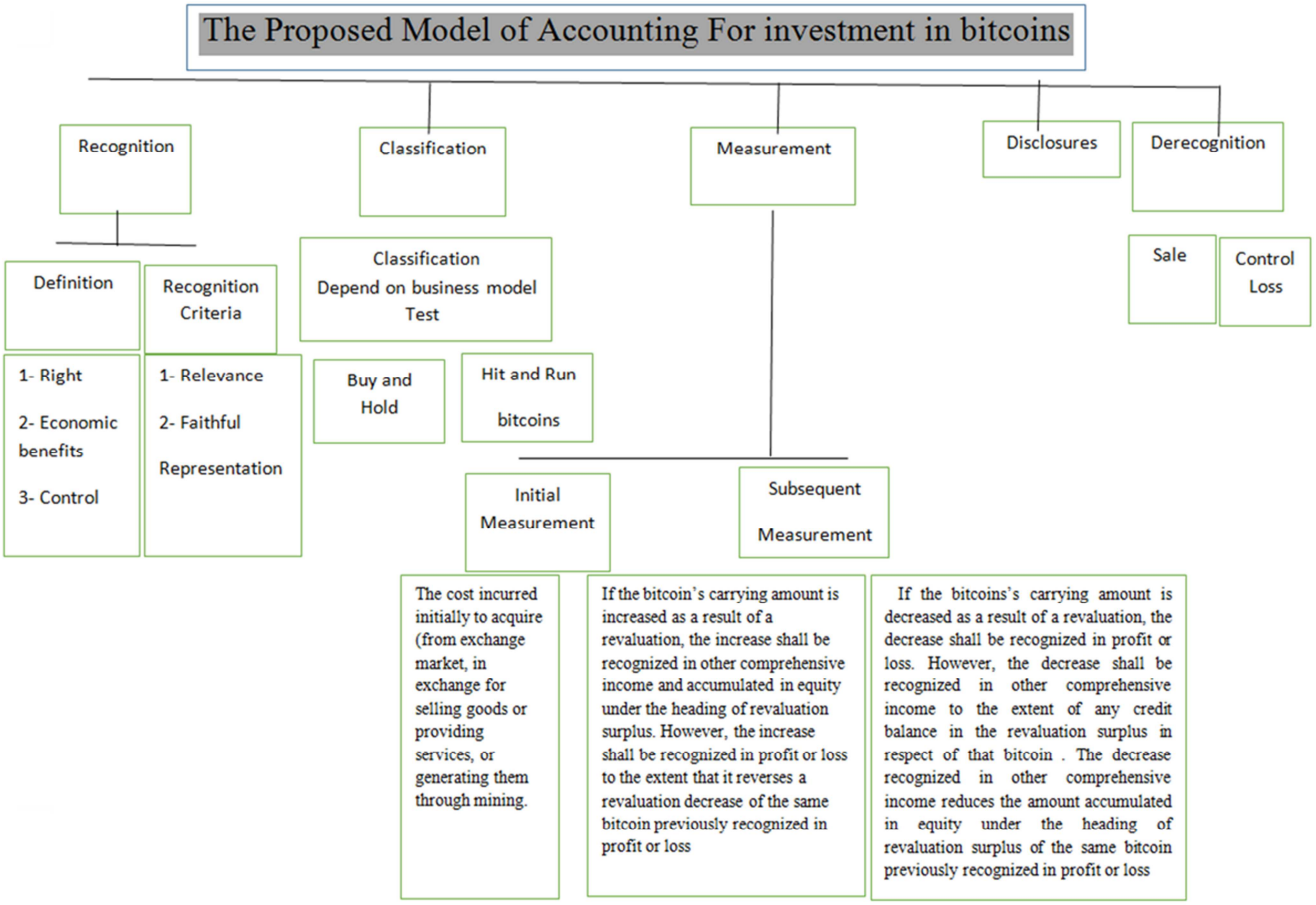
That is not to say that no or limited disclosures are appropriate for bitcoins and related transactions. Aside from the fact that this is a judicial area, the main reason for transparency regarding relevant facts and circumstances is that bitcoins and related transactions are of significant interest to all stakeholders (especially shareholders, analysts, and regulators).

So the researchers will determine some data that must be disclosed by the management for bitcoins, and it preferred to be in a separate statement, given that the following information summarizes some of the more common topics for disclosure, However, this list is not exhaustive and need to be tailored to develop disclosures that are specific to the entity and the relevant facts and circumstances and the management must disclose any information about bitcoins that will affect the decision making of financial statements users. so, the entity shall disclose the following:

1. information about bitcoins:
   a. Description of the bitcoins including their characteristics.
   b. The business model for holding bitcoins.
   c. The date and price of each bitcoin acquired.
2. Accounting policies and judgments made in applying them:
   a. Accounting model applied to bitcoins.
   b. Measurement basis:
      a) increases or decreases in the value of bitcoins during the period resulting from revaluations and from impairment losses recognized or reversed in other comprehensive income in accordance with [34] (if any).
      b) Impairment losses are recognized in profit or loss during the period in accordance with [34] (if any).
      c) Impairment losses reversed in profit or loss during the period in accordance with [34] (if any).
      d) Other changes in the carrying amount of bitcoins during the period.
      e) The amount of the revaluation surplus that relates to bitcoins at the beginning and end of the period, indicating the changes during the period and any restrictions on the distribution of the balance to shareholders.
      f) The policy used by the management to determine which bitcoins to sell and information about the reasons to choose this policy.
      g) Possible future regulatory developments including changes in accounting standards and interpretations.
      h) The reasons to change the policy of determining the value of bitcoins.
      i) The time of impairment test.
3. Events after the reporting period:
   Major change in the value of bitcoins.

4. Fair value of bitcoins:
   a. Fair value of bitcoins held.
   b. level of the fair value hierarchy within which the fair value measurements are categorized.
   c. Description of the valuation technique and inputs used to determine fair value measurement.
   d. Inputs are used to determine fair value measurements, especially consideration around the determination of the principal or most advantageous market and reliability and source of data.
   e. A discussion of the sensitivity to unobservable inputs.
   f. The source which used in the valuation of bitcoins.
5. Risks and how they are managed:
   a. A volatility in the price of bitcoins.
   b. Decrease on the demand for bitcoins and its reasons.
   c. The rise of another currency has the same features as bitcoins so its value back off.

Finally, the following figure will summarize the proposed model of accounting of bitcoins:



Source: prepared by the researcher

Figure 1. *The Proposed Model of Accounting of bitcoins.*

3. Research Methodology

The study depends on a field study through a questionnaire distributed by the researchers, Where the targeted population for the study is mainly classified into:

Financial Reports issuer in corporations which deals with bitcoins in their transactions, Accountant& Auditor in accounting companies such as (The Big Four accounting firms refer to Deloitte, PricewaterhouseCoopers (PwC), KPMG, and Ernst & Young). These firms are the four largest professional services firms in the world, and Others (such as researchers, brokers, and standard setters (board members). The researchers concentrate on those participants as they are professionals and already deal with bitcoins and know its nature, to test the appropriateness of the proposed accounting model for bitcoins where each section in the questionnaire is formulated to test certain hypothesis, a copy of the questionnaire is affiliated in the Appendix, and it is worthy to note that the questionnaire was written in English and then translated in Arabic, as the study took place in Egypt, the Likert-scale has been used as a response scale with five for strongly agree and one for strongly disagree.

4. Discussion of Findings

To test the significance of the differences between the opinions of the three categories of the study, Kruskal-Wallis test is used, this test is used to test the significance of the differences between more than two categories. If the test

result is significant (Sig. < 0.05), this means that the difference between the categories is significant, and the differences will be in favor of the category with the higher mean rank, and if the (Sig > 0.05) this is indicating that there is no significant difference between the categories opinion.

Table 2 shows that the Kruskal-Wallis test is insignificant where the values of the significance level are sig = 0.918, 0.728 and 0.663 respectively which are greater than 5%. This means that there are no significant differences between the average opinions of each of the three categories according to qualifications, career position, and experience variables. Which means that they all agreed regarding the validity of the first dimension which tested the validity of the first hypothesis which is *"There are motives for proposing an accounting model for bitcoins" So the first hypothesis is accepted.*

Table 2. *Kruskal -Wallis Test results for the First Dimension through Qualification, Career Position and Experience.*

	Qualification	**N**	**Mean Rank**	**CHI Test**	**P Value**
Motives for Accounting Model for bitcoins	PHD	23	40.70	4.663	0.198
	MSC	32	56.53		
	Diploma	46	55.59		
	Bachelor	3	52.67		
	Career position	N	Mean Rank	CHI Test	P Value
	Financial reports issuer in corporations	18	56.72	0.636	0.728
	Accountants and auditors in accounting companies	58	50.61		
	other	28	53.70		
	Experience	N	Mean Rank	CHI Test	P Value
	Less than 5 years	3	64.67	1.583	0.663
	From 5 to 10 years	41	55.07		
	From 10 to 15 years	52	55.10		
	Above 15 years	8	43.88		

Table 3. *Kruskal -Wallis Test results for the second Dimension through Qualification, Career Position and Experience.*

	Qualification	**N**	**Mean Rank**	**CHI Test**	**P Value**
Classify bitcoins as intangible asset	PHD	23	46.22	1.938	0.585
	MSC	32	52.16		
	Diploma	46	55.52		
	Bachelor	3	58.0		
	Career position	N	Mean Rank	CHI Test	P Value
	Financial reports issuer in corporations	18	57.31	0.814	0.666
	Accountants and auditors in accounting companies	58	52.22		
	other	28	49.98		
	Experience	N	Mean Rank	CHI Test	P Value
	Less than 5 years	3	74.50	2.856	0.414
	From 5 to 10 years	41	54.79		
	From 10 to 15 years	52	49.89		
	Above 15 years	8	49.40		

Table 3 shows that the Kruskal-Wallis test is insignificant where the values of the significance level are sig = 0.585, 0.666 and 0.444 respectively which are greater than 5%. This means that there are no significant differences between the average opinions of each of the three categories according to qualifications, career position, and experience variables. which means that they all agreed regarding the validity of the second dimension which tested the validity of the second hypothesis which is "The proposed accounting model harmonizes accounting for investment in bitcoins". So, the second hypothesis is partially accepted.

Table 4. *Kruskal -Wallis Test results for the third dimension through qualification, career position, and experience.*

	Qualification	**N**	**Mean Rank**	**CHI Test**	**P Value**
Using fair value in the proposed model for accounting in the investments in bitcoins	PHD	23	458.93	3.325	0.344
	MSC	32	45.30		
	Diploma	46	53.73		
	Bachelor	3	61.17		
	Career position	N	Mean Rank	CHI Test	P Value
	Financial reports issuer in corporations	18	55.06	0.294	0.863
	Accountants and auditors in accounting companies	58	52.77		
	other	28	50.30		
	Experience	N	Mean Rank	CHI Test	P Value
	Less than 5 years	3	48.50	0.827	0.843
	From 5 to 10 years	41	55.21		
	From 10 to 15 years	52	51.59		
	Above 15 years	8	46.06		

Table 4 shows that the Kruskal-Wallis test is insignificant where it is 0.344, which indicates that the values of the significance level are sig = 0.344, 0.863, and 0.843 respectively which are greater than 5%. This means that there are no significant differences between the average opinions of each of the three categories according to qualifications, career position, and experience variables. which means that they all agreed regarding the validity of the third dimension which tested the validity of the second hypothesis which is "The proposed accounting model harmonizes accounting for investment in bitcoins". So, the second hypothesis is partially accepted.

Table 5 shows that the Kruskal-Wallis test is insignificant where the values of the significance level are sig = 0.204, 0.927 and 0.692 respectively which are greater than 5%. This means that there are no significant differences between the average opinions of each of the three categories according to qualifications, career position and experience variables. which means that they all agreed Regarding the validity of the fourth dimension which tested the validity of the second hypothesis which is "The proposed accounting model harmonizes accounting for investment in bitcoins". So, the second hypothesis is partially accepted.

Table 5. *Kruskal -Wallis Test results for the fourth dimension through qualification, career position, and experience.*

	Qualification	**N**	**Mean Rank**	**CHI Test**	**P Value**
The proposed indicators for the impairment test	PHD	23	56.43	4.592	0.204
	MSC	32	43.94		
	Diploma	46	57.23		
	Bachelor	3	41.17		
	Career position	N	Mean Rank	CHI Test	P Value
	Financial reports issuer in corporations	18	50.00	0.152	0.927
	Accountants and auditors in accounting companies	58	52.97		
	other	28	53.14		
	Experience	N	Mean Rank	CHI Test	P Value
	Less than 5 years	3	54.33	1.459	0.692
	From 5 to 10 years	41	56.73		
	From 10 to 15 years	52	49.24		
	Above 15 years	8	51.31		

Table 6. *Kruskal -Wallis Test results for the fifth-dimension through qualification, career position, and experience.*

	Qualification	**N**	**Mean Rank**	**CHI Test**	**P Value**
The importance of disclosure for bitcoins	PHD	23	58.93	3.325	0.344
	MSC	32	45.30		
	Diploma	46	53.73		
	Bachelor	3	61.17		
	Career position	N	Mean Rank	CHI Test	P Value
	Financial reports issuer in corporations	18	55.06	0.294	0.863
	Accountants and auditors in accounting companies	58	52.77		
	other	28	50.30		
	Experience	N	Mean Rank	CHI Test	P Value
	Less than 5 years	3	48.50	0.827	0.843
	From 5 to 10 years	41	55.21		
	From 10 to 15 years	52	51.59		
	Above 15 years	8	46.06		

Table 6 shows that the Kruskal-Wallis test is insignificant where the values of the significance level are sig = 0.283, 0.431, and 0.149 respectively which are greater than 5%. This means that there are no significant between the average opinions of each of the three categories according to qualifications, career position, and experience variables. which means that they all agreed regarding the validity of the fifth dimension which tested the validity of the second hypothesis which is "The proposed accounting model harmonizes accounting for investment in bitcoins ". So, the second hypothesis is partially accepted.

After accepting the four dimensions which tested the second hypothesis which is "The proposed accounting model harmonizes accounting for investment in bitcoins ". so, it is accepted.

Table 7 shows that the Kruskal-Wallis test is insignificant where the values of the significance level are sig = 0.805, 0.326, and 0.031 respectively which are greater than 5%. This means that there are no significant differences between the average opinions of each of the three categories according to qualifications, career position, and experience variables. which means that they all agreed regarding the validity of the sixth dimension which tested the validity of the third hypothesis which is "There are some expected benefits from the proposed model of accounting for bitcoins". So, the third hypothesis is accepted.

Table 7. *Kruskal -Wallis Test results for the sixth dimension through qualification, career position, and experience.*

	Qualification	**N**	**Mean Rank**	**CHI Test**	**P Value**
There are some expected benefits for the proposed model of accounting for bitcoins	PHD	23	48.28	0.896	0.805
	MSC	32	53.89		
	Diploma	46	54.26		
	Bachelor	3	43.00		
	Career position	N	Mean Rank	CHI Test	P Value
	Financial reports issuer in corporations	18	47.61	0.245	0.32
	Accountants and auditors in accounting companies	58	50.63		
	other	28	59.52		
	Experience	N	Mean Rank	CHI Test	P Value
	Less than 5 years	3	41.17	8.852	0.031
	From 5 to 10 years	41	52.40		
	From 10 to 15 years	52	57.53		
	Above 15 years	8	24.56		

5. Conclusion

After the presentation of statistical results, findings are observed and documented. These research findings include the following:

1. There are many different current accounting practices for bitcoin. Thus, the first hypothesis is accepted.
2. The first dimension is "there are motives for accounting model for bitcoins "the most important statement of the dimension is "There is no definite guidelines for bitcoin measurement" with a mean of 4.337, while the least important statement is "Bitcoins is the most famous cryptocurrency" with a mean of 3.865. Thus, the first sub- hypothesis of the second main hypothesis is accepted.
3. The second dimension which tests the " classifying of bitcoins as intangible asset", it is clear that the majority of the sample participants agree on the statements of the dimension, the most important statement of the dimension is "Classifying bitcoins depend on the management intention" while the least important statement is "The recognition of bitcoins in financial reports show the nature of entity investments". Thus, the second sub- hypothesis of the second main hypothesis is accepted.
4. The third dimension which tests the " the proposed indicators for impairment test", it is clear that the majority of the sample participants agree on the statements of the dimension, the most important statement of the dimension is "Cycle indicators are oscillating indicators that are used to analyze market cycles in technical analysis", while the least important statement is "Volatility indicators, such as the Average True Range developed by Wilder, attempt to measure the volatility of a security's price action.". Thus, the second sub- hypothesis of the second main hypothesis is accepted.
5. The fourth dimension which tests the " using fair value in the proposed model to account for bitcoins", it is clear that the majority of the sample participants agree on the dimension statements, the most important aspect of the dimension is "Using fair value in measuring will improve the quality of financial reports", while the least important aspect is ", bitcoins shall be carried at a revalued amount, being its fair value at the date of the revaluation less any subsequent accumulated impairment losses.". Thus, the third sub- hypothesis of the second main hypothesis is accepted.
6. The fifth dimension which tests the " the importance of disclosure for bitcoins", it is clear that the majority of the sample participants agree on the statements of the dimension, the most important aspect of the gap is "Other changes in the carrying amount of bitcoins during the period." while the least important aspect is "the fair value of bitcoins held". Thus, the fourth sub-hypothesis of the second main hypothesis is accepted.
7. By accepting the first, second, third, fourth and fifth dimensions the second hypothesis which is "The proposed accounting model harmonizes accounting for bitcoins 'is accepted.
8. The sixth dimension which tests the " expected benefits from the proposed model of accounting for bitcoins", it is clear that the majority of the sample participants agree on the statements of the dimension, this is reflected by the means which are greater than three, the most important statement of the dimension is "Unify accounting for bitcoins", while the least important statement is ", Improving the quality of financial reports". Thus, the third hypothesis is accepted.

6. Research Recommendations

Based on the results obtained in this research, the researchers suggest the following recommendations:

1. Applying the proposed accounting model in the practical life, and take advantage of it in unifying accounting for bitcoins.
2. The necessity to issue a formal accounting standard for cryptocurrencies.
3. The central bank of Egypt should respond to this change in digital economy and allow people to deal with cryptocurrencies.
4. The necessity to make training for accountants and auditors to know how to deal with cryptocurrencies.
5. Academics should study nature of cryptocurrencies to be aware of the new economy tools.

6. The cooperation between Academics and the professionals, such as; inviting outside speakers' specialists to know more about digital economy tools.
7. The faculties of commerce boards should hold seminars and conferences to share information and experiences about cryptocurrencies.
8. Accounting departments in the faculties of commerce should encourage researchers to select topics related to digital economy generally and bitcoins or other cryptocurrencies in particular.
9. Researchers should consider the several factors affecting the application of one accounting model for bitcoins.

7. Area for Future Research

The researchers suggest the following areas for future research in respect of this research:

1. Make more researches on the effect of accounting for bitcoins and other cryptocurrencies on the role of auditor in auditing financial reports.
2. Make more researches on the effect of the bitcoin price volatility on the investor's decisions.
3. Make more researches on the effect of applying proposed accounting model for bitcoins on the quality of financial reports.
4. Make more researches on the tax impact of applying the proposed accounting model for bitcoins.
5. Make more researches in accounting for other cryptocurrencies which have different features than bitcoins.

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