

ICH 2019

International Conference on Humanities

**DIGITAL CURRENCY PERCEPTION: PRELIMINARY
EVIDENCE FROM MALAYSIA**

Angeline Yap Kiew Heong (a)*, Wong Siew Chin (b), Melissa Teoh Teng Tenk (c),
Zakiah Saleh (d)

*Corresponding author

(a) HELP University, Bukit Damansara, Kuala Lumpur, Malaysia, angeline.yap@help.edu.my

(b) HELP University, Bukit Damansara, Kuala Lumpur, Malaysia, sc.wong@help.edu.my

(c) HELP University, Bukit Damansara, Kuala Lumpur, Malaysia., melissateoh@help.edu.my

(d) University of Malaya, Kuala Lumpur, Malaysia, zakiahs@um.edu.my

Abstract

Digital currency is an unregulated digital money issued by private developers to general public. The rapid growth and volatility of digital currencies led to an increase of global scrutiny and interest of many stakeholders, issues related to its accountability and security have also been raised. Hence, this paper aims to seek preliminary views on the use of digital currencies, and to examine effectiveness of control measures taken by Bank Negara Malaysia. A questionnaire survey was conducted with 173 responses received from digital currency enthusiasts working in various industries. About 24.3% of the respondents are potential owner, while 10.4% of the respondents are the owners of digital currencies currently. The growth of digital currency investment among Malaysians is also very encouraging. About 29.5% of the respondents are willing to explore digital currency technology and start working on its concrete usage (4%). Furthermore, this paper found that security (54.4%), usability (31.8%) and support and documentation (24.9%) as the main concerns challenging the respondents. In terms of ranking the effectiveness of the control measures taken by Bank Negara Malaysia (2018), “freeze the beneficial owner’s funds or block the transaction” (mean = 3.92) ranked as the most effective measure, followed by “inform the relevant supervisory authorities” (3.88), “ensure the database information is updated/relevant” (3.87) and “submit a suspicious transaction report” (3.79). Findings of this paper contribute to the literature and provides important insights to Bank Negara Malaysia in relation to the enforcement of the relevant requirements and standards for the digital currencies.

2357-1330 © 2020 Published by European Publisher.

Keywords: Digital currency, cryptocurrency, effectiveness, reporting rules, Malaysia.



This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 Unported License, permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

1. Introduction

Technology advancement in the modern day has encouraged individuals and organizations to incorporate a more convenient way to handle transactions; hence, giving rise to emergence of various digital currencies. It originated in the 1990s, where it acted as a specialized payment system linked to the fiat money. For example, Amazon Coins can be bought from its website using credit card, then used for payment in the Amazon e-store (Tan & Low, 2017). However, majority of these currencies are unnoticed by the public as they are limited to their own platforms. Then, the rise of Bitcoin changed these digital currency scenes. Bitcoin is the first decentralized cryptocurrency in the world created by Satoshi Nakamoto in 2008 based on the blockchain technology (Nakamoto, n.d.). As of August 2018 (Quimet, 2019), Bitcoin led the cryptocurrency market by market capitalization and superior trading volume. It gained popularity around the world, and major companies such as Overstock.com, Microsoft and Expedia started accepting them as a payment method.

On 6 December 2018, the Bank Negara Malaysia (“BNM”) and the Securities Commission Malaysia (“SC”) issued joint press on the digital assets’ regulatory approach for its transactions (Securities Commission Malaysia & Bank Negara Malaysia, 2018). SC monitors digital asset exchanges covering the digital assets’ initial coin offerings (ICO) and related trading in Malaysia. Nevertheless, BNM reiterated that digital assets are illegal tender in Malaysia. Public members are reminded to act cautiously on the risks related to the dealings in digital assets. On 27 February 2018, BNM issued the Anti-Money Laundering and Counter Financing of Terrorism Policy for Digital Currencies (Sector 6) with immediate effect, after considering the comments collected during the public consultation time on the exposure draft issued on 14 December 2017. It aims to make sure that effective measures are established against terrorism financing and money laundering risks related to the usage of digital currencies; and to raise the transparency of digital currency dealings in Malaysia (Bank Negara Malaysia, 2018). However, some Malaysians are willing to take the risks, where Yee and Chin from Kota Kinabalu made the headlines when they signed and sealed the sale of a piece of land using half a Bitcoin that was valued at RM38,000 (Vanar, 2018).

1.1. Perceptions of digital currencies

There are different views of digital currencies from different interested parties around the globe. The Governor of Bank of France responded to the market volatility of Bitcoin after its value reached an unprecedented growth and achieved a new value of \$11,000 in a conference held in China in December 2017 (Thomson Reuter, 2017). Thomas Reuter warned the market that the value of Bitcoin has no economic basis and no one will be held responsible if it collapses; therefore, the investment is at the investors’ own risk. In addition, he urged investors to ask for detailed clarification on the status of the cryptocurrencies.

The major U.S. banks which are the top five (5) credit card issuers namely JP Morgan, Bank of America, Citigroup, Capital One and Discover have begun to prohibit the usage of credit cards to purchase digital currencies in February 2018. This move is to prevent financial and legal risk. This act is followed by the U.K. banking giants, Lloyds Banking Group Plc and Virgin Money which aim to protect clients from running huge debts, while other banks in U.K. will keep the digital currencies situation in view. The British

Prime Minister said Britain should take a serious look at the digital currencies in the way it is being used for criminal motive (James, 2018).

A survey among Malaysians by Bitcoin Start-up Team Luno (2017) found that 52.6% of investors bought Bitcoin on their site; and 47.4% bought Bitcoin and other cryptocurrencies because they foresaw there is an increasing use of Bitcoin as a popular medium of exchange. Even though the survey reported Malaysian investors are increasingly turning to cryptocurrencies, but their main concern is the lack of regulation by relevant authorities. Bank Negara Bank has spoken up on this and claimed that if the government were to sanction the use of digital currency, a much wider population would inevitably take a greater interest in it and the digital currencies market may expand (Yussof & Al-Harthy, 2018).

Team Luno (2017) reported that 48.8% of the Malaysian investors who bought Bitcoin are cited as somewhat confident with Bitcoin as an investment tool because they trusted Bitcoin as compared to 19.7% of investors who did not. However, something to take note of is that nearly 90% of investors expressed their interest to purchase more Bitcoins if the government regulates it. Hence, lack of regulation is the key assumption on holding back start-ups and growth of fintech in Malaysia (Yussof & Al-Harthy, 2018).

The compatibility with Shariah principle will also influence the acceptability of digital currency namely Bitcoin as a substitute currency in Malaysia. Bitcoin does not satisfy majority of the characteristics of money in Islam, and is therefore regarded to be in contradiction with Shariah (Yussof & Al-Harthy, 2018). For example, since Bitcoin is a currency that is not supported by any asset, its price might fluctuate significantly and is vulnerable to uncertainty and speculation (gharar) (Zahudi & Amir, 2016). The usage of Bitcoin as a mean of exchange is also discouraged due to its price volatility (Tan & Low, 2017).

1.2. Regulations of digital currencies

Various countries have taken a position on the legality of Bitcoin and dispensed plans on the regulation on digital currencies. There is a widespread range of regulations comprising countries that have prohibited and constrained digital currency usage in hopes of developing a friendly regulatory regime and starting to issue their own digital currency (Global Legal Research Directorate, 2018). Some countries such as Canada and Australia added money laundering and terrorism financing laws to their existing legal framework. Countries, for instance Vietnam and Pakistan ban any and all digital currency transactions. Bangladesh, Thailand and China impose indirect restriction by disapproving their financial institutions to engage in any kind of transactions relating to digital currencies. However, China is developing its own national digital currency through its central bank to complement its currency RMB. Other countries such as Palestine and Russia have followed the footsteps of China due to its potential benefits (Yussof & Al-Harthy, 2018). Countries like Spain and Belarus foresee a potential in the technology of developing a digital currency friendly regulatory regime to attract foreign investment. A few countries even went an extra mile by developing their own system of digital currencies; these countries are Eastern Caribbean Central Bank member states, Venezuela and Marshall Islands.

According to Bank Negara Malaysia, regulatory authorities around the globe have used different methods and regulatory measures to label risks related to and caused by digital currencies. Courses of action have also been implemented following recent fast developments in digital currencies' global and multiple usages. In June 2014, the Financial Action Task Force (FATF) issued the report entitled "Virtual Currencies

– Key Definitions and Potential AML/CFT Risks”, and direction for a Risk-Based Approach for Virtual Currencies, it was subsequently released in June 2015 to monitor the digital currencies’ transactions using the risk-based method for countering terrorism financing and anti-money laundering (CFT/AML).

In Malaysia, digital currencies are not legal tender (Bank Negara Malaysia, 2018). Therefore, prudential and market behaviour standards that are relevant to regulate financial institutions of the Bank Negara Malaysia do not protect the digital currency businesses. The Malaysian regulators did not openly prohibit or outlaw its usage nor ban cryptocurrency; however, they advised the public to assess the risks related to transactions in digital currencies cautiously.

Because Bank Negara Malaysia does not recognize digital currency as legal tender, it requires all reporting institutions to observe the minimum requirements and standards in the above documents to increase the transparency of digital currencies’ activities (Bank Negara Malaysia, 2018). The Anti-Money Laundering and Counter Financing of Terrorism Policy for Digital Currencies (Sector 6) issued by the Bank Negara Malaysia came into effect in February 2018. These new measures require Malaysian virtual currency institutions to strictly adhere to its reporting regulations including the collection of ID documentation. Bank Negara Malaysia declared that the purpose is to ensure effective measures are implemented to minimize terrorism financing and money laundering risks related to the usage of digital currencies; and to raise the transparency of digital currency dealings in Malaysia. The new policy guidelines claimed that raising transparency in the usage of digital currencies can preserve the integrity of the financial structure; and enable more effective measures to be put in place to stop their misuse for illegal activities” (Hair et al., 2018).

Section 2 presents problem statement, followed by research questions (Section 3), purpose of the study (Section 4), research method (Section 5); findings/discussion (Section 6) and conclusion (Section 7).

2. Problem Statement

Digital currencies can be seen as a decentralized currency, which are not issued or regulated by any governments. One can say it is not under any countries, but act as an Internet currency that can be used for transactions via the Internet around the world. Hence, issues such as accountability and security risen. Especially, when a user lost certain details pertaining to the ownership of digital currency, those units are likely to be irretrievable. In addition, due to its volatility and market dislocations, users are also opened to potential long-term loss for holding onto digital currencies with zero present value and expected future cash flows (Bank for International Settlements, 2015).

3. Research Questions

In view of the above issues related with the usage of digital currency, this paper aims to address the following research questions:

Research question 1: What is the view of Malaysians on the usage of digital currencies?

Research question 2: Are the control measures taken by Bank Negara Malaysia effective in countering financing terrorism?

4. Purpose of the Study

Due to the popularity of digital currency among Malaysians and the risks associated with its usage, this paper aims:

1. To examine preliminary view of Malaysian on usage of digital currencies; and
2. To examine its effectiveness of control measures in countering financing terrorism in Malaysia.

5. Research Methods

To collect appropriate data to address the above research questions, the researchers used a questionnaire survey method to seek the preliminary views and perception on the effectiveness of reporting rules for the digital currencies among Malaysians. The data consist of 173 responses collected from 27th August 2018 to 19th October 2018. The questionnaire consists of three (3) parts. Part 1 solicited preliminary views on digital currency. The researchers adopted and adapted some questions from the survey conducted by Team Luno (2017). Part 2 surveyed effectiveness of control measures based on Anti-Money Laundering and Counter Financing of Terrorism (AML/CFT) – Digital Currencies (Sector 6) (BNM, 2018). There were 12 control measures statements extracted from this document. Last part sought the demographic profile of the respondents.

The data collection procedure required an administration of survey on potential respondents and follow-up sessions with them for responses. In order to gain trust from them, the researchers assured all respondents that their individual identities would be kept confidential and encouraged them to respond as truthfully as possible. Missing data were negligible due to the process of the procedures, and support by the units to enable this study to maximise the response rate. The sampling units were 173 digital currency enthusiasts who work in various industries. This current study involved 55.5% of male and 44.5% of female employees. Majority of the respondents (67.6%) are from non-managerial positions, 27.8% are engaged in managerial positions and 4.6% of other. Overall, 70% of the respondents have up to 10 years of working experience, 12.7% of the respondents have 11 to 20 years of working experience, 12.7% are of 21 to 30 years and 4.6 percent have more than 30 years of work experience as presented in Table 1. The data were subsequently analysed using SPSS procedures. The Cronbach’s Alpha score of 0.825 is well above the acceptable lower limit of 0.70 (Hair et al., 2018).

Table 01. Respondents’ demographic

Variables	Frequency	Percentage
<i>Gender</i>		
Male	96	55.5
Female	77	44.5
<i>Years of working experience</i>		
1 – 10 years	121	70.0
11 – 20 years	22	12.7
21 – 30 years	22	12.7
>30 years	8	4.6
<i>Occupational category</i>		
Non-managerial position	117	67.6

Managerial position	48	27.8
Others	8	4.6
<i>Digital currency ownership</i>		
Not an owner of digital currency	99	57.2
Might consider to be an owner of digital currency	42	24.3
Owner of digital currency	18	10.4
Definitely consider to be an owner of digital currency	12	6.9
Others	2	1.2
<i>Digital currency adoption by your organization</i>		
Not interested in	62	35.8
Exploring digital currency/cryptocurrency technology	51	29.5
Have not heard of it	41	23.7
Started to work on concrete use	7	4.0
Productive use for most activities	3	1.8
Others	9	5.2

6. Findings

About 57.2% of the respondents do not have any investment in digital currency. However, 24.3% of respondents are considering to be an owner of digital currency and 17.3% of respondents are current and potential owners are digital currency. The growth of digital currency investment among Malaysians is encouraging. About 29.5% respondents are willing to explore digital currency technology, start to work on concrete use (4%) and productive use for most of the activities (1.8%). In this context, Bitcoin (95.4%), Ethereum (59.5%) and Litecoin (52.6%) are the digital currencies platform with higher familiarity among the Malaysian respondents (Table 2). This could be interpreted that many Malaysian businesses have started to hop on the trend of digital currency investment despite its risky nature and no acknowledgement as legal tender by Bank Negara Malaysia. This could mean that more and more businesses may invest in digital currencies and thus bringing a wave of growth in the Fintech market, the inflow of foreign currency and much more related consequences such as terrorism financing and money laundering related activities.

Table 02. Digital currencies' familiarity

Type	Not familiar at all (%)	Slightly familiar (%)	Somewhat familiar (%)	Moderately familiar (%)	Extremely familiar (%)
Bitcoin	4.6	22	17.9	30.1	25.4
Ethereum	40.5	19.1	13.3	15	12.1
Litecoin	47.4	19.1	20.2	6.4	6.9
Ripple	64.2	12.7	9.2	9.2	4.7
DASH	66.5	18.5	6.9	4.6	3.5
Ether	67.1	15	8.7	4	5.2
Dogecoin	67.1	17.3	9.8	2.3	3.5
Monero	69.9	16.2	8.1	3.5	2.3
Berlium token	70.5	12.1	6.9	2.3	8.2
Safecoin	72.3	12.7	5.8	5.2	4

This paper also found that the main challenges of digital currency, such as security (54.4%); usability (31.8%); support and documentation (24.9%) are the main concerns among respondents (Table 3) (Yussof

& Al-Harthy, 2018). Because the mining processes and transactions are not completely secured, it may cause colluding users to take advantage of these defects process to perform unethical activities (Clare & Ben, 2015), for example services that provide customers with facilities for online digital wallets may be targeted by hackers. Users of digital currency may exploit its feature for illegal activities (Yuneline, 2019). Due to its limited size and acceptability, digital currency schemes for the number of transactions being processed are many times in smaller magnitude than the number of transactions processed under the usual retail payment system (Clare & Ben, 2015). Hence, its users need to look at to which extent that the digital currency program can be developed to handle a greater number of transactions (Clare & Ben, 2015). Digital currencies suffer from financial stability risk because it is not guaranteed with any assets, and there is also a lack of consumer protection because there is no regulatory authorities backing it (Yuneline, 2019).

Table 03. Digital currencies’ concerns

Concerns	Not at all concerned (%)	Slightly concerned (%)	Somewhat concerned (%)	Moderately concerned (%)	Extremely concerned (%)
Usability	2.9	12.1	22	31.2	31.8
Faulty tolerance	4.6	17.3	23.1	32.9	22
Consensus cost	4.6	17.3	31.8	23.1	23.2
Limitation & flexibility	5.2	17.3	30.6	26.6	20.2
Security	5.2	9.8	6.9	23.7	54.4
Scalability	5.8	17.3	31.8	26	19.1
Support & documentation	5.8	15.6	27.7	26	24.9
Development	6.4	13.9	28.3	29.5	22

Table 4 presents the effective actions taken to stop terrorism financing to protect the integrity of financial structure and increase transparency of digital currencies dealings (Bank Negara Malaysia, 2018). The respondents’ prioritization of safety and integrity over the return of investment shows that the central bank and government local authorities should pay attention on improving the control mechanism of digital currencies. In terms of likelihood of effectiveness of the control measures, the respondents, the mean scores of some of the practices to counter financing of terrorism are ranked between 3.68 to 3.92. For instance, “to verify & confirm identity of its beneficial owners, once confirmation have been obtained, they must immediately freeze the beneficial owner’s funds or block the transaction” (3.92), “To inform the relevant supervisory authorities (3.88), “To ensure that the information contained in the database is updated and relevant (3.87), and “To submit a suspicious transaction report (3.79), “To conduct checks on the names of new beneficial owners as well as regular checks on the names of existing beneficial owners, and potential beneficial owners against the names in the database” (3.76) and “To ascertain potential matches with the database to confirm whether they are true matches to eliminate “false positives”” (3.75) (Bank Negara Malaysia, 2018).

Table 04. Effectiveness of counter financing terrorism

Scale Items	Mean	SD
<i>Digital currency exchangers are required:</i>		
To keep updated with the resolutions passed by UNSC on counter terrorism measures	3.72	0.967
To ensure that the information contained in the database is updated and relevant, and made easily accessible to its employees	3.87	0.911
To include in their database of the other recognized lists of designated persons or entities issued by other jurisdictions	3.71	0.980
To conduct checks on the names of new beneficial owners, as well as regular checks on the names of existing beneficial owners, and potential beneficial owners against the names in the database	3.76	0.908
<i>If any name match, digital currency exchange must verify & confirm identity of its beneficial owners, once confirmation have been obtained, they must immediately:</i>		
Freeze the beneficial owner's funds or block the transaction	3.92	1.176
To eject the potential beneficial owner, if the transaction has not commenced	3.68	1.011
To submit a suspicious transaction report	3.79	1.013
To inform the relevant supervisory authorities	3.88	0.954
<i>Digital currency exchangers are required:</i>		
To identify any transaction or account that may be indirectly controlled by individual listed in the database	3.74	0.938
To submit a suspicious transaction report when there is an attempted transaction by any of persons listed in the UN (Terrorism) list	3.74	0.938
To ascertain potential matches with the database to confirm whether they are true matches to eliminate "false positives"	3.75	0.870
To make further inquiries of the beneficial owner to assist in determining whether the match is a true match	3.73	0.834

There is a need to have right regulation and monitoring to make sure any risk related to digital currency schemes are properly controlled. In this modern era, everything that is unregulated is seemed as malicious and untrustworthy to most people. Without regulation, one can only see negative sides of digital currency such as terrorism financing, money laundering and illegal transactions which will naturally reduce the users' confidence. Regulation is necessary as it can protect digital currency users from frauds and scams, avoid market manipulations, ensure fair and equal participation of the financial world in winning people's trust (Bonpay, 2017).

Industry players are encouraged to put in self-regulatory efforts, for example adopting industry-led self-regulation and conducting codes for further improvement. Such efforts can be promoted as marketing tools aim at deterring regulatory efforts and critics (Andres et al., 2019). In addition, involvement of different market agents will harmonize conduct codes and increase cost efficiency when internalizing negative externalities created by hackers and opportunistic agents (Andres et al., 2019).

One of the questions from the instrument sought view on "To keep updated with the resolutions passed by UNSC on counter terrorism measures" (mean = 3.72); it is important because as a member of United Nations Security Council (UNSC), Malaysia has to ensure meaningful enforcement of those requirements through closed supervision by digital currency exchangers and custodial wallet providers, for example by charging penalties such as fines and termination of license. Hence, regulators can create greater awareness on terrorism financing among the private sectors so that they may put in serious effort in cutting down those risks (Keatinge et al., 2018).

Parts of the instrument provided space for the respondents to give any other comments related to digital currency. On the suggestions for additional ways to counter financing of terrorism, one respondent said that “digital IDs should be used for every transaction together with some kind of smart contracts for the use of private blockchain in facilitating transactions”. Another respondent said that “increasing documentation when opening bank accounts which are linked to e-wallets is also another effective way to counter financing of terrorism”. Precautionary measures that could be included are always validate a web wallet’s address and stay away from sceptical links to a web wallet or virtual bank. Before transacting, the recipients’ address, sum keyed-in, detailed transaction fees must always be verified. Investors are also advised to prepare an alternative mean to regain forgotten account passwords and to keep them confidential and safe. Crypto investments are risky; so routine and proven diversifying exercises must be observed when investing.

Another question from the instrument’s solicited view on whether the regulation implemented in Malaysia is effective, as the reporting agencies are required to identify potential similarities within the Consolidated List to verify whether they are really similar to remove “false positives” (mean = 3.75); and needed to make more queries from the customer or relevant counter-part to help in deciding whether it is truly and accurately matched (Bank Negara Malaysia, 2016). Such regulation will increase people’s trust because it protects the users of digital currency from possible frauds and scams (Bonpay, 2017).

One of our respondents commented that “I am proud to be a Malaysian. The country has the wisdom to establish the digital currency as a new industry. It is still a very young industry with much more exciting development to come. I fully support the need for exchangers to be reported and regulated.”

7. Conclusion

Objectives of this paper aim to examine the preliminary views of Malaysians on usage of digital currencies and its effectiveness of control measures in countering financing terrorism in Malaysia. This paper found that the popularity of digital currencies is very positive, 29.5% of the respondents are willing to explore digital currency technology and 4% of the respondents are starting to work on its concrete usage. Among their main concerns are security (54.4%), usability (31.8%) and support and documentation (24.9%). Regarding the control measures taken by Bank Negara Malaysia, “freeze the beneficial owners’ funds or block the transactions scored highest mean of 3.92, followed by “inform the relevant supervisory authorities (3.88) and “ensure the database information is updated/relevant (3.87). This finding contributes to the literature by providing important insight to the regulatory bodies to enforce the relevant requirements and standards for digital currencies.

This study is limited to a small sample size in Malaysia; therefore, inclusion of big sample size from neighbouring countries would improve the robustness of the findings. However, this study does provide a basis for future study of the digital currency.

For future direction, in view of the differences between the digital currencies and the traditional currencies, it is not only the sole responsibility of an individual or institution to implement effective controls, but with strong support from the regulators. The challenge is for the regulators and money related experts to put in adequate endeavour for suitable and pertinent control. The regulation must incorporate consumer assurance rules and stakeholder security in minimizing the digital currency related crimes. In

addition, digital currency has many benefits and it is very likely that Malaysia and other countries will have to recognize and accept digital currency as one of a mean of exchanges; and Malaysian regulators may consider to follow China's path of developing its own digital currency and to have it regulated by the Bank Negara Malaysia. Tax authorities and Bank Negara Malaysia may consider looking into possibility of taxing transaction using the digital currency in the future. In addition, future study from the Shariah perspective of the digital currency will greatly enrich the literature.

Acknowledgments

This study is funded by the Ministry of Education, Malaysia through Fundamental Research Grant Scheme FRGS/1/2018/SS01/HELP/02/2.

References

- Andres, P. D., Arrayo, D., Correia, R., & Rezola, A. (2019). *Regulatory and market challenges of initial coin offering*. Madrid: European Corporate Governance Institute.
- Bank for International Settlements. (2015). *Committee on Payment & Market Infrastructures Report on Digital Currencies*. Bank for International Settlements.
- Bank Negara Malaysia. (2016, July 14). *Technical note on implementation of targeted financial sanctions on terrorism financing*. http://amlcft.bnm.gov.my/document/TFS%20Technical%20Note_14July2016.pdf
- Bank Negara Malaysia. (2018). *Anti-Money Laundering and Counter Financing of Terrorism*. Kuala Lumpur: Bank Negara Malaysia.
- Bonpay. (2017, December 22). *Cryptocurrency regulation: more important than you think*. <https://medium.com/@bonpay/cryptocurrency-regulation-more-important-than-you-think-7642492fa74d>
- Clare, N., & Ben, F. (2015). *Committee on Payments & Market Infrastructure*. <https://www.bis.org/cpmi/publ/d137.pdf>
- Global Legal Research Directorate. (2018). *Regulation of cryptocurrency around the world*. USA: The Law Library of Congress.
- Hair, J. H., Babin, B. J., Anderson, R. E., & Black, W. C. (2018). *Multivariate Data Analysis*. UK: Cengage.
- James, A. (2018, February 3). *Big banks ban Bitcoin buys - JPMorgan, Bank Of America, Citigroup say no to crypto credit purchases*. <https://bitcoinist.com/big-banks-ban-bitcoin-buys-jpmorgan-bank-america-citigroup-say-no-crypto-credit-purchases/>
- Keatinge, T., Carlisle, D., & Keen, F. (2018). *Virtual currencies & terrorist financing: assessing the risks and evaluating responses*. Brussels: European Parliament.
- Nakamoto, S. (n.d.). Bitcoin: a peer to peer electronic cash system. 1-9.
- Quimet, S. (2019, March 19). *Bitcoin's share of total crypto market slips back toward 50%*. <https://finance.yahoo.com/news/bitcoin-share-total-crypto-market-153515225.html>
- Securities Commission Malaysia & Bank Negara Malaysia. (2018, December 6). Joint statement on regulation of digital assets in Malaysia. *Press Release*.
- Tan, B. S., & Low, K. Y. (2017). Bitcoin - its economics for financial reporting. *Australian Accounting Review*, 27(2), 220-227. <https://doi.org/10.1111/auar.12167>
- Team Luno. (2017, May 31). *How Malaysian use Bitcoin*. Luno. <https://www.luno.com/blog/en/post/malaysians-use-bitcoin>
- Thomson Reuter. (2017, October 25). *Cryptocurrencies by countries*. Thomson Reuter - the answer company. <https://blogs.thomsonreuters.com/answeron/world-cryptocurrencies-country/>
- Vanar, M. (2018, January 9). Land deal sealed using Bitcoin. *The Star*.
- Yuneline, M. H. (2019). Analysis of cryptocurrency's characteristics in 4 perspectives. *Journal of Asian, Business and Economics Studies*, 1-14. <https://doi.org/10.1108/JABES-12-2018-0107>

Yussof, S. A., & Al-Harthy, A. (2018). Cryptocurrency as an alternative currency in Malaysia: issues and challenges. *Islam and Civilisational Renewal*, 9(1), 48-65.

Zahudi, Z. M., & Amir, R. A. (2016). Regulation of virtual currencies: mitigating the risks and challenges involved. *Journal of Islamic Finance*, 5(1), 63-73.