Accounting Treatments for Cryptocurrencies in Malaysia: The Hierarchical Component Model Approach

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ABSTRACT

Manuscript type: Research paper

Research aims: This study examines the influences of technological factors, risks and regulatory framework on the accounting treatments for cryptocurrency in Malaysia.

Design/Methodology/Approach: This study employs a structured questionnaire to solicit data about the accounting treatments for cryptocurrency. Data were collected from 391 accounting and finance professionals and analysed using partial least squares structural equation modelling (PLS-SEM).

Research findings: The results of this study show that technological factors, risks and regulatory frameworks are positively associated with the accounting treatments for cryptocurrency.

Theoretical contribution/Originality: This study has expanded the existing literature by focusing on the accounting treatments for

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cryptocurrency using the accounting conceptual framework as the theoretical argument.

Practitioner/Policy implication: The findings imply that audit, tax and accounting professionals need to address the valuation and reporting of different classes and types of cryptocurrencies as their usage continue to rise. The core competencies of these professions are being disrupted by these changes; hence, these professions need to evolve and work with strategic partners/technology experts to offer cryptocurrency related advisory services.

Research limitation/Implications: The researchers consider three factors namely technological, risks and regulatory frameworks that influence the accounting treatments for cryptocurrency. Future researchers may consider working with industry leaders to develop objective guidelines for cryptocurrencies, using comparative analysis of alternative accounting treatments to examine how this impacts financial results.

Keywords: Digital Currency, Cryptocurrency, Accounting, Malaysia, Blockchain Technology
JEL Classification: E42, G28, M41

1. Introduction

The world is constantly changing, and technology is advancing very rapidly. Industry 4.0 is currently taking technological advancement to a new high with advanced features such as machine learning and big data. One of the main results of this technological advancement was the introduction and rise of blockchain technology that took the world by storm. Cryptocurrencies such as Bitcoin use blockchain technology and has created a huge buzz throughout the financial sector since its introduction in 2008 by its founder Satoshi Nakamoto. Blockchain is referred to a time-stamped series of fixed record of data that is managed by a group of computers not owned by any single entity, which means that it is a decentralised system with no central authority (Hashemi Joo et al., 2020). Each of these blocks of data is secured and chained to each other using cryptographic principles making the tampering, changing or deleting of data almost impossible; hence, making it more secure and reliable. This idea of blockchain technology gave rise to a decentralised peer-to-peer electronic cash system introduced in 2008, known as Bitcoin. This leads to the development of various other cryptocurrencies such as Ethereum, Litecoin and Cardano.

The acceptance of cryptocurrency has been rising sharply in recent years. According to CoinMarketCap (2021), there are 8400 crypto-currencies listed on its server with a market capitalisation of over $1.57 trillion. In addition, the number of vendors accepting Bitcoin as a form of payment is also growing tremendously. These positive trends indicate that cryptocurrencies have a bright future, spelling an urgent need for its regulations. Despite these positive trends, its adoption poses concerns, issues and challenges. The use of cryptocurrency is not widely accepted universally by regulators and there remain grey areas. Since cryptocurrencies guarantee anonymity, it is typically associated with illegal activities such as money laundering, drug trafficking or acquisitions of weapons (Vishwakarma et al., 2018). As the supply and value of cryptocurrencies are constrained by the actions of users and complex protocols established into their own codes, it is not controlled by a central bank or other regulatory authorities. This situation has given criminals opportunities to hide their identities when using crypto-currencies (Hashemi Joo et al., 2020). Moreover, when organisations fail to report value of assets, in this case cryptocurrency, in accordance with frameworks or legal regulations, there are no records of the transactions. As such this type of unlawful activities are not tracked and identified.

In Malaysia, cryptocurrency is not considered legal tender (The Law Library of Congress, 2018). In 2017, Bank Negara Malaysia (BNM) stipulated that businesses involved in any form of cryptocurrency transactions are to be treated as "reporting institutions" governed by the Anti-Money Laundering, Anti-Terrorism Financing and Proceeds of Unlawful Activities Act 2001 (AMLA). Hence, cryptocurrency ex-changes are required to report and disclose their relevant information to the public so the public would be better informed about the risks associated with cryptocurrencies (The Law Library of Congress, 2018). Furthermore, increasing transparency through information disclosures should discourage the misuse of cryptocurrencies for criminal activities. Although cryptocurrency is not legal tender, it is accepted as a payment instrument by merchants in Malaysia. With regards to taxation, no tax is imposed on gains arising from the sale of cryptocurrencies since it is not recognised as a capital asset (Huang, 2019). A newly created cryptocurrency, initial coin offering (ICO), which is being sold to the public by start-ups in exchange of capital is banned in Malaysia, following new guidelines issued by the Securities Commission on 15 January 2020. Notwithstanding this new ruling which came into force in the second half of 2020, the Initial Exchange Offerings (IEOs) is however

permitted as an avenue for firms to raise funds. Through IEOs, initial digital token offerings are conducted via cryptocurrency exchanges. As a result, the exchanges have to conduct due diligence exercises to assess the viability of the issues (Securities Commission Malaysia, 2020). With this development, stakeholders can properly evaluate and consider the prospects and opportunities of this technological innovation. Malaysian regulatory bodies should take advantage of this technology to drive changes to the Malaysian economic, social and political landscapes (Zakaria et al., 2018).

The above phenomenon shows that while blockchain technology creates intangible value for Malaysian reporting entities, at the same time, it also poses challenges to accounting practitioners and the Malaysian Accounting Standards Board (MASB). This revolves around how to capture such transactions for financial reporting purposes due to lack of guidelines and accounting standards that currently exist for cryptocurrency transactions (Zubir et al., 2020a). A review of literature on cryptocurrency pertaining to Malaysia has revealed that various studies have been conducted on the level of awareness nationally (Ku-Mahamud et al., 2019; Alaeddin & Altounjy, 2018), usage (Zubir et al., 2020b), the potential benefits and risks (Zakaria et al., 2018) legal and regulatory framework (Mohd Zain et al., 2019; Sonny & Sayuti, 2017). While the link between cryptocurrency and accounting has stimulated discussion among academics (Zubir et al., 2020a), there are limited academic papers published in this area, particularly pertaining to accounting treatments. Apart from Teh et al. (2020), Leopold and Vollman (2019), Prochazka (2018) and Sixt and Himmer (2019) who focused on the relationship between cryptocurrency functions, accounting concepts, legal status and accounting treatment, there remain little literature in this area.

Motivated by the limitations of existing literature, this study aims to examine the impact of: (1) cryptocurrency's technological factors on the accounting treatments; (2) cryptocurrency's risks on the accounting treatments; and (3) cryptocurrency's regulatory frameworks on the accounting treatments. This is important as improper accounting treatments may result in unfavourable practices and lack of fair assessment of cryptocurrencies. While there are various issues that may impact the accounting treatments of cryptocurrencies, international and local accounting bodies have yet to issue specific guidelines or standards on how to account for cryptocurrency transactions, apart from a few existing accounting standards in use depending on its purpose and usage

(Chartered Professional Accountants of Canada, 2018). It is important for individuals preparing financial statements to reflect its adoption truly and fairly based on standards as required by the accounting conceptual framework. As opposed to previous studies, this study includes risks as one of the factors that may impact the accounting treatments.

The next section of this paper presents the literature related to digital currency. Section 2.5 discusses the theoretical framework followed by Section 3 on research methods and Section 4 on data analysis. Section 5 provides conclusions and implications of the study.

2. Literature Review

2.1 Accounting Treatment

One of the issues currently being faced is how cryptocurrencies should be reported and recognised in financial statements (Deloitte Touche Tohmatsu Ltd, 2018). The commonly asked question by accountants is whether cryptocurrency can be reported under cash. Based on the definition of cash under IAS 7, cryptocurrency does not satisfy the criteria as a cash item as it cannot be converted readily into known amounts of cash (Deloitte Touche Tohmatsu Ltd, 2018). The value of cryptocurrency is volatile as it is subject to market demand and supply and hence it does not meet the requirements of IAS 7 that mentions cash can only be exposed to minute prospects of change in value (Chartered Professional Accountants of Canada, 2018). Cryptocurrency cannot be classified as a non-cash financial asset (IAS 32 and IFRS 9) as it does not give contractual rights to obtain cash or equivalent financial assets or to swap financial liabilities or assets with another entity and thereupon no residual interest in the net assets (Chartered Professional Accountants of Canada, 2018).

Currently, the International Financial Reporting Interpretations Committee (IFRIC) suggests that cryptocurrency be reported as an intangible asset under IAS 38 in financial statements as it meets the given definition as a mode of payment. IAS 38 defines intangible asset as an identifiable non-monetary asset that does not have a physical form, and most cryptocurrencies will fall under the spectrum of being an intangible asset (Chartered Professional Accountants of Canada, 2018). If companies are involved in mining/creating cryptocurrencies with the intention to sell to the market or traders purchase or sell cryptocurrencies to generate profits, they will be classified as inventory under IAS 2 (KPMG IFRG Ltd, 2019).

Another challenge currently facing accountants is finding the right measurement approach for cryptocurrency. KPMG IFRG Ltd (2019) mentioned that cryptocurrency will be measured at cost or at fair value with the condition that an active market exists. Fair value is defined as an exit price in IFRS 13. It is the price that would be obtained when selling an asset or the amount that needs to be paid in order to transfer a liability (Chartered Professional Accountants of Canada, 2018). The issue here is that since cryptocurrency is a newly developing market, some cryptocurrency markets may be actively traded while others may not be. Just because a market exists does not make it an active market. Thus, the entity is required to conduct an evaluation to see if the frequency and volume of a transaction is enough to be considered an active market while providing pricing information on a continuous basis for a cryptocurrency (Deloitte Touche Tohmatsu Ltd, 2018). The lack of an active market can be a major issue for entities when determining the value of a cryptocurrency (Chartered Professional Accountants of Canada, 2018). In some instances, a particular cryptocurrency may have more than one active market with varying prices at the date of measurement. The entity will have to pick the principal market as the active market (Chartered Professional Accountants of Canada, 2018).

Another issue with using fair value as a measurement basis is that not all markets can be accessed by the entities. In certain cases, even if the market is active, only selected people are allowed to view it (Chartered Professional Accountants of Canada, 2018). When measuring a cryptocurrency, it is also vital to take the unit of measurement into account. Some markets may opt to use fractions of units while others may use single units. This complicates the process of picking the ideal market to calculate the price.

Moreover, another major problem of using cryptocurrency is that the price is volatile. This is because the prices of cryptocurrencies are affected by supply and demand. If the demand goes up, the price goes up and vice versa (Browne, 2018). With the prices being volatile and many markets being opened 24/7, it is vital for an entity to decide on the reporting time for value measurement (Leopold & Vollman, 2019). This imposes many other challenges and problems such as different time zones, hence complicating the valuation time being chosen. Due to the price volatility, using fair value in these circumstances may not provide the entities with the most accurate amount (Leopold & Vollman, 2019).

Pertaining to holding cryptocurrency tokens or coins, this can be divided into two usage types namely security and utility. In most cases, a cryptocurrency is categorised as a security-type token when it is used for short-selling (Prochazka, 2018). It then falls under IFRS 9 as these short-selling cryptocurrencies are just like other derivative-like contracts (Sundquist & Hyytia, 2019). In fact, Ernest & Young observed that under U.S. law, the token itself actually is not to be referred as a security, but it provides the security when there is a presale in the agreement to purchase future tokens according to Cooley and Protocol Labs (Daniel, 2018). In contrast, cryptocurrencies are mostly categorised as a utility-type token when it is expected to have a long-term useful life as it represents the right to receive future goods and services. Besides, it does require the existence of a contract if it is to be recorded in accordance with IFRS 15 (Sundquist & Hyytia, 2019).

Together with the emergence of cryptocurrencies, crypto mining has also become a hot topic globally. The users are able to earn crypto as a prize when the miners are fast enough to be the first one to solve the problem in the given block of transactions (Gandal & Halaburda, 2016; Prochazka, 2018). Crypto mining can be a hobby and also a form of self-employment. If a miner is self-employed, proper accounting treatments are required. Wyland (2019) stated that cryptocurrencies generated from crypto mining are treated as income at the current fair value when they are received. Moreover, each crypto mining transaction constitutes a contract with the respective customer since crypto mining is a proper job (KPMG IFRG Ltd, 2019).

Moving forward to taxation, since cryptocurrencies are referred to as intangible assets under IAS 38, regardless of using either revaluation model or cost model, it has to be measured by using cost less any accumulated impairment (Leopold & Vollman, 2019; Sundquist & Hyytia, 2019). Any increase or decrease in value must also be reported as capital gains or losses since it is used for long-term investment. For income tax purposes, due to its intangible nature, capital gains from its sale are subjected to income tax and corporation tax (Sixt & Himmer, 2019). Zubir et al. (2020a) surveyed awareness of cryptocurrency's accounting treatments among experienced Malaysian accountants. The respondents suggested that Malaysia should not recognise cryptocurrency as a legal tender; in addition, it should be barred from usage as fiat currency because its real value is difficult to ascertain. Moreover, MASB has yet to issue any accounting standards or procedures for cryptocurrencies.

2.2 Technological Factors of Cryptocurrency

The usage of cryptocurrency is more common among Internet users due to its systematic nature and its reliance on the Internet (Alaeddin & Altounjy, 2018). A study conducted by the Malaysian Communications and Multimedia Commission (MCMC) found that, in 2017, 41.7 per cent of Internet users used the Internet for financial activities as compared to 36.2 per cent of users in 2016 (Alaeddin & Altounjy, 2018). The increased usage of the Internet for financial activities was in response to the market moving towards adopting this technology as a great way to generate wealth. Consumers today are also moving towards a cashless economy instead of holding physical currency which is no longer a trend (Vishwakarma et al. 2018). This is due to the faster pace of life today with consumers expecting faster payment systems. Hence, the usage of cryptocurrency is expected to increase in the coming years, due to technological factors (Alaeddin & Altounjy, 2018).

Bitcoin was the first cryptocurrency which appeared on the market in 2008. Coin mining is done by miners through mathematical calculations using specialised equipment or computers with powerful processors to solve the block and access the coin. This has created investment opportunities for parties to deal in cryptocurrencies to make money (Sokolenko et al., 2019). If a miner recognises this as income, then it must be measured at fair value which is the market value of the cryptocurrency. The miner recognises it as income when the mathematical calculation is solved (KPMG IFRG Ltd, 2019). Holders of cryptocurrency as a long-term investment are likely to be subject to capital gains tax on the disposal of the investment.

According to KPMG IFRG Ltd (2019), crypto-assets are becoming increasingly prevalent, but what they are and how they are reported in financial statements must be prioritised. Individuals preparing these statements need to understand their form and substance, and the rights and obligations that crypto-assets bear, especially with limited IFRS standards guidance. Cryptocurrencies such as Bitcoin and Ether exhibits some characteristics like fiat currency which can be used to acquire goods or services. They can also be held for trading or speculation or as a longer-term investment. Accounting standards bodies have proposed that it is classified under IAS 38 Intangible Assets, alternatively it can be accounted for as inventory under IAS 2 Inventory if the cryptocurrency is held for sale in the ordinary activity of an entity. Upon sale of this crypto-asset, it might be subject to income or capital gains tax.

When people acquire cryptocurrency such as Bitcoin, it can only be stored in an online wallet service or in a digital wallet on the users' computer (Zakaria et al., 2018). Unfortunately, there are risks associated with the storage of cryptocurrency where the cryptocurrency can be lost permanently due to malware attack or even data loss. Hence, providing more secured Bitcoin storage will increase investors' confidence to adopt and use cryptocurrencies. Due to increased usage of cryptocurrencies, tax authorities are considering its tax implications. Different tax authorities approach it differently taking into account of the administrative rules involved. In general, the tax grouping is anticipated to widely follow the accounting treatment (KPMG IFRG Ltd, 2019). To ensure whether cryptocurrency is held as a medium of exchange or as an investment, it should be well accounted for according to its substance, which guides the following proposed hypothesis:

H$_1$: There is a significant relationship between technological factors of cryptocurrency and the accounting treatments.

2.3 Risks of Cryptocurrency

As stated above, cryptocurrencies apply blockchain technology for transaction recording. There are some cryptocurrency issues caused by blockchain technology, one is majority attack. Lin and Liao (2017) stated that majority attack occurs when several miners jointly mine more blocks and when they gained 51 per cent of the computing power, they will take control of the blockchain to launch double-spending attacks on cryptocurrency after modifying the transaction data (Karame et al., 2012). This situation can be very serious because it may interfere with transaction verification and the mining process (Lin & Liao, 2017). Hence, stability and maturity of blockchain technology should be improved to prevent such attacks.

Another technical problem related to cryptocurrency is online system failure. This situation occurs when there is high-volume traffic. Under the worst-case scenario, users may lose their cryptocurrency wallets for online transactions. In order to minimise possible loss of wallets (Vishwakarma et al., 2018), cryptocurrency users may hold multiple wallets in multiple locations on the network. Furthermore, the absence of regulation and policies are causing many of the risks associated with the usage of cryptocurrency. Due to the decentralised nature, cryptocurrencies are not controlled and regulated by govern-

ments (Hashemi Joo et al., 2020). It means that there is no legal protection for cryptocurrency users. A common risk for users is security, since cryptocurrencies and users' data can be hacked. Criminals like hackers can simply create virtual currency or steal virtual currency by just hacking the system. Money laundering, where money is generated from the black market and transacted by exchanging cryptocurrency with real money, is also a concern to governments (Albrecht et al., 2019). For instance, users may create bogus accounts with unknown identities and use them for illegal transactions. It is impossible to identify the real users; hence the perpetrators can get away with fraud.

Other problems like black market activities may also arise. Black market websites can lead to increase in fraud (Jani, 2018; Javed et al., 2020). This may also encourage money laundering. Hence, countries should work together to establish global regulatory frameworks for managing cryptocurrency applications. Another option is to form a self-governance model. This model can provide guidance to ecosystems on regulating transactions based on users' identity and reputation.

Apart from the above, the volatility of cryptocurrencies is also a potential challenge (Conrad et al., 2018). Bitcoin price has violently fluctuated between 2017-2020 (CoinMarketCap, 2020) and has caused difficulties to investors in predicting its price and value. This affects largely those who are less knowledgeable about supply and demand of cryptocurrencies influencing its price. A possible solution to minimise cryptocurrency price fluctuations is for central banks to set up a system to control its supply. The banks can also establish a control system to halt cryptocurrency trading should price fluctuations exceed a set limit in order to maintain its values and limit speculative activities. These variations complicate book valuations of cryptocurrencies done by accountants and finance professionals. From the above discussions, it is clear that there is an issue in measuring cryptocurrencies and whether the risks of cryptocurrency influence how it is measured? Hence, this study suggests the following hypothesis:

H_2: There is a significant relationship between risks of crypto-currency and the accounting treatments.

2.4 Regulatory Frameworks of Digital Currency and Cryptocurrency

Different countries perceive cryptocurrencies differently (Yalaman & Yıldırım, 2019). A common response is for governments to issue state-ments to caution the public about the high risks of using and investing

in cryptocurrency due to a lack of regulatory control and high volatility. This includes countries like Australia, Canada, Denmark, Estonia, Japan, Luxembourg, Malaysia, Mexico, Singapore, South Korea and Switzerland. Some governments are more proactive and have imposed restrictions on cryptocurrency related activities, both investing and using cryptocurrency as a form of exchange. For example, Algeria, Bolivia, Egypt, Ecuador, Iraq, Macau, Morocco, Namibia, Nepal, Pakistan, South Africa, Turkey, Vietnam and United Arab Emirates imposed bans on cryptocurrency related activities. In contrast, some governments issued or planned to issue their own national digital currency, namely Dubai, Estonia, Japan, Russia and Sweden (Teoh et al., 2019).

In this digital age, minors make up a major proportion of Internet users, especially associated with online games. Hence, they can be easily attracted by virtual currencies. Thus, children protection laws applied to online games using virtual currency should be in place to protect children privacy (Jani, 2018). For example, in India, Article 16 of the Convention on the Rights of the Child (CRC) restricts personal information of children below thirteen (13) years old from being collected by websites and service providers. There are two conditions before they could do so: 1) the game operators must provide clear privacy policies to the public on their websites, and 2) they need to obtain parents' consent before collecting or using children's data (Jani, 2018).

Data privacy and security laws are also applicable to regulate cryptocurrencies (Jani, 2018). Most cryptocurrency providers obtain and collect personal information about their users. Users' personal data should be kept and stored with high privacy standards (Vishwakarma et al., 2018; Zakaria et al., 2018). For example, the online platforms that allow cryptocurrency purchases using credit cards or other bank cards should comply with data privacy and security laws when they store the cards' information. Similar to children protection laws, parties that collect personal users' data have to disclose the purposes of collecting such data, publish their privacy policy as well as ensure that the data is safe and secured (Jani, 2018).

Other laws are being implemented in certain parts of the globe such as gambling or lottery laws. India has attempted to regulate online gambling (Jani, 2018). Meanwhile, Malaysia has a dual legal system based on the common law and Shariah law. Thus, for Muslim citizens, gambling of any kind is strictly prohibited. Since cryptocurrencies like Bitcoin fluctuates in value due to pure speculation and with no underlying asset backing its value, it is considered as non Shariah-

compliant and a form of gambling (Alam & Zameni, 2019). According to the Betting Act 1953, non-Muslims can only gamble at licensed or permitted entities. Neither the Betting Act 1953 nor the Common Gaming House Act 1953 explicitly prohibit online gambling because the statutes provisions are widely worded, it can be assumed that online gambling is strictly against the law as well.

Anti-money laundering and anti-terrorism financing laws can also be applied to regulate cryptocurrencies (Zakaria et al., 2018). The risks related to blockchain technology or cryptocurrencies cannot be eliminated by not recognising cryptocurrency or banning it since criminals can still hack and attack the blockchain system for their own advantages (Jani, 2018). Hence, anti-money laundering and anti-terrorism financing laws can help reduce or mitigate these risks. Malaysia has issued guidelines on digital currencies and digital currency exchanges known as the Anti-Money Laundering and Counter Financing of Terrorism (AML/CFT) – Digital Currencies (Sector 6). Under the Anti-Money Laundering, Anti-Terrorism Financing and Proceeds of Unlawful Activities Act 2001, all parties acting as exchanges will be treated as reporting institutions and detailed information on buyers and sellers of such currencies have to be provided although Bank Negara Malaysia does not regulate the virtual currency exchanges nor does BNM recognise digital currency as legal tender (Zakaria et al., 2018).

There is no uniform approach to taxing cryptocurrency (Nevle, 2020). Tax imposed by nations depends on how they categorise cryptocurrencies. Nations such as America, Argentina, Belgium, Canada, Denmark, Europe, Japan, Philippines, Poland, Norway, and Spain impose income tax on cryptocurrency from revenue earned by corporations and individuals. Capital gains tax can be imposed on crypto-related assets similar to commodities or investments bought for ownership or trading like bonds, equities and real assets. When the sales proceeds exceed the initial purchase sum, tax is imposed on the differences. Nations that impose capital gains tax on cryptocurrency revenue include Australia, Brazil, Bulgaria, Croatia, Finland, France, Israel, New Zealand, South Korea and the United States (Nevle, 2020). In contrast, a few nations adopted a more liberal approach than the above nations, they do not tax those who buy, hold and sell cryptocurrencies. These include Belarus, Bermuda, Germany, Hong Kong, Malaysia, Malta, Portugal, Singapore, Slovenia and Switzerland (Hamacher, 2021). Therefore, accounting and tax treatments for cryptocurrency are subjective due to the notable

differences in governing approaches. Hence, this study suggests the following hypothesis:

> H₃: There is a significant relationship between cryptocurrency's regulatory frameworks and the accounting treatments.

2.5 Theoretical framework – The Accounting Conceptual Framework

An analysis of recent publications and studies shows that there is a lack of investigation on the accounting treatments for cryptocurrency. Most of the studies have focused on economic, technological and legal aspects of cryptocurrency. Hence, this study aims to address this literature gap by examining the impact of cryptocurrency on its accounting treatments using the revised conceptual framework (2018) as the theoretical background. The conceptual framework is a kind of normative theory. The theory focuses on two (2) normative aspects, firstly deriving the 'true income' or profit for a financial year, and secondly concerning the type of accounting information which is useful in making economic decisions (Godfrey et al., 2010). Normative theory assumes the nature of an entity's operations is based on their observations. Hence, detailed and exact accounting rules and principles; and a reasonable description of the accounting data is outlined. Financial statements should mean what they present, and they should mirror reality. The conceptual framework prescribes the fundamental principles to be followed in preparing financial statements. Although it does not use "should or ought to be", it outlines essential guidance on measurement and reporting financial performance (International Accounting Standard Board, 2018) for a new area that has not been adequately covered like cryptocurrency's accounting treatments.

The conceptual framework describes "prudence as the exercise of caution when making judgements under conditions of uncertainty" [2.16]. This prudence concept is related to neutrality. IASB asserts cautious prudence is an element for faithful representation and is in line with neutrality. Hence, any uncertainty in the form of risk or liquidity of cryptocurrency must be measured and recognised using fair value, a truthful valuation technique which considers the effects of uncertainty. In addition, the conceptual framework also emphasises that individuals preparing reports must exercise management's stewardship or accountability; and events and transactions must be faithfully represented to reflect its substance instead of solely its legal

form (Lennard, 2007). Entities' financial disclosure and non-financial information for cryptocurrency should strengthen directors' lawful obligation of stewardship or accountability by providing useful information to stakeholders for decision making. Entities' performances are expected to demonstrate managements' performance in utilising resources. The way cryptocurrency is recognised and measured in the statements affects the quality of accounting information produced. Recognition and measurement for cryptocurrency according to the conceptual framework provides important accounting information for decision making and to accurately measure managements' performance.

This conceptual framework refined the definition of an asset as an economic resource, and introduced the "no practical ability to avoid" criterion to the definition of liability (IASB, 2018). It also changed the recognition principles for financial statements by putting in order the recognition criteria to provide useful information that meets the fundamental qualitative characteristics of relevance and faithful representation. Therefore, some items of assets and liabilities in cryptography form may qualify for recognition even if the measurement is subject to huge uncertainties and where there are unclear economic benefits. These differ from the criteria of the previous frameworks that required high probability of future economic benefits and cost or value that can be measured with reliability.

In April 2018, the MASB issued an equivalent revised conceptual framework for financial reporting, immediately after the IASB issued the revised conceptual framework for financial reporting in March 2018 (Tan, 2018). According to the revised conceptual framework (2018), in the absence of a standard that specifically applies to a transaction, individuals preparing financial statements must use their judgement in developing and applying an accounting policy to provide relevant and reliable information. Relevant information can make a difference when users make decisions if they have confirmatory value or predictive value. Information is faithfully represented if it constitutes the substance of what it intended to be, to the maximum degree possible, neutral, complete and free from error. Individuals preparing financial statements are required to consider the above revised definition, recognition criteria and measurement concepts for assets, liabilities, income and expenses in the framework. The revised framework also addresses some of the more current Malaysian Financial Reporting Standards (MFRSs) issued by the MASB and the recent developments in the business world (Tan, 2018). Intangibles such as new technologies, crypto asset, advancement

of artificial intelligence and mass marketing networking have become valuable resources of business entities. These generate value for the reporting entities with lower entries for recognition and measurement in financial statements. Hence, events or transactions involving cryptocurrencies including technological factors, risks and regulatory frameworks should be faithfully represented in the financial statements.

The research framework (Figure 1) is proposed based on the conceptual framework and review of the literature above.
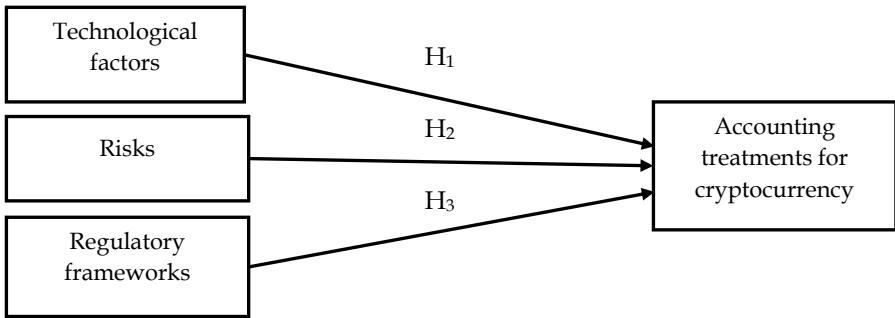

Figure 1: Research Framework

3. Research Method

This study employed online survey questionnaires to collect data on the impacts of cryptocurrency's technological factors, risks and regulatory frameworks on its accounting treatments. Respondents consist of potential users or existing users of cryptocurrency with professional accounting background (i.e., MICPA/ACCA/CIMA/ICAEW and CPA professional certification). Purposive sampling (i.e., non-probability sampling technique) was used to identify the participants, since this technique enables researchers to recruit participants with expert knowledge in the area studied (Bryman & Bell, 2015). Moreover, purposive sampling is also well suited to new fields of research where little information exists, such as cryptocurrency. A total of three hundred and ninety-one (391) respondents completed the questionnaires between August and December 2019. Based on the PLS-SEM sample size recommendation table, the current study requires at least twenty-two (22) participants to achieve a statistical power of eighty (80) per cent for detecting R^2 values of at least 0.50 (with a 5 per cent probability of error) (Cohen, 1992). Hence, a sample size of 391 is considered sufficient.

This constitutes a response rate of approximately 30 per cent of the total participants selected. To increase the response rate, the researchers monitored the respondents closely through direct and extensive consultations and follow ups. The researchers included an informed consent form at the beginning of the questionnaire, which made it clear that the survey is voluntary and confidential and that no individual results would be disclosed.

The questionnaire is divided into five (5) parts: the first part assesses respondents' preliminary views on cryptocurrencies. This part provides information on respondents' familiarity and expectations of cryptocurrencies, which include their direct experience and cryptocurrency usage. The second part gauges the respondents' concerns and issues pertaining to cryptocurrencies. This section requires the respondents to rate their concerns using a six (6) point Likert Scale ("1 = not at all concerned" to "6 = extremely concerned"). Thereafter, the third part addresses the technological factors surrounding cryptocurrency including its legal status and regulatory frameworks ("1 = not important at all" to "6 = extremely important"). Part Four (4) assesses how cryptocurrencies have impacted financial statements ("1 = strongly agree" to "6 = strongly disagree"), followed by the respondents' professional certification, and Part Five (5) of the questionnaire covers the respondents' profiles.

The instruments used were adapted from past studies. Five items were adapted from Alaeddin and Altounjy (2018) to measure the technological factor variable, while eight items were adapted from Jani (2018) to measure the risks of crptocurrencies. Regulatory frameworks of cryptocurrencies were also operationalised based on seven items adapted from Jani (2018). Sixteen items were adapted from KPMG IFRG Ltd (2019) to measure accounting treatments.

Of the 391 responses, 54.2 per cent of them were males, while 45.8 per cent were females. Among them, 31.7 per cent were accounting academics, 18.2 per cent were accounting officers/executives, 30.7 per cent were accountants and chief accountants, and 13.5 per cent of the respondents were financial controllers/directors. Almost 39.7 per cent of the respondents possessed MICPA/ACCA/CIMA/ICAEW and CPA professional certification, while 29.9 per cent of them had achieved certified accounting degrees. Half of the respondents (56.7 per cent) had one to five years of work experience. Almost 26.3 per cent of the respondents had more than ten years of work experience. Table 1 provides the respondents' profiles.

Table 1: Respondents' Profiles

Demographic	Frequency	Percentage
Gender		
Male	212	54.2
Female	179	45.8
Profession		
Accounting academic	124	31.7
Accounting officer/executive	71	18.2
Accountant/chief accountant	120	30.7
Financial controller/director	53	13.5
Others	23	5.9
Educational qualifications		
MICPA	21	5.4
ACCA	95	24.3
CIMA	10	2.6
ICAEW	10	2.6
CPA	19	4.8
Accounting degree	117	29.9
No accounting certificate	119	30.4
Years of working experience		
1 – 5 years	221	56.6
6 – 10 years	67	17.1
11 – 15 years	34	8.7
16 – 20 years	15	3.8
21 – 25 years	25	6.4
26 – 30 years	14	3.6
> 30 years	15	3.8

4. Results and Discussion

4.1 Descriptive Analysis

Table 2 shows the mean and standard deviations of the measurement items with high mean scores. The results show that a majority of the respondents had a favourable view on the technological characteristics of cryptocurrencies. They agreed that cryptocurrencies facilitate faster transactions and appear to be better tools for e-commerce merchants. In addition, they also perceived that it is easy to purchase Bitcoin, and a majority of retail shops accept the use of digital currency. They also agreed on the importance of anti-money laundering and anti-terrorism financing laws as well as laws pertaining to taxation.

Table 2: Descriptive Statistics of Measurement Items with the Highest Mean

Technological factors/Risks/Regulatory framework	Mean	Std. Deviation
Anti-Money Laundering & Anti-Terrorism Financing Laws	4.36	1.475
Better tools for e-commerce merchants	4.28	1.461
Faster transaction process	4.17	1.475
Simplified procedures for Bitcoin purchase	4.06	1.464
Taxation Laws – impose taxes on incomes generated from cryptocurrency transactions	4.06	1.458
Major retail shops accepting Bitcoin	4.05	1.498

In addition to the mean and standard deviation, the study also ran frequency analyses to discover the respondents' point of view with regards to the local regulatory frameworks governing cryptocurrencies. Most of the study's respondents were sceptical towards cryptocurrency, perhaps due to lack of knowledge, information and the volatility surrounding cryptocurrencies. This is reflected by the high percentage of respondents who rated the legal and regulatory framework items as "somewhat disagree" and "somewhat agree" (Table 3). Similarly, the concerns over money laundering and terrorism financing may have also influenced users' confidence and perceptions toward initial coin offering (ICO) as a fund raising mechanism and issuance of cryptocurrencies as national currencies.

Table 3: Legal Status Concerns

Items/Percentage	1	2	3	4	5	6
Absolute ban – issued warning against cryptocurrency	12.0	14.6	**28.4**	**22.3**	15.9	6.9
Implicit ban – not recognising it as a legal tender	12.0	13.8	**27.9**	**23.5**	15.6	7.2
Regulate initial coin offering (ICO) as a mechanism of fund raising	6.9	9.5	**25.6**	**29.2**	21.7	7.2
Process of issuing cryptocurrency as a national currency	10.5	15.9	**20.2**	**27.6**	16.6	9.2

Note: 1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Somewhat Agree 5 = Agree, 6 = Strongly Agree.

4.2 *Measurement Validation and Structural Analysis*

Partial Least Squares Structural Equation Modelling (PLS_SEM), Smart PLS software (version 3.2.8) was used for data analysis since the objectives of the study is to ascertain the major constructs or key "driver" constructs that impact on the accounting treatments for cryptocurrencies. In addition, PLS-SEM easily incorporates reflective and formative measurement model applied in the research framework. The PLS-SEM algorithm properties assist in minimising the amount of unexplained variance (i.e., maximises the R^2 values) with high level of statistical power (Hair et al., 2017). This study also used the exploratory method. Prior to measurement validation, a common method bias test was performed since the variables in this study were measured through a cross-sectional survey method (Akter et al., 2011; Podsakoff et al., 2003). Hence, a consistent PLS algorithm with a factorial weighting scheme was applied to evaluate the presence of the common method bias and a maximum iteration of 300 was set. No common method bias in the structural model was found as the VIF values of all constructs showed a value of less than 3.3 (Hair et al., 2018).

This study employed the hierarchical component model (HCM) to reduce the number of relationships in the structural model, making the PLS path model more parsimonious, while increasing the bandwidth of content covered by certain constructs (Hair et al., 2018). More precisely, the HCM model represents a more general construct measured at a high level of abstraction, while some subcomponents are included simultaneously. Hence, more concrete traits of the conceptual variable signified by this construct are covered. As a rule, a reflective-formative HCM (Type II) is applied to dependent variable constructs to examine the three main activities under accounting treatments. The three different activities are namely holding/issuing cryptocurrency, crypto-mining and taxation that represent lower-order-constructs (LOCs) of the more general higher-order-construct (HOC) (accounting treatments). Barroso and Picon (2012) proposed that accounting treatments are an aggregate construct expressed as a composition of its different LOCs. Within a larger nomological net, the HOC fully mediates the relationships of LOCs with the endogenous latent variables in PLS path model (Hair et al., 2017).

Both convergent and discriminant validity analysis were used to assess the reflective measurement model in the study. The convergent

validity was assessed using factor loadings, the average variance extracted (AVE) and the composite reliability. Similarly, the formative measurement model was assessed by using redundancy analysis for convergent validity, variance inflation factor (VIF) for collinearity issues and significance of relevance of the formative indicators assessment (Hair et al., 2018). In this study, the discriminant validity was assessed based on Fornell and Larcker's criterion (1981) and Henseler's heterotrait-monotrait (HTMT) (2016) criterion.

4.2.1 Convergent Validity (Reflective Measures)

Table 4 shows the results of reliability and convergent validity tests of the constructs in this study. As illustrated, the outer loadings for all items were above the recommended value of 0.7 (Hair et al., 2010). The composite reliability of the latent constructs ranged from 0.916 to 0.950, which exceeded the recommended value of 0.7, indicating that these constructs possessed internal consistency (Hair et al., 2017). The AVE values were also above the threshold values of 0.5, indicated that the items loaded to the respective constructs explained more than fifty per cent (50%) of the constructs' variance (Hair et al., 2017). Therefore, the convergent validity requirement for reflective measures for this study was achieved.

4.2.2 Discriminant Validity

Tables 5 and 6 illustrate the assessment of discriminant validity. Discriminant validity explains to which extent a construct is dissimilar from other constructs. Table 5 shows that the correlations for each construct were less than the square root of AVE for the indicators measuring this particular construct, indicating sufficient discriminant validity (Fornell & Lacker, 1981). Similarly, the ratio of the between traits correlations to the within traits correlations was determined by the heterotrait-monotrait criterion (HTMT). Table 6 shows that all HTMT values were significantly lower than the threshold value of 0.85 (Henseler et al., 2016; Kline, 2011). The results of the bootstrap confidence interval of the HTMT criteria also clearly show that the measurement model exhibited satisfactory discriminant validity (Hair et al., 2017). In general, the measurement model in the current study shows adequate discriminant and convergent validity.

Table 4: Internal Consistency and Convergent Validity

First Order Constructs	Item	Loadings	CR	AVE
Technological factors	Q3.2.12	0.904	0.950	0.792
	Q3.2.13	0.905		
	Q3.2.14	0.912		
	Q3.2.8	0.838		
	Q3.2.9	0.889		
Risks	Q2.1	0.780	0.934	0.640
	Q2.2	0.813		
	Q2.3	0.800		
	Q2.4	0.812		
	Q2.5	0.783		
	Q2.6	0.822		
	Q2.7	0.771		
	Q2.8	0.818		
Regulatory frameworks	Q3.4.1	0.797	0.916	0.609
	Q3.4.2	0.765		
	Q3.4.3	0.770		
	Q3.4.4	0.659		
	Q3.4.5	0.821		
	Q3.4.6	0.836		
	Q3.4.7	0.802		
Accounting: Holding as assets	Q4.1.1	0.790	0.930	0.657
	Q4.1.2	0.753		
	Q4.1.3	0.850		
	Q4.1.4	0.820		
	Q4.2.1	0.830		
	Q4.2.2	0.841		
	Q4.3.1	0.783		
Accounting: Crypto-mining	Q4.4.1	0.909	0.925	0.805
	Q4.4.2	0.894		
	Q4.4.3	0.889		
Accounting: Taxation	Q4.5.1	0.874	0.930	0.769
	Q4.5.2	0.892		
	Q4.5.3	0.867		
	Q4.5.4	0.875		

Table 5: Discriminant Validity (Fornell and Lackers Criterion)

	(1)	(2)	(3)	(4)	(5)	(6)
Technological factors (1)	0.890					
Accounting: Crypto-mining (2)	0.609	0.897				
Accounting: Holding as asset (3)	0.630	0.761	0.811			
Regulatory frameworks (4)	0.624	0.640	0.648	0.780		
Risks (5)	0.359	0.425	0.432	0.474	0.800	
Accounting: Taxation (6)	0.485	0.722	0.725	0.586	0.485	0.877

Note: Diagonals represent the square root of the AVE while the off-diagonals represent the correlations.

Table 6: Heterotrait-monotrait (HTMT) Criterion

	(1)	(2)	(3)	(4)	(5)	(6)
Technological factors (1)						
Accounting: Crypto-mining (2)	0.671					
Accounting: Holding as asset (3)	0.680	0.847				
Regulatory frameworks (4)	0.679	0.719	0.714			
Risks (5)	0.387	0.470	0.469	0.518		
Accounting: Taxation (6)	0.528	0.812	0.799	0.649	0.532	

4.2.3 Assessment of Formative Second Order Constructs

Figure 2 shows the formative model. It shows that the path coefficients (0.744) of the redundancy analysis was found to be larger than 0.70. Thus, the formative measured construct achieved sufficient degrees of convergent validity. In addition, the multi-collinearity between the indicators was examined. All formative construct indicators achieved the VIF values and were below the threshold value of 5 (Hair et al., 2017) and at 3.3 consistently (Diamantopoulos & Siguaw, 2006) (Table 7). Therefore, it can be concluded that these constructs are distinct and measuring different aspects of accounting treatments. Finally, the significance and relevance of the outer weights of the formative constructs were assessed. The bootstrapping result using subsamples of 5,000 cases indicated the weights and path coefficient for each of the formative second order constructs (Hair et al., 2017). The bootstrapping analysis reported that the activities of holding as assets, crypto-mining and taxation were found to
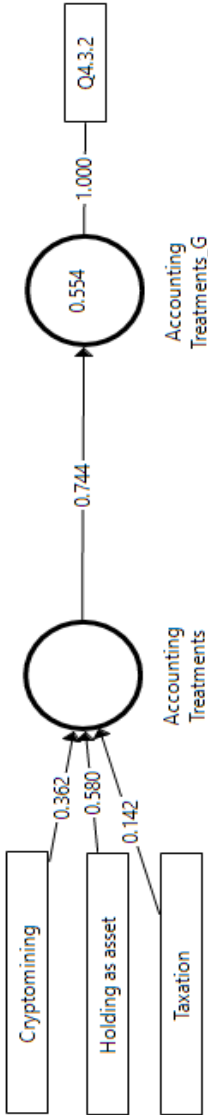
Figure 2: Redundancy Analysis

Table 7: Measurement Properties for Formative Construct

First order construct	Items	Convergent validity	Weights	VIF	t-values weights	Significance
Accounting Treatments	Holding as assets	0.744	0.580	2.803	6.388**	0.000
	Crypto mining		0.362	2.775	.452**	0.000
	Taxation		0.142	2.466	1.679*	0.041

be significantly related to accounting treatments at one tailed, and these activities affected the accounting treatments.

The results of the formative model indicated a link between the activities of holding as assets, crypto-mining and taxation with the accounting treatments. Assets classification depends on the purposes of holding it. The conceptual framework defines an asset as a present resource controlled by an entity resulting from a past event, and the resource has the ability to produce economic benefits (IASB, 2018). Cryptocurrency held for sale as an ordinary activity can be classified as inventory under IAS2, to be measured at cost initially and subsequently measured at the lower of cost or net realisable value. The prudence concept emphasises that assets including crypto assets are not overstated and associated gain is not overstated when there is uncertainty (IASB, 2018).

IAS 38/MFRS138 outlines how non-monetary and non-physical assets are to be treated in the books. Intangible assets meeting the assets recognition criteria can initially be measured at cost and subsequently measured at cost or revaluation model and depreciated on a systematic basis over its useful life. Cryptocurrency values are not fixed but vary depending on demand and supply, and can be defined as non-monetary assets. Cryptocurrency does not have a physical form; hence, it can be deemed as an intangible asset. Cryptocurrency can be held as an investment and traded for future benefits; therefore it can be accounted under IAS 38 (Hyytia & Sundqvist, 2019).

The second activity associated with the accounting treatments is the mining process. Other than recognising cryptocurrency as an asset when it fulfils the definition discussed above, cryptocurrency can be generated through the mining process. The process involves a miner solving a transaction puzzle to generate a block consisting of proof of work or solution for a previous block and adding it as a new block. IFRS 15 can be applied when there is a contract with a customer to deliver the cryptocurrency as a performance obligation in exchange for an agreed price. Since the mining process does not involve a contractual relationship, it cannot be recognised as revenue under IFRS 15 (Hyytia & Sundqvist, 2019), which is in line with the prudence concept that income should not be overstated (IASB, 2018).

The third activity used in measuring the accounting treatments in this study is taxation. Since the Malaysian government banned cryptocurrency as a legal tender, it is questionable as to how the transaction should be treated (Smith et al., 2019). Having not been recognised

as legal tender complicates accounting for cryptocurrencies as Cash Equivalent according to IAS 7/MFRS107. Under the current provisions of the Income Tax Act, all cryptocurrency traders are required to maintain proper business and accounting records for audit purposes by the relevant authorities (*The Star*, 2018). According to the substance over form concept, transactions ought to be captured for their economic substance, and not mainly for their legal form. Hence, any tax liability arising from these activities should be reflected according to their substance.

4.2.4 Assessment of Structural Model

Prior to evaluating the structural model, it is crucial to make sure that the inner model of the study is free from the lateral collinearity. Table 8 presents the results of the lateral collinearity test of the model. Each construct has inner VIF values below the threshold value of 3.3 (Diamantopoulos & Siguaw, 2006), indicating that lateral multi-collinearity does not exist.

Table 8: Collinearity Assessment

	Accounting Treatment
Technological factors	1.655
Regulatory frameworks	1.854
Risks	1.299

Table 9 and Figure 3 show the results of the PLS output. The R^2 value (0.58) showed that fifty-eight per cent (58%) of the variance in accounting treatments can be explained by technological factors, risks and regulatory frameworks for cryptocurrency. Further analysis demonstrated that the influence of the regulatory frameworks (β = 0.399, p <0.01), technological factors (β = 0.347, p <0.01), risks of crypto-currency (β = 0.161, p <0.01) were positively related to accounting treat-ments. Therefore, all H_1, H_2 and H_3 were supported.

The predictive power of exogenous constructs over endogenous constructs was evaluated based on the predictive relevance (Q^2). A value of Q^2 greater than 0 means that the exogenous constructs have the predictive relevance on the endogenous constructs (Hair et al., 2017). In this study, the Q^2 value for accounting treatments (0.436) was greater

than 0, implying that the model had sufficient predictive capability. In addition to Q^2 value, we also examined the effect size (f^2) to determine whether the exogenous construct affected the endogenous construct (Hair et al., 2010). Table 9 shows that both regulatory frameworks (f^2 = 0.204) and technological factors (f^2 = 0.173) of cryptocurrency had a medium size effect on accounting treatments. In contrast, the risks of cryptocurrency (f^2 = 0.048) had a small effect on accounting treatments. This implies that regulatory frameworks have more influence compared to other constructs, namely technological factors and risks, in explaining the accounting treatments for cryptocurrencies in the Malaysian context. This result may be due to the lack of effective regulation of cryptocurrencies, making transactions difficult to capture in the books (Sokolenko et al., 2019). This is particularly true due to the differences in exchange rates, which is under the control of the central bank. Initial transactions in cryptocurrencies are usually recorded in the reporting currency by converting its value using the exchange rate at the beginning of the transaction day fixed by the central bank.

The results of this study show that in the absence of international standards for cryptocurrency, the accounting treatments for cryptocurrency may differ from one corporation to another corporation. Since cryptocurrency has diverse features and usages, the accounting treatments may differ depending on purpose, technology (Dzinkowski, 2019) and legal status (Smith et al., 2019). Corporations may hold cryptocurrency as inventories for sale, for payments and as financial instruments. Hence, different existing accounting standards may be applied such as IAS2/MFRS102 Inventory, IAS 38/MFRS138 Intangible Assets and IFRS 9/MFRS9 Financial Instruments. The lack of guidelines has made it difficult for auditors to carry out their tasks. The whole

Table 9: Path Co-Efficient Assessment

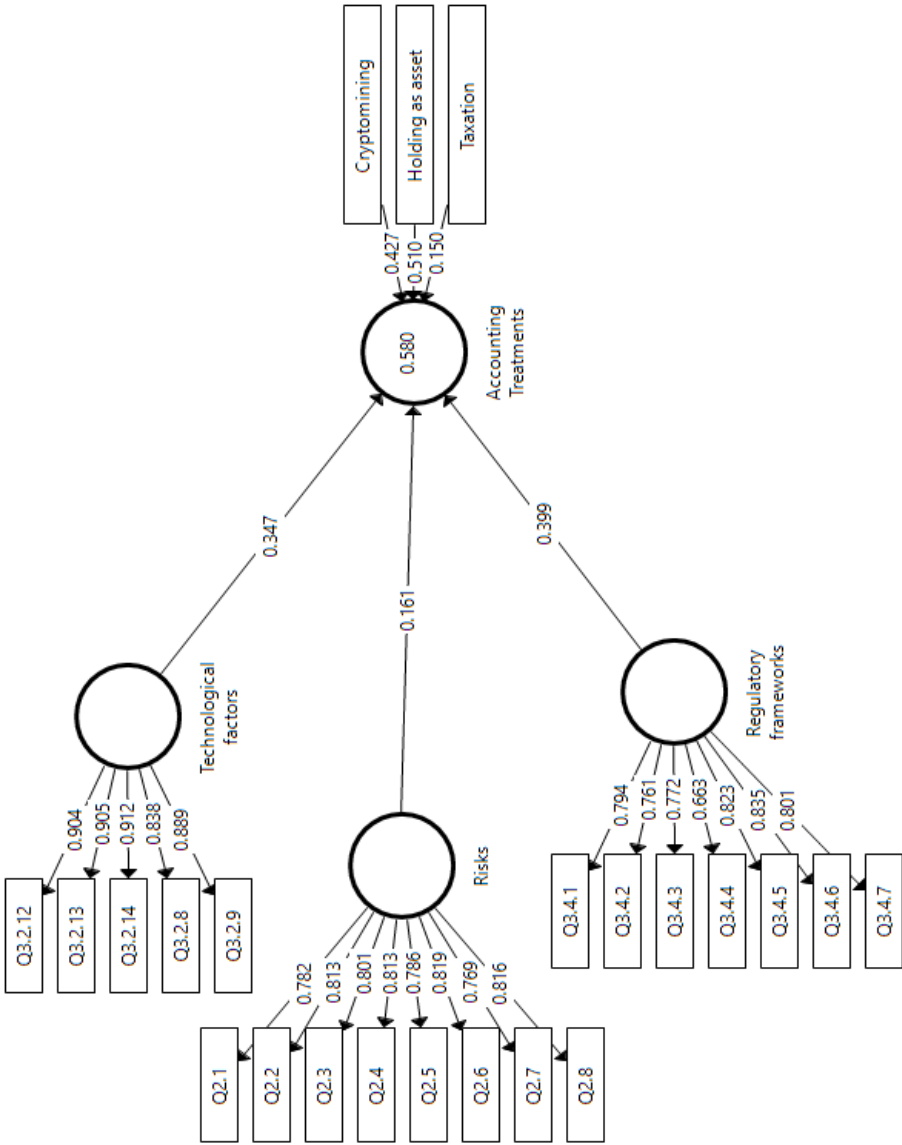| Relationship	Std Beta	Std Error	t-value	Decision	R^2	Q^2	f^2
Technological factors → Accounting treatment (H₁)	0.347	0.058	6.029**	Supported	0.58	0.436	0.173
Risks → Accounting treatment (H₂)	0.161	0.046	3.476**	Supported			0.048
Regulatory frameworks → Accounting treatment (H₃)	0.399	0.057	7.017**	Supported			0.204

Note: **p<0.01 (one-tailed).

Figure 3: Results of Path Analysis (Structural Model)

purpose of the guidelines is to ensure proper accounting treatments for different types of cryptocurrencies and to increase comparability of financial reporting between corporations. This should help shareholders and investors understand the value of cryptocurrencies reported (IASB, 2018). If the accounting standard setting bodies do not address these variations in the accounting treatments for cryptocurrencies, capital investments may be less due to lack of confidence among investors.

The main role of external auditors is related to balance sheet verification. The findings imply that auditors have to exercise extra care in estimating cryptocurrency values depending on dates, estimations and assumptions used. Declaration as to its existence and completeness is totally dependent upon the underlying information provided by the management and it can be very subjective, biased and risky (Smith et al., 2019). External auditors also need to give reasonable assurances that the financial statements are free of material misstatements. They have to take into account both the inherent and control risks associated with the valuation of cryptocurrency according to IFRS13/MFRS13. Effective audit procedures may reduce such risks to an acceptable level. Such uncertainties ought to be captured according to the prudence concept whereby expenses and liabilities are not understated, and income and assets are not overstated (IASB, 2018).

The findings highlight that the reality of current audit process for cryptocurrency needs a major revamp because the transactional information within the block remains unavailable even though the block headers are distinguishable and assessable (Smith, 2018). Ready-made audit trails in a form of unchangeable block equipped with distinctive hash identifiers in addition to the time and data stamp should be included into the platform. Data management professionals, data analytics and data scientists can contribute to the essential function or service provided by accounting professionals. Currently, accounting professionals are lacking in technical know-how and mind-set to account for cryptocurrencies. In order to overcome this, they may have to find trusted advisors and strategic partners to transform and re-position their professions.

Another dominant issue is the price volatility embedded in crypto-currencies (Smith, 2018). Existing accounting standards employ the cost model and fair value model measurements. Different measurement approaches proposed in the conceptual framework will result in fluc-tuation in gain or loss recognition. Professional bodies must embrace these developments in blockchain and its applications. New accounting

principles and guidelines are needed urgently to capture cryptocurrency values, so that gain or loss can be properly recorded and treated in the books.

The above findings show that all the variables significantly impacted the accounting treatments. Hence, it provides empirical evidence that support the conceptual framework in a form of normative theory that provides recommendations about what should or ought to happen (Rankin et al., 2018). Financial statements demonstrate the responsibility of management as stewards in managing resources entrusted to them. Cryptocurrency's recognition and measurement affects the quality of accounting information generated. Financial statements must contain good quality accounting information, be relevant and faithfully report information pertaining to cryptocurrency transactions. This essentially helps to meet the decision usefulness objective and supports users' decision making. As highlighted above, financial statements should reflect the use and volatility of cryptocurrencies, and regulatory frameworks will also determine how transactions should be reflected in financial statements according to the substance over form concept emphasised by the conceptual framework.

5. Conclusion

From the reviews of cryptocurrency literature, it shows there is a lack of academic research on cryptocurrency's accounting treatments. This study fills this gap by examining the impact of cryptocurrency's technological factors, risks and regulatory frameworks on the accounting treatments using the accounting conceptual framework as the theoretical argument. From the above findings, it is interesting to find that all three variables namely technological factors, risks and regulatory frameworks have affected the accounting treatments for cryptocurrency. It implies that the accounting treatments must reflect the substance of cryptocurrency as outlined in the accounting conceptual framework. It is important to understand this link as cryptocurrencies are gaining in popularity in spite of the lack of clear standards and policies. This spells an urgent need for standards setting bodies to develop relevant standards and policies to avoid malevolent activities, misappropriations, violations and fraud.

Based on the findings, the study recommends that individuals in charge of corporate reporting to refer to the conceptual framework (2018) as guidance in the absence of accounting standards for cryptocurrencies.

The conceptual framework provides critical information to management as stewards and tries to ensure that reported events or transactions are relevant and faithfully represented in terms of substance instead of their legal form. One of the main approaches of the normative theory is decision usefulness. A basic objective of accounting reports is to provide useful or relevant accounting data to help investors make investment decisions including on cryptocurrencies. Having relevant information facilitates users' decision making, since information faithfully represented reflects the substance of what such information represents. In the absence of standards for cryptocurrencies, accounting practitioners can treat these transactions under IAS2/MFRS102 or IAS38/MFRS138 depending on the method of issuing the asset. Since, cryptocurrency values are volatile, it should be measured at fair value at the end of the reporting period according to IFRS13/MFRS13, and any gain or loss arising from the differences should be recognised in the Statement of Profit or Loss or other Comprehensive Income. Holders of cryptocurrencies should also present it under the Statement of Financial Position.

In order to promote healthy and transparent cryptocurrency trades free from illegal activities, it is essential for our regulatory bodies to legalise and develop cryptocurrency trades to protect investors', users' and government's interest. However, BNM till now has yet to recognise cryptocurrency as legal tender, except for transactions governed by the Anti-Money Laundering, Anti-Terrorism Financing and Proceeds of Unlawful Activities Act 2001 (AMLA). This study suggests the government to take necessary steps to address and accommodate relevant aspects and risks while promoting market self-regulation. This should promote innovations in cryptocurrency rather than seeing it as a problem. The government should consider providing a cryptocurrency-friendly regulatory regime to attract investments from technology players. The tax authorities should also look into the basic principles covering gains from cryptocurrency operations to increase tax revenues. This tax aspect needs further research.

The findings reveal that all variables impacted the accounting treatments. The study highlights that regulatory frameworks has the largest effect on the accounting treatments among the three variables. Hence, finance and accounting practitioners must evolve and re-position themselves to work together with strategic partners or technological experts to offer cryptocurrency and technology related advisory services. They should cover areas related to accounting treatments for different

classes and types of cryptocurrencies and provide education and training to corporations on these issues. This provides opportunities for finance and accounting practitioners to play some leadership roles in these areas.

Moving forward, future researchers may engage and collaborate with industry leaders to carry out comparative analysis on the impact of different accounting treatments on financial results. Academics may work with practitioners, tax authorities and standard setters to develop objective guidelines for cryptocurrencies as discussed earlier. Future studies should incorporate the qualitative method where accounting specialists are interviewed to gain deeper understanding on other issues related to cryptocurrencies.

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