



BITCOIN INVESTMENT DURING COVID-19: THE CRITICAL FACTORS INFLUENCING ITS ADOPTION

Adamu Abubakar Ibrahim^{1*}, Al-Hussaini Abulfathi Ibrahim Saleh²

¹ Department of Information Systems, International Islamic University Malaysia, Malaysia
Email: adamu@iiu.edu.my

² Department of Research and development, Fathi-Tech Solutions Limited, Nigeria
Email: Fathigalaxy@gmail.com

* Corresponding Author

Article Info:

Article history:

Received date: 15.12.2021

Revised date: 25.12.2021

Accepted date: 15.01.2022

Published date: 07.03.2022

To cite this document:

Ibrahim, A. A., & Saleh, A. A. I. (2022). Bitcoin Investment During Covid-19: The Critical Factors Influencing Its Adoption. *Journal of Information System and Technology Management*, 7 (25), 01-20.

DOI: 10.35631/JISTM.725001

This work is licensed under [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)

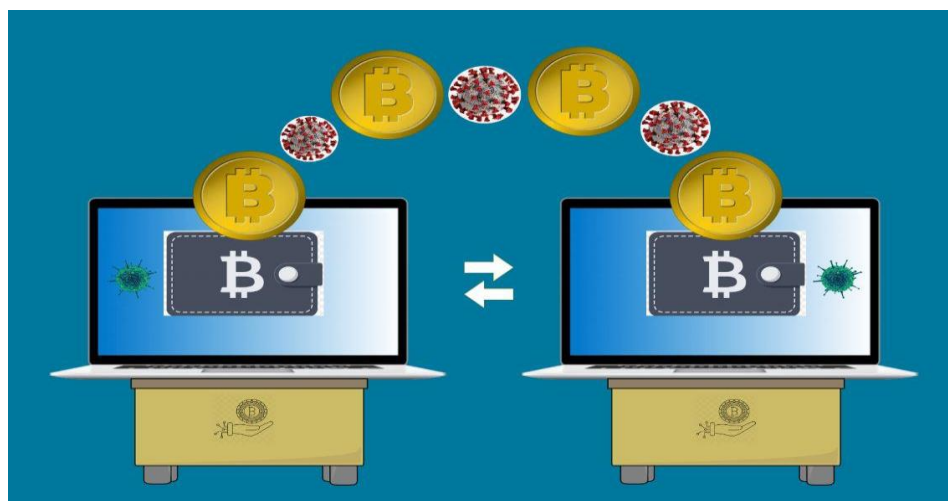


Abstract:

Bitcoin was the first virtual currency to be created in 2009 as a decentralized digital currency that could be transferred from one user to another over the peer-to-peer bitcoin network without the use of intermediaries such as banks and other financial institutions. In terms of finance, governments and other experts are concerned that Bitcoin can be used to avoid currency restrictions, for money manipulation, or criminal activities, and that it may be risky for investors due to the absence of regulations. The purpose of this study is to investigate the factors influencing Bitcoin investment adoption in Covid-19, examine the mediating factors influencing Bitcoin investment adoption in Covid-19, and propose a model of influencing Bitcoin investment adoption in Covid-19. Therefore, a methodological method was employed to accomplish these aims. The theory adopted is the theory of planned behaviour. Purposive sampling was used as the sampling method for the study. A total of 101 full responses were obtained to the web-based questionnaire. Partial Least Squares Structural Equation Modeling (PLS-SEM 3) is utilized to analyze the study's findings. Perceived Behavior Control and Perceived Lack of Alternatives were found to have a favourable association with Intention to Invest in Bitcoin. Meanwhile, Perceived External Pressure has the reverse result, having a marginal influence on the Decision to Invest in Bitcoin. Surprisingly, Perceived Lack of Alternative completely mediates the interaction between Perceived External Pressure and Desire to Invest in Bitcoin. It is anticipated that this analysis would have a clearer picture of Investors' and Consumers' Action on Investing in Bitcoin During Covid-19.

Keywords:Blockchain, Bitcoin, Cryptocurrency, Covid-19, Investment, PLS-SEM
Technology Adoption**Introduction**

Bitcoin is the first virtual currency, founded in 2009 by Satoshi Nakamoto under the pseudonym Satoshi Nakamoto as a decentralized virtual currency that can be transferred from one user to another on the peer-to-peer bitcoin network without the use of intermediaries such as banks. (Nakamoto, 2008). It operates by the use of blockchain technology, which is the fundamental technology of cryptocurrencies which can be configured to record financial transactions. It can be used for a number of other items. Covid-19 is the reason Bitcoin has recovered from a long period of decline. Covid-19 has developed a modern Narrative for Bitcoin and other cryptocurrencies. The Federal Reserve of America started printing money and dramatically expanding their monetary policies to try to combat the deflationary impact of Covid-19, which scared a lot of citizens and made them say, oh, they're only printing money constantly, we don't trust in the dollar anymore, which shook investors' confidence in the dollar and made them believe in Bitcoin. The value of the dollar would collapse to the point where they would require stronger currency. Traditionally, the tougher currency they must have flocked to would have been gold, and to some degree, they did. The younger generations believed that they had discovered a new digital gold Bitcoin since it can only be produced in tiny and limited quantities; finally, it would cease to be created entirely in around 100 years. Even today, just a small amount of Bitcoin is created every day, giving the impression that it is a more difficult asset than the dollar, which is why people have started flocking to it. The narrative will continue to dominate as long as central banks print currency. If the central bank gets its act together and implements what it considers to be a more prudent monetary strategy, as well as begins to reel back all the fresh currency, then people will lose confidence in Bitcoin. Perhaps they would lose faith in gold as well. (Glen, 2021). See Figure 1 for the Investment in Bitcoin diagram. The study's research objective is to look into the factors influencing Bitcoin investment adoption in Covid-19, examine into the mediating factors influencing Bitcoin investment adoption in Covid-19, and propose a model of influencing Bitcoin investment adoption in Covid-19.

**Figure 1: Investment in Bitcoin diagram**

Literature Review

Mnif et al. (2020) used multifractal research to compare the efficacy of blockchain before and during the coronavirus pandemic. Prior to the epidemic outbreak, they discovered that Bitcoin was the most effective. However, after the COVID-19 epidemic, it was discovered to be less powerful than Ethereum. Furthermore, as the pandemic spreads, many of the cryptocurrencies analysed become more effective. On the other hand, Baek and Elbeck (2015), In their analysis of Bitcoins as an investment, Baek and Elbeck (2015) discover that as Bitcoin use increases, they anticipate Bitcoin uncertainty to fall and attract market economic impact, reflecting a more integrated internally and externally oriented investment tool. Bitcoin is distinguished by a lack of anonymity, strong market uncertainty, and low entry barriers, both of which serve to maintain honesty, transparency, and investor security. A proper regulatory structure, as well as market regulation, are urgently needed. (Brühl, 2017). Baur et al. (2016) From examining all Bitcoin trades between 2011 and 2014, it was discovered that investors see Bitcoin as an alternate investment tool.

Conlon and McGee (2020) In the early months of 2020, prepare for a clear link between Covid-19 and Bitcoin. Because of this partnership, Bitcoin cannot be used as a secure refuge in periods of economic instability. Many prior analyses of Bitcoin behaviour as COVID-19 evolves have relied on US dollar transactions. Conlon, Corbet, and McGee (2020) use US dollar trade rates in their study despite testing Bitcoin, Ethereum, and Tether as safe havens during COVID-19. Johnson (2020) includes five currencies, the US dollar, the British pound, the European euro, the Japanese yen, and the Australian dollar, as well as their corresponding stock indexes, to broaden Bitcoin's association with stock indices. As bitcoin trade is restated in US dollars, she discovers the strongest link with the S&P 500. Relationships are poorer when dealing in local currency as relative to regional equity indices. Observing Bitcoin trading activity in one currency does not specify trading trends in another currency. This is particularly apparent when comparing Bitcoin trading through countries with widely different economic situations during a time of global economic instability. The COVID-19 pandemic threatens to wreak havoc on the local financial sector. (Anna, 2020).

Prior to the pandemic, the blockchain sector was comparatively calm, with reduced uncertainty. However, with the introduction of COVID-19, these automated properties have been more unpredictable. Bitcoin is the least volatile cryptocurrency, whereas Monero and Ripple are the most volatile. Gold is typically regarded as an inexpensive, safe refuge during volatile market conditions; nevertheless, it has seen strong volatility during the Coronavirus epidemic, implying that gold is no longer serving as the safe haven that it has in the past. Furthermore, after the outbreak of the pandemic, Tunisian financial market indexes have been more unpredictable. (Jeribi & Manzli, 2021). Putri et al., (2021) on their study of Investing in Financial Instruments and Digital Cryptocurrency Assets during the Covid-19 Pandemic revealed that Crypto currencies have a higher risk of loss and volatility clustering or heteroscedasticity on the other hand Investing in most crypto currencies yielded larger returns than investing in foreign currency or stocks. Goodell et al., (2021) on their research use the wavelet approach to analyse COVID-19 world death rates and Bitcoin prices on a daily basis from December 31, 2019 to April 29, 2020. They discovered that rising COVID-19 levels triggered a spike in Bitcoin prices. This effect is especially significant during the period following April 5.

Within the technology adoption model, a study also explores the factors affecting the decision to implement cryptocurrency payments among small to medium-sized enterprises (SMEs) in tourism and hospitality (TAM). Their findings revealed that strategic focus, owner/manager traits (self-efficacy and innovativeness), and social presence both have a significant impact on cryptocurrency adoption.(Nuryyev et al., 2020). Some nations are more conscious of cryptocurrencies than others due to common beliefs, whereas others have a higher or lower knowledge due to personal and regional variations (Maciejasz-Swiatkiewicz & Poskart, 2020). Zubir, Awi, Ali, Mokhlis, and Sulong (2020) examined the extent of cryptocurrency knowledge and use in Malaysia While a few of the respondents in the survey did express their preference for non-online payment systems, such as credit cards, cash cards, and PayPal, they concluded that most respondents used non-cryptocurrencies. The deciding element, age group, race, and occupational background of respondents showed the importance of cryptocurrencies for their comprehension.

Theoretical Framework and Conceptualization

Theory of Planned Behaviour

The Theory of Planned Behavior replaced TRA by introducing a third independent determinant of intention, perceived behaviour control (PBC) (Ajzen, 1985). It is focused on the availability of capacities, tools and prospects as well as their perceived value for achieving results (Kripanont, 2007). Former scholars concentrate on the technical and economic facets of cryptocurrencies. for example, Adoption and perceptions by Al-hussaini et al. (2019), Saleh et al. (2020) and Saleh et al., (2020). The theory of planned behavior was used in this study.

However, the factors influencing Bitcoin Investment's adoption during Covid-19 must also be investigated. The Theory of planned behavior is the most often used theory for explaining customer behaviour at the individual level. The bulk of the experiments used this theory to predict an individual's decision to partake in a certain activity. The Theory of planned behavior (Ajzen, 1985) substituted TRA by adding a new independent determinant of intention, perceived behaviour control (PBC). It is defined by the availability of abilities, tools, and prospects, as well as their perceived value in achieving outcomes (Kripanont, 2007).

In their research Schaupp and Festa (2018) find that perceived behavioural control attitude, subjective standards have a major effect on the intent to use cryptocurrencies. Similarly, a research led by Salem and Md Nor (2020) showed that the perceived lack of alternatives viewed by PBC greatly affected the decision of customers to embrace e-commerce during the outbreak of the COVID-19 in Saudi Arabia. The theoretical structure is seen graphically in Figure 2.

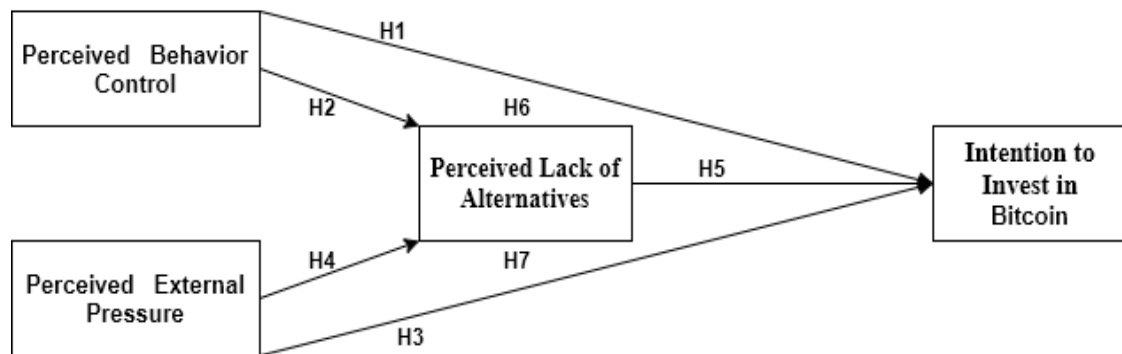


Figure 2: Theoretical Framework

Conceptualization

Perceived Behavioural Control (PBC)

The degree to which someone's self-efficacy and perceived control will accomplish the activity is defined as perceived behavioural control (PBC) (Shi and Zhao, 2017). For the purposes of this research, PBC denotes the degree to which someone evaluates self-efficacy and perceived control capacity while investing in Bitcoin. The TPB builds on the TRA by adding PBC. In his report, Ajzen claimed that PBC "should be read as perceived control over the success of an action." (Ifinedo, 2012).

For example, the influence of behavioural control on behavioural intentions, as determined by Taylor and Todd (1995), has been shown in the literature (1995). This sense of control over conduct, in particular, facilitates further participation in Bitcoin investment. As a consequence, it is anticipated that investors will continue investing in Bitcoin Exchanges until they know they have the requisite leverage and trust to invest in Bitcoin. As a result, the following hypothesis is proposed:

H1. Perceived Behavior Control has a positive effect on Intention to Invest in Bitcoin during the COVID-19 pandemic.

H2. Perceived Behavior Control has pressure has a positive effect on Perceived Lack of Alternatives.

Perceived External Pressure

The degree to which a business or its trading partners controls the implementation of emerging technologies is referred to as external pressure (Premkumar et al., 1997). For the purposes of this study's goal, perceived external pressure denotes the degree to which government agencies' or shareholders' external influences on individuals to invest in Bitcoin. Technology implementation may be influenced by the environment or external circumstances (Gabryelczvk, 2018). In this study, stakeholders exert leverage (e.g., Bitcoin investment exchanges, employees, and goods/services merchants) or government rules (Muhammad et al., 2020). Previous research on technology adoption has found a lot of data to confirm the influence of external pressure on technology adoption purpose (Pan et al., 2013). As a result, the COVID 19 pandemic prompted the government and other organisations, in its efforts to

ensure that individuals stayed at home and follow new forms of carrying out daily tasks such as investing in Bitcoin alternatives to visiting banks, to implement various restricted policies. This study suggests the following hypothesis in this situation:

H3. Perceived external pressure has a positive effect on Intention to Invest in Bitcoin during the COVID-19 pandemic.

H4. Perceived external pressure has a positive effect on the Perceived Lack of Alternatives.

Perceived Lack of Alternatives

Perceived lack of alternatives his means that customers have knowledge with how feasible competitive options are present on the market (Jones et al. 2000). In the sense of this analysis, perceived lack of alternatives relates to the existence of feasible competitive alternatives, such as Bitcoin Exchanges, for investment. Individuals can pick one of the available choices if a variety of alternatives are available. Patterson and Smith (2003), for example, claimed that the alternative would cause a person to abandon their usual method of performing tasks in favour of a new one. Many experiments have shown that where there are no viable options, the likelihood of changing one's behaviour reduces (Bendapudi and Berry, 1997). As a consequence, when people consider the existence of any enticing alternatives, they are more inclined to select one of these alternatives (Sharma and Patterson, 2000). As a consequence, the COVID-19 pandemic, which creates health threats and legal penalties when accessing traditional banks during the limitations, means that there aren't many alternatives. This should inspire people to look for other opportunities and adopting Bitcoin as a form of investing is one of them. As a result, a perceived lack of alternatives would have a significant effect on e-commerce adoption. The following hypotheses are developed:

H5. Perceived Lack of Alternatives has a positive effect on Intention to Invest in Bitcoin during the COVID-19 pandemic.

H6. Perceived Lack of Alternatives will Mediate the relationships between Perceived Behavior Control and Intention to Invest in Bitcoin during the COVID-19 pandemic.

H7. Perceived External Pressure will Mediate the relationships between Perceived Behavior Control and Intention to Invest in Bitcoin during the COVID-19 pandemic.

Methodology

This study used a quantitative analysis approach in order to provide a reliable quantitative conclusion that can be applied throughout the board. This study looks at the variables that affect Bitcoin investment adoption. As described in previous parts, the Theory of planned behaviour was applied during Covid-19. This study's unit of analysis is based on the individual level, which contributes to a shortage of sampling frames and the usage of a non-probability sampling approach for purposive sampling. The questionnaire is split into two parts. Part A focuses on their profile, such as gender, monthly revenue, highest qualification, and job status, whereas Part B focuses on the study's exogenous and endogenous variables. All of the elements used to calculate the constructs were introduced and modified from previous studies since the review utilised Smart Partial least Squares (PLS) 3.2.8, which employs confirmatory factor analysis (CFA). Table 1 provides the adopted and adapted variables from earlier studies.

Table 1: Adopted and Adapted Items from Previous Studies

Variables	Items	Sources
Perceived Behavior Control (PBN)	PBN1	I have the knowledge necessary to use Bitcoin.
	PBN2	Given the resources it takes to use Bitcoin, it would be easy for me to use it.
	PBN3	Given the opportunities it takes to use Bitcoin, it would be easy for me to use it.
	PBN4	Given the knowledge it takes to use Bitcoin, it would be easy for me to use it.
	PBN5	I think that I would be able to invest in Bitcoin for profit.
	PBN6	I think that investing in Bitcoin would be entirely within my control.
Perceived external pressure	PEP1	The Government is pressuring me to invest in Bitcoin during the COVID-19 pandemic.
	PEP2	The goods and services retailers are pressuring me to invest in Bitcoin during the COVID-19 pandemic.
	PEP3	My employer is pressuring me to invest in Bitcoin due to the COVID-19 pandemic.
Perceived lack of alternatives	PLA1	I invest in Bitcoin because there are no good alternatives during the COVID-19 pandemic.
	PLA2	Among the available alternatives, Investing in Bitcoin is the only good choice during the COVID-19 pandemic.
	PLA3	Compared to investing in Bitcoin, there are not many other choices that would be satisfactory.
Intention to invest in Bitcoin	IIB1	I would invest in Bitcoin for my shopping needs.
	IIB2	Investing in the Bitcoin for covering all my daily needs during the COVID-19 pandemic.
	IBB3	I intend to invest in Bitcoin during COVID-19 as an alternative source of income in the future.
	IIB4	Henceforward, I intend to use Bitcoin on a regular basis.

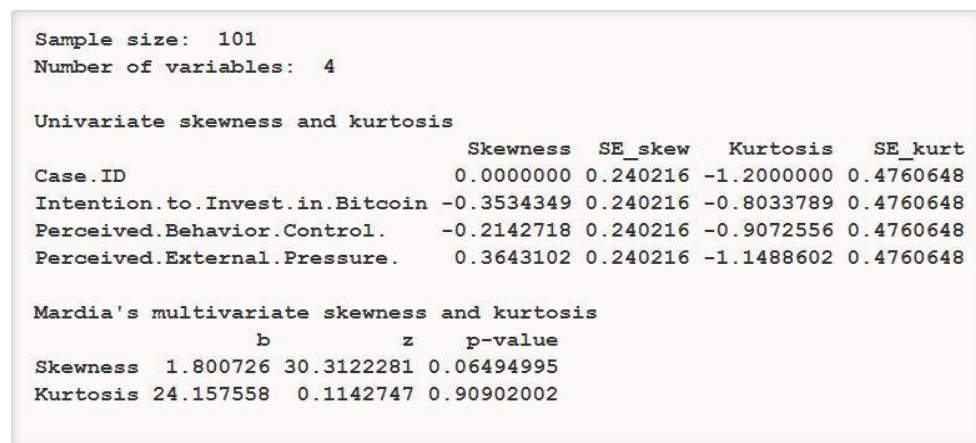
Data Screening and Descriptive Statistic (SPSS)

Following data collection, data screening findings and descriptive interpretation from 101 respondents were provided. In the beginning, data was inserted into SPSS. Following that, data screening takes place. The aim of data screening is to ensure that the data gathered is accurate, usable, and reliable. As a result, the following segment presents the normality analysis, common method bias, and descriptive analysis.

Data Distribution (Normality)

The data distribution for a given variable was clarified by normality. Non-normal details would have an effect on the study and conclusions (Hair et al., 2017). Because of the significance of this analysis, data normality is implemented. Form, skewness, and Kurtosis (flat/peaked) can all be used to determine data normality (Hair et al. 2017). Skewness relates to the symmetrical assessment of data distribution. If the data is skewed to the right or left, the distribution is assumed to be biased (Hair et al., 2017). Skewness meets two rules: (1) They are positive (right) skewed if the skewness score is greater than one; if it is less than one, they are negative (left) skewed. The amount in between, on the other hand, is appropriate. Kurtosis leads to data distribution outliers. Data comprising outliers would have a strong Kurtosis. If the distribution is so biased, the majority of the answers would be in the middle (Hair et al., 2017). As a result, the normality test is also used to ensure that the data is exceptionally regular. Based on Gabryelczvk (2018) the data presume normal if the skewness is ± 1 , and Kurtosis is ± 7 . Hair et al. (2017) suggested measuring multivariate Skewness and Kurtosis using a source in the network power that is readily accessible online. Multivariate Skewness as well as kurtosis for the research study at the url “<https://webpower.psychstat.org/models/kurtosis/results.php?url=fb68bfcaa6018b77b7e7b6906ac4ea9>” it shows that Mardia's multivariate Skewness ($\beta = 1.800$, $p < 0.01$) and Mardia's multivariate kurtosis ($\beta = 24.157$, $p < 0.01$). As a result, the data are marginally average, and the Smart PLS software was suitable for use in this analysis. The output of the skewness and kurtosis estimation is seen in Figure 3.

Output of skewness and kurtosis calculation



```
Sample size: 101
Number of variables: 4

Univariate skewness and kurtosis
```

	Skewness	SE_skew	Kurtosis	SE_kurt
Case.ID	0.0000000	0.240216	-1.2000000	0.4760648
Intention.to.Invest.in.Bitcoin	-0.3534349	0.240216	-0.8033789	0.4760648
Perceived.Behavior.Control.	-0.2142718	0.240216	-0.9072556	0.4760648
Perceived.External.Pressure.	0.3643102	0.240216	-1.1488602	0.4760648

```
Mardia's multivariate skewness and kurtosis
```

	b	z	p-value
Skewness	1.800726	30.3122281	0.06494995
Kurtosis	24.157558	0.1142747	0.90902002

Figure 3: The Output of Skewness and Kurtosis Calculation

Bias of Non-Response and Bias of The Common Method

Two main questions to be taken into consideration in the compilation of survey data are non-response and common method biases. That's because the validity of quantitative data would be affected (Lowry and Gaskin, 2014). Bias in non-response arises as interrogators vary from non interview subjects. Data obtained with identical instruments and collected just one time can be affected by prejudice (Lowry & Gaskin, 2014). One of the most popular methods of analysis is the single factor test by Harman (Straub et al., 2004). The one-factor test by Harman is used to determine if the single factor is present and indicates the model variance to verify the common method bias (Kumar and Shukla 2019). In these testing information the variance value

tested using SPSS is 37.50. The data obtained therefore was exempt from the bias of ordinary methods.

Descriptive Statistics of Demographic Variables

Demographic data allows you to consider the respondents' those background characteristics. Their community, such as age, sex and understanding of investments in Bitcoin during the covid-19 time of Bitcoin and history. The 101 respondents' demographic profile. As seen in Table 5.2, age is 25-34 years old, with a plurality between 15 and 24 years of age and 34.7%. Age is 56.4% of the age population. In this survey, 91.1 percent of respondents were represented in these age ranges (15-34 years). The men (61.4 percent) and the other women were led by the gender (38.6 percent). The Respondent Profiles are mentioned in Table 2.

Table 2: Adopted and Adapted Items from Previous Studies

Respondent Profile

	Category	Frequency	percentage
Age	15-24	35	34.7
	25-34	57	56.4
	35-44	8	7.9
	45-54	1	1.0
Gender	Male	62	61.4
	Female	39	38.6
In this Current covid-19 period, would you invest in Bitcoin	Very likely, I would invest	35	34.7
	Likely I would invest	26	25.7
	Neutral	15	14.9
	Not necessary	25	24.8
Considered investing in Bitcoin	Never	37	36.6
	Sometimes	39	38.6
	Several times	10	9.9
	Always	15	14.9
How often have you used Bitcoin	Never	57	56.4
	Once a year	13	12.9
	Several times a year	10	9.9
	Once a month	10	9.9
	Several times a month	4	4.0
	Several times a week	7	6.9
How comfortable are you with the use of Bitcoin	Very comfortable	27	26.7
	Comfortable	25	24.8
	Neutral	30	29.7
	Uncomfortable	12	11.9
	Very uncomfortable.	7	6.9
How often do you spend monthly on Bitcoin	Rarely (10%)	58	57.4
	Occasionally (30%)	21	20.8
	Sometimes (50%)	9	8.9
	Frequently (70%)	2	2.0
	Usually (90%)	3	3.0
	Every Day	8	7.9

How often do you transfer monthly on Bitcoin	Rarely (10%)	64	63.4
	Occasionally (30%)	16	15.8
	Sometimes (50%)	9	8.9
	Frequently (70%)	5	5.0
	Every Day	7	6.9
How often do you receive transfer monthly on Bitcoin	Rarely (10%)	61	60.4
	Occasionally (30%)	18	17.8
	Sometimes (50%)	8	7.9
	Frequently (70%)	6	5.9
	Usually (90%)	1	1.0
	Every Day	7	6.9
How much time do you spend daily on Bitcoin transactions	Rarely (10%)	63	62.4
	Occasionally (30%)	14	13.9
	Sometimes (50%)	13	12.9
	Frequently (70%)	2	2.0
	Usually (90%)	2	2.0
	All the time	7	6.9

This present covid-19 period relates to their willingness to Bitcoin investment: a total of 60.4 percent of the 101 respondents have shown an interest in investing in Bitcoin. However, only 64 percent of 101 participants used Bitcoin often in their purchases. Bitcase Even so, Bitcoin Comfortability: Approximately percent of respondents were comfortable with Bitcoin; Bitcoin was spent daily. Overall, 76.3 percent out of 101 respondents use Bitcoin transactions daily.

To evaluate the conceptual framework, Smart Partial Least Squares (PLS) version 3.3.2 was used in this study. Smart PLS is a structural equation modelling (SEM) software family that is a variance-based analysis appropriate for predictive purposes (Sánchez, López-Mosquera, Lera-López, & Faulin, 2018). In PLS-SEM, the assessment process involves three main steps: evaluation of the measurement model, evaluation of the structural model, and evaluation of the mediating and/or moderating relationship. The aim of evaluating the measurement model is to determine the reliability and validity of the item measures (Henseler, 2018). The aim of evaluating the structural model is to determine its validity, as well as the independent LVs (exogenous variables) and dependent LVs (endogenous variables) (Urbach & Ahlemann, 2010). The aim of evaluating the mediating and/or moderating relationship is to determine if the mediating/moderating construct is a partial or full mediator/moderator.

Findings

Analysis Of Measurement Model

PLS-SEM is typically chronologically split into two steps. First, the measuring model is tested, and then the structural model is assessed and analysed (Hair et al. 2017, Ramayah et al. 2018, Lowry and Gaskin, 2014). The outer model (measurement model) describes the relationship between latent variables variable and its manifest variables. The structural model (inner model), on the other hand, specifies the relationships between the latent variables (Hair et al., 2017). As seen in Figure 4, got to be reflective in this analysis.

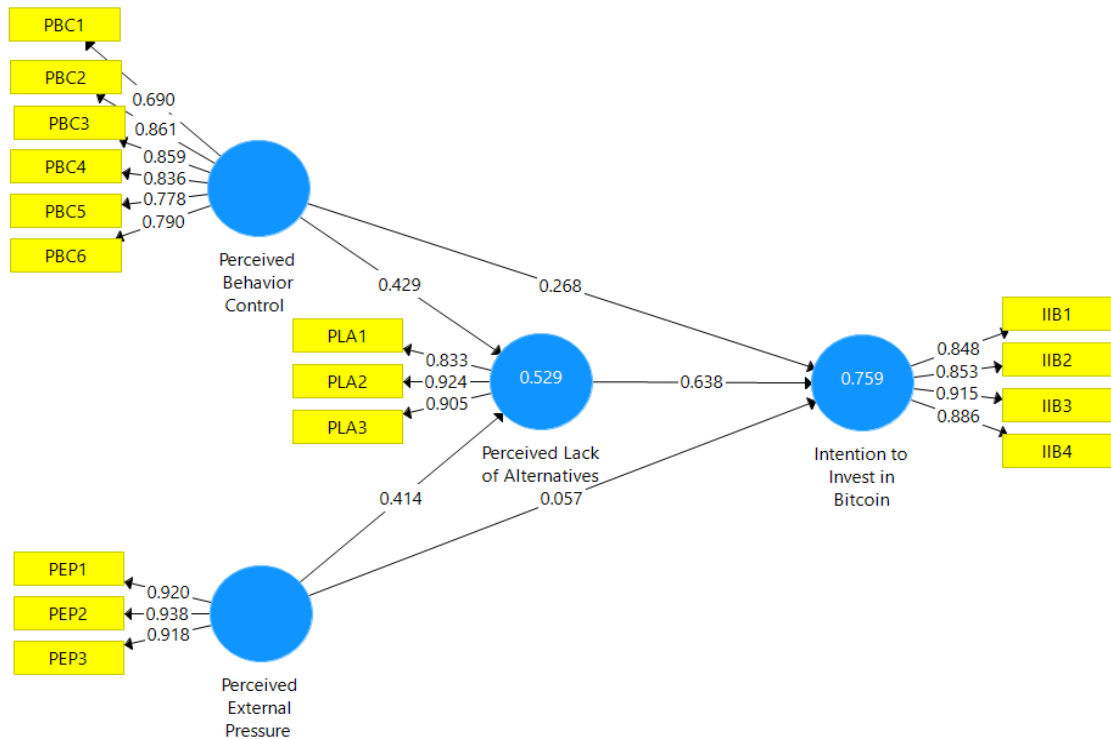


Figure 4: The Reflective Measurement Model of the Study

Assessment of Internal Consistency Reliability

The Composite Reliability Index is used to assess the internal consistency reliability in this analysis (CR). Table 3 shows the measured CR, outer loadings, and Average Variance Extracted (AVE). The results indicate that the variables under investigation are reliable. Internal Consistency and Convergent Validity are shown in Table 3.

Table 3: Internal Consistency and Convergent Validity Analysis

Variables	Items	loading	AVE	CR	Cronbach's Alpha
Perceived Behavior Control	PBC1	0.690	0.647	0.916	0.890
	PBC2	0.861			
	PBC3	0.859			
	PBC4	0.836			
	PBC5	0.778			
	PBC6	0.790			
Perceived external pressure	PEP1	0.920	0.856	0.947	0.916
	PEP2	0.938			
	PEP3	0.918			
Perceived lack of	PLA1	0.833	0.790	0.918	0.866

alternatives	PLA2	0.924	0.768	0.930	0.899
	PLA3	0.905			
Intention to Invest in Bitcoin	IIB1	0.848			
	IIB2	0.853			
	IIB3	0.915			
	IIB4	0.886			

Assessment of Indicator Reliability

Indicator reliability is a test to see if the items (indicators) are compatible with what they are supposed to measure (Hair et al. 2017, Ramayah et al., 2018). is shown in the table 3, the maximum loading values are greater than the minimum or 0.690 to 0.9, which was considered to be appropriate by Hair et al (2017).

Assessment of Convergent Validity

Convergent validity implies that items (indicators) of a construct (variable) share a large portion of the variance (Hair et al., 2017; Ramayah et al., 2018). By analysing AVE values for all items variables, convergent validity can be checked. In the results of this analysis, all AVE values (see Table 3) are above 0.6. The values of the AVE in this study therefore met the standards for reliability set out by Hair et al. 2017.

Assessment of Discriminant Validity

Discriminant validity examines the degree to which the measure is distinctive and not merely a product of other variables (Hair et al., 2017). Discriminatory validity arises when all things are loaded higher than the cross loads on the other component in the study model (Hair et al., 2017).

The discriminatory validity is to be tested in three ways, as proposed by Hair et al. (2017): 1) criterion for cross loading 2) Criterion of Fornell and Larcker 3) Relationship heterotrait-monotrait ratio (HTMT). Tables 4, Table 5 and Table 6 display the findings for all three analyses.

Based on Fornell and Larcker (1981) measure, the diagonal valuation should be greater than the value in off-diagonal. That because the value that is on a diagonal is the square root of AVE, which would be a specific variable. In the meantime, all the reflection buildings/variables correlate the Off-diagonal values (Fornell and Larcker 1981, Hair et al. 2017).

The charges of things in the latent variable allocated should be higher than charges for all other latent variables. The loading condition provided in table 4 is met by all items studied in this study. This means there are no interchangeable products with various latent variables (Hair et al. 2017, Ramayah et al., 2018). Finally, the HTMT correlations are checked with the 0.10 confidence interval and a two-tailed test style by running a bootstrap. All HTMT values are below 0.90, according to the observations of Table 6. This also clarified that discrimination between two reflective structures/variables has been identified.

Table 4: Internal Consistency and Convergent Validity Analysis

Variables	1	2	3	4
Intention to Invest in Bitcoin	0.876			
Perceived Behavior Control	0.699	0.805		
Perceived External Pressure	0.587	0.492	0.925	
Perceived Lack of Alternatives	0.843	0.632	0.625	0.889

Notes: 1) Intention to Invest in Bitcoin 2) Perceived Behavior Control 3) Perceived External Pressure 4) Perceived Lack of Alternatives

Table 5: Cross Loadings Criterion

Variables	1	2	3	4
IIB1	0.848	0.566	0.578	0.640
IIB2	0.853	0.596	0.570	0.686
IIB3	0.915	0.646	0.464	0.818
IIB4	0.886	0.637	0.465	0.793
PBC1	0.441	0.690	0.318	0.376
PBC2	0.566	0.861	0.424	0.512
PBC3	0.610	0.859	0.416	0.514
PBC4	0.613	0.836	0.422	0.628
PBC5	0.575	0.778	0.379	0.479
PBC6	0.547	0.790	0.403	0.507
PEP1	0.489	0.417	0.920	0.547
PEP2	0.598	0.484	0.938	0.621
PEP3	0.535	0.460	0.918	0.559
PLA1	0.651	0.532	0.498	0.833
PLA2	0.824	0.620	0.616	0.924
PLA3	0.759	0.528	0.543	0.905

Notes: 1) Intention to Invest in Bitcoin 2) Perceived Behavior Control 3) Perceived External Pressure 4) Perceived Lack of Alternatives

Table 6: Heterotrait-Monotrait (HTMT) Criterion.

Variables	Intention to Invest in Bitcoin
Perceived Behavior Control	0.776
Perceived External Pressure	0.541
Perceived Lack of Alternatives	0.696

Analysis of Structural Model

The structural model describes the relationship pattern between the variables (Hair et al. 2017, Ramayah et al. 2018, Lowry and Gaskin, 2014). The following parts showed the steps involved in the structural model.

Assessment of Collinearity

It is necessary to ensure that their side collinearity is not an issue in the structural model before the hypothesis test is continued. According to Tomasetti, Singer, Troisi, and Maione (2018) the variance inflation factor (VIF) that measures collinearity should be lower than 3.3. Table 7

states that all VIF values are below the Diamantopoulos and Siguaw threshold, which confirms that the food is not difficult for the trial (Diamantopoulos & Siguaw, 2002). The lateral collinearity assessment is shown in Table 7.

Table 7: Heterotrait-Monotrait Ratio of Correlations(HTMT)

Variables	Intention to Invest in Bitcoin
Perceived Behavior Control	1.710
Perceived External Pressure	1.683
Perceived Lack of Alternatives	2.125

Assessment of Structural Model Path Coefficients

The significance and relevance of the structural model relationships can be quantified by performing bootstrap and obtaining t-value (Hair et al. 2017, Ramayah et al. 2018, Lowry and Gaskin, 2014). For the testing hypotheses, using the bootstrapping procedure with resampling of 5000 as suggested by (hair), the decision to accept the hypothesis is based on t-value, p-value and confidence interval bias-corrected. Just one hypothesis was not supported by the study of the seven hypotheses created. The structure model/hypothesis testing is shown in Table 8

Table 8: Structural Model/Hypothesis Testing

H'thesis	R'ship	Beta	Se	T Value	P Value	R ²	F ²	Q ²	Decision	CIUL	CILL
H1	PBC -> IIB	0.277	0.083	3.209	0.001	0.759			Supported	0.124	0.440
H2	PBC -> PLA	0.444	0.072	5.981	0.000	0.529	0.295	0.171	Suppoted	0.300	0.590
H3	PEP -> IIB	0.057	0.066	0.855	0.393	0.759			Unsupported	-0.068	0.181
H4	PEP -> PLA	0.403	0.071	5.797	0.000	0.529	0.274	0.164	Supported	0.245	0.535
H5	PLA -> IIB	0.631	0.074	8.644	0.000	0.759	0.784	0.322	Supported	0.477	0.769

*p < 0.1 (Significance level of 10%); **p < 0.05 (Significance level of 5%); ***p < 0.01 (Significance level of 1%)

Hypothesis 1 (H1) assessed the path coefficient of Perceived Behavior Control (PBC) with Intention to Invest in Bitcoin (IIB). The path value is 0.277 with the help of a 5000 sub-sample process of bootstrapping; the t value obtained is 3.209 with the value LL =.440, the value UL =.124 and the value P <0.001).

Hypothesis 2 (H2) evaluated the path coefficient of Perceived Behavior Control (PBC) to Perceived Lack of Alternatives (PLA). The coefficient of paths with 5000 sub-samples is 0.444, the t-value is 5.981 and LL = 0.590, UL = 0.300, P < 0.000).

The coefficient value for Hypothesis 3 (H3) that represents the path between Perceived External Pressure (PEP) and Intention to Invest in Bitcoin (IIB) is 0.057. The interval of trust is 0.181 (lower limit), and -0.068, 0.393 (upper limit), which contains the value of zero (0). The presence of zero value between the intervals has resulted in the insignificant path relationship between (PEP) and (IIB)

Hypothesis 4 (H4) measures the relationship between Perceived External Pressure (PEP) and Perceived Lack of Alternatives (PLA). The coefficient is 0.403, and the t-value is 5.797; if the t-value is greater than 1.96, the confidence interval values are 0.535 for the lower bound and -0.245 for the upper bound. This led to a zero (0) value within the interval, which shows a large likelihood error in the PEP-PLA direction coefficient.

Hypothesis 5 (H5) measured the path coefficient of Perceived Lack of Alternatives (PLA) to Intention to Invest in Bitcoin (IIIB). The path coefficient value is 0.631 using a bootstrapping procedure with 5000 subsamples; the t-value obtained is 8.644. UL=0.477, P<0.000 with LL=0.769, UL=0.477).

Mediating Effect of Perceived Lack of Alternatives (PLA)

Table 9: Mediating Effect of Perceived Lack of Alternatives (PLA)

H'thesis	R'ship	Beta	Se	T Value	P-Value	R ²	Decision	CIUL	CILL
H6	PBC -> PLA -> IIIB	0.279	0.049	5.582	0.000	0.759	Supported	0.188	0.384
H7	PEP -> PLA -> IIIB	0.254	0.054	4.899	0.000	0.759	Supported	0.143	0.363

Perceived Behavior Control (PBC) influences Intention to Invest in Bitcoin (IIIB) indirectly ($\beta = 0.279$, $t = 5.582$: LL = 0.384, UL = 0.188, P 0.00). as well as Perceived External Pressure (PEP) ($\beta = 0.254$, $t = 4.899$: LL = 0.363, UL = 0.143, P 0.00). As a result, H6 and H7 were supported.

Measuring the direct and indirect relationships between independent and dependent latent variables is another significant evaluation of a structural model, according to Henseler et al. (2009). The mediating impact of PLA was included in the relationship between the independent variables and the Purpose to Use in this analysis. Perceived Behavior Management (PBC) positively affected Intention to Invest in Bitcoin (IIIB), but not Perceived External Pressure (PEP) (PEP) Furthermore, the addition of the mediating variable (PLA) increased the coefficient values of PBC and PEP on Plan to Invest in Bitcoin (IIIB). Table 10 shows that while PLA) partially mediated between Perceived Behavior Control and Intention to Invest in Bitcoin, it completely mediated with Perceived External Pressure. Table 10 depicts the role of perceived lack of alternatives as a moderator (PLA)

Table 10: Result of the mediating effect of Perceived Lack of Alternatives (PLA).

IV	DV	β &T-Values Without Mediator	β &T-Values with Mediator	Mediating Effect
PBC	IIIB	$\beta 0.277$ / t: 3.209**	$\beta 0.279$ / t: 5.582**	Partial
PEP	IIIB	$\beta 0.057$ / t: 0855	$\beta 0.254$ / t: 4.899**	Full

Assessment of Level of Coefficient of Determination (R²)

The coefficient of determination, or R square, is used to assess the predictive accuracy of the model. It describes the goodness-of-fit of the regression derived from the dataset's empirical results (Hair et al. 2017) R² value suggested by prior literature to be large enough to determine the model's explanatory power The R² parameters proposed by Hair et al. (2017) suggest a

significant level of predictive accuracy, 0.50 a moderate level, and 0.25 a poor level. Based on the results, the R^2 value in Table 8 is 75.9 percent predicted by Perceived Behavior Regulation, Perceived External Pressure, and Perceived Lack of Alternatives. Finally, the R^2 values for both Intention to Invest in Bitcoin and Perceived Behavior Control are high. This leads to the conclusion that the model is adequate for representing the data obtained with moderate predictive accuracy.

Assessment of Effect Size (f^2)

Following the determination of R^2 , the effect size of the predictor construct is expected. The effect size (f^2) explains the difference in R^2 when a specific latent variable is included or omitted from the model (Hair et al. 2017, Ramayah et al., 2018). Hair et al. (2017) and Ramayah et al. (2018) proposed criterion values of 0.35, 0.15, and 0.02 as important, medium, and minimal effects, respectively. Table 8 shows that, with the exception of Perceived Lack of Alternatives, all supported hypotheses have a medium impact on R^2 to Intention to Invest in Bitcoin.

Assessment of Stone-Geisser Q^2 Predictive Relevance

Researchers must assess predictive relevance in the final stage of the structural model (Q^2). Blindfolding techniques may be used to observe predictive relevance (Hair et al. 2017, Ramayah et al., 2018). Blindfolding procedures are a form of resampling that removes and calculates each data point of an indicator for an endogenous latent variable. A Q^2 value greater than 0 means that the model is predictively relevant, while a value less than 0 describes why the model is not predictively relevant (Hair et al. 2017, Ramayah et al., 2018). Q^2 for Intention to Invest in Bitcoin is 0.568, which is greater than 0; the model is predictive for a specific endogenous construct (Hair et al. 2017).

Discussion and Conclusion

The primary goal of this research is to raise awareness of the factors that influenced the acceptance of Bitcoin investment during COVID-19. Just one of the seven hypotheses for the Theory of Planned Behavior was found to be unsupported by the analysis. H1, H2, H4, H5, H6, and H7 were all supported. Perceived Behavior Control and Perceived Lack of Alternatives positively correlated with Intention to Invest in Bitcoin. In the meantime, perceived external pressure was the opposite of an insignificant effect on the intention to invest in Bitcoin.

Surprisingly, Perceived External Pressure completely mediates the relationship between Perceived External Pressure and Intention to Invest in Bitcoin. These findings are consistent with previous research by (Salem & Md Nor, 2020; Schaupp & Festa, 2018). for the understanding of behavioural regulation This means that those who experience more behavioural influence are more likely to invest in bitcoin during Covid-19.

Perceived External Pressure, on the other hand, suggests that the COVID-19 pandemic has prompted the government and other financial institutions to implement certain restrictive measures, such as forcing citizens to remain at home and adopt new alternative ways to conduct everyday activities, such as investing in Bitcoin rather than visiting conventional banks. Currently, cryptocurrency markets are essentially unregulated and uncontrolled by any single party, which has contributed to market volatility and predictable reports of fraud, theft, and price exploitation. Government regulation is needed to avoid price forgery and cheating, but the lack of control is so many investors purchase cryptocurrencies, with so many individuals

purchasing cryptocurrencies with the anticipation of wildly large returns, greed, and the possibility of fraud. As a result, there is a need for the safeguards provided by government oversight in order for citizens to invest safely in properties. It is a good thing that the government has licenced Bitcoin exchanges that can track every Bitcoin transaction on the network. The government used to mandate Bitcoin exchanges to provide all past transaction information to government authorities. As a result, it would assist in keeping investors from losing their money. The TPB model used in this analysis explains 75.9 percent of the variation in Intention to Use.

The Securities and Exchange Commission (SEC) must control cryptocurrency digital network exchanges and compel them to offer only trustworthy Cryptos on their platform. Examples are Bitcoin, Ada, Ether, and other peer reviews. This requires platform systems with a high level of safety, operational stability and adequate capacity.

Until this occurs, the exchange of the site will also verify if it has a licence. It meets strict guidelines from KYC (know your client) and aims to comply with government laws and regulations as closely as possible. This is because the recognition, appropriateness and risks of a contractual relationship must be supervised. This site also guarantees that an investor does not lose all its cryptography because of hacking or fraud! This guarantees that the system cannot be used secretly and that the transaction is credible.

Under KYC law, users must use a government ID and address authentication data to use BUY and the SELL transaction features of the websites, which also allows the website to share information about their users with the regulatory authorities who regulate this information. This allows cryptoequipment holdings to be registered publicly. Through taking these measures, investors in the cryptocurrency industry are guaranteed security.

Recommendation for future research

By not investigating the actual usage of Bitcoin investment adoption in Covid-19, the prospective impact is left incomplete. As a result, future researchers are encouraged to integrate the use of information system theories in order to investigate the actual usage of Bitcoin investment adoption in Covid-19. Additionally, Future research should seek to enhance the predictive power of the research model used in this study.

Limitation for the Study

The sample is general and does not indicate a specific group of study, and the sample size of the study should be increased. Furthermore, the research model does not measure the relationship between the variable intention to invest in Bitcoin and its actual usage. This study also lacks some variables that would contribute in improving the model's predictive power.

References

- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In *Action control* (pp. 11–39). Springer.
- Al-hussaini, A. I. S., Ibrahim, A. A., & Fauzan, M. (2019). Users Perception of Cryptocurrency System Application from the Islamic Views. *International Journal on Islamic Applications in Computer Science And Technology*, 7(1), 13–25.
- Anna, R. (2020). How Crypto World Responded to COVID-19 and What's Next | by Anna Ratieva | WhiteBIT | Medium. Retrieved February 22, 2021, from

- <https://medium.com/whitebit/how-crypto-world-responded-to-covid-19-and-whats-next-c134f7fb6e51>
- Baek, C., & Elbeck, M. (2015). Bitcoins as an investment or speculative vehicle? A first look. *Applied Economics Letters*, 22(1), 30–34. <https://doi.org/10.1080/13504851.2014.916379>
- Baur, D. G., Hong, K. J., & Lee, A. D. (2016). Bitcoin–Currency or Asset? *Melbourne Business School*.
- Bendapudi, N., & Berry, L. L. (1997). Customers' motivations for maintaining relationships with service providers. *Journal of Retailing*, 73(1), 15–37.
- Brühl, V. (2017). Virtual Currencies, Distributed Ledgers and the Future of Financial Services. *Intereconomics*, 52(6), 370–378. <https://doi.org/10.1007/s10272-017-0706-3>
- Chen, Z.-J., Vogel, D., & Wang, Z.-H. (2016). How to satisfy citizens? Using mobile government to reengineer fair government processes. *Decision Support Systems*, 82, 47–57.
- Cheng, S., Lam, T., & Hsu, C. H. C. (2006). Negative word-of-mouth communication intention: An application of the theory of planned behavior. *Journal of Hospitality & Tourism Research*, 30(1), 95–116.
- Conlon, T., & McGee, R. (2020). Safe haven or risky hazard? Bitcoin during the COVID-19 bear market. *Finance Research Letters*, 35, 101607.
- Diamantopoulos, A., & Siguaw, J. (2002). *Formative vs. reflective indicators in measure development: does the choice of indicators matter?* Cornell University, Center for Hospitality Research.
- Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. SAGE Publications Sage CA: Los Angeles, CA.
- Gabryelczvk, R. (2018). An Exploration of BPM Adoption Factors: Initial Steps for Model Development. In *2018 Federated Conference on Computer Science and Information Systems (FedCSIS)* (pp. 761–768). IEEE.
- Glen, G. (2021, February 25). Should the world embrace cryptocurrencies? | Inside Story. Retrieved February 21, 2021, from <https://www.youtube.com/watch?v=G9iXHsrXJC8>
- Godin, G., & Kok, G. (1996). The theory of planned behavior: a review of its applications to health-related behaviors. *American Journal of Health Promotion*, 11(2), 87–98.
- Goodell, J. W., & Goutte, S. (2021). Co-movement of COVID-19 and Bitcoin: Evidence from wavelet coherence analysis. *Finance Research Letters*, 38, 101625.
- Henseler, J. (2018). Partial least squares path modeling: Quo vadis? *Quality & Quantity*, 52(1), 1–8.
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In *New challenges to international marketing* (pp. 277–319). Emerald Group Publishing Limited.
- Ifinedo, P. (2012). *E-Business: Applications and Global Acceptance*. BoD–Books on Demand.
- Jeribi, A., & Manzli, Y. S. (2021). Can cryptocurrencies be a safe haven during the novel COVID-19 pandemic? Evidence from the Tunisian Stock Market. *Journal of Research in Emerging Markets*, 3(1), 14–31.
- Johnson, J. (2020). Bitcoin's Intraday Price Dynamics: Pre and Post COVID-19. Available at SSRN 3650673.
- Jones, M. A., Mothersbaugh, D. L., & Beatty, S. E. (2000). Switching barriers and repurchase intentions in services. *Journal of Retailing*, 76(2), 259–274.

- Kripanont, N. (2007). Examining a technology acceptance model of internet usage by academics within Thai business schools. Victoria University.
- Kumar, R., & Shukla, S. (2019). Creativity, proactive personality and entrepreneurial intentions: examining the mediating role of entrepreneurial self-efficacy. *Global Business Review*, 0972150919844395.
- Kurnia, S., Choudrie, J., Mahbubur, R. M., & Alzougool, B. (2015). E-commerce technology adoption: A Malaysian grocery SME retail sector study. *Journal of Business Research*, 68(9), 1906–1918.
- Lee, M. K. O., Cheung, C. M. K., & Chen, Z. (2005). Acceptance of Internet-based learning medium: the role of extrinsic and intrinsic motivation. *Information & Management*, 42(8), 1095–1104.
- Lowry, P. B., & Gaskin, J. (2014). Partial least squares (PLS) structural equation modeling (SEM) for building and testing behavioral causal theory: When to choose it and how to use it. *IEEE Transactions on Professional Communication*, 57(2), 123–146.
- Maciejasz-Swiatkiewicz, M., & Poskart, R. (2020). Cryptocurrency Perception Within Countries: A Comparative Analysis. *European Research Studies Journal*, XXIII(Issue 2), 186–203. <https://doi.org/10.35808/ersj/1588>
- Mnif, E., Jarboui, A., & Mouakhar, K. (2020). How the cryptocurrency market has performed during COVID 19? A multifractal analysis. *Finance Research Letters*, 36, 101647. <https://doi.org/10.1016/j.frl.2020.101647>
- Muhammad Auwal, A., Mohamed, Z., Nasir Shamsudin, M., Sharifuddin, J., & Ali, F. (2020). External pressure influence on entrepreneurship performance of SMEs: A case study of Malaysian herbal industry. *Journal of Small Business & Entrepreneurship*, 32(2), 149–171.
- Nakamoto, S. (2008). Bitcoin: A peer-to-peer electronic cash system.
- Nuryyev, G., Wang, Y. P., Achyldurdyeva, J., Jaw, B. S., Yeh, Y. S., Lin, H. T., & Wu, L. F. (2020). Blockchain technology adoption behavior and sustainability of the business in tourism and hospitality SMEs: An empirical study. *Sustainability (Switzerland)*, 12(3). <https://doi.org/10.3390/su12031256>
- Pan, Y., Nam, T., Ogara, S., & Lee, S. (2013). Adoption model of mobile-enabled systems in supply chain. *Industrial Management & Data Systems*.
- Patterson, P. G., & Smith, T. (2003). A cross-cultural study of switching barriers and propensity to stay with service providers. *Journal of Retailing*, 79(2), 107–120.
- Premkumar, G., Ramamurthy, K., & Crum, M. (1997). Determinants of EDI adoption in the transportation industry. *European Journal of Information Systems*, 6(2), 107–121.
- Ramayah, T., Rahman, S. A., & Ling, N. C. (2018). How do consumption values influence online purchase intention among school leavers in Malaysia? *Revista Brasileira de Gestao de Negocios*, 20(4), 638–654. <https://doi.org/10.7819/rbgn.v0i0.3139>
- Putri, D. E., Ilham, R. N., Sinurat, M., Lilinesia, L., & Saragih, M. M. S. (2021). Analysis of Potential and Risks Investing in Financial Instruments and Digital Cryptocurrency Assets during the Covid-19 Pandemic. *Jurnal SEKURITAS (Saham, Ekonomi, Keuangan dan Investasi)*, 5(1), 1-12.
- Saleh, A.-H. A. I., Ibrahim, A. A., Noordin, M. F., & Mohadis, H. M. (2020). Factors Influencing Adoption of Cryptocurrency-Based Transaction from an Islamic Perspective. *Global Journal of Computer Science and Technology*.
- Saleh, A.-H. A. I., Ibrahim, A. A., Noordin, M. F., & Mohadis, H. M. (2020). Islamic Approach Toward Purification Of Transaction With Cryptocurrency. *Journal of Theoretical and Applied Information Technology*, 98(06).

- Salem, M. A., & Md Nor, K. (2020). The Effect Of COVID-19 On Consumer Behaviour In Saudi Arabia: Switching From Brick And Mortar Stores To E-Commerce. *International Journal of Scientific & Technology Research*, 9(August), 7. Retrieved from www.ijstr.org
- Sánchez, M., López-Mosquera, N., Lera-López, F., & Faulin, J. (2018). An extended planned behavior model to explain the willingness to pay to reduce noise pollution in road transportation. *Journal of Cleaner Production*, 177, 144–154.
- Schaupp, L. C., & Festa, M. (2018). Cryptocurrency adoption and the road to regulation. *ACM International Conference Proceeding Series*, 1–9. <https://doi.org/10.1145/3209281.3209336>
- Shareef, M. A., Kumar, V., Kumar, U., & Dwivedi, Y. K. (2011). e-Government Adoption Model (GAM): Differing service maturity levels. *Government Information Quarterly*, 28(1), 17–35.
- Sharma, N., & Patterson, P. G. (2000). Switching costs, alternative attractiveness and experience as moderators of relationship commitment in professional, consumer services. *International Journal of Service Industry Management*.
- Shi, H., Wang, S., & Zhao, D. (2017). Exploring urban resident's vehicular PM2. 5 reduction behavior intention: An application of the extended theory of planned behavior. *Journal of Cleaner Production*, 147, 603–613.
- Straub, D., Boudreau, M.-C., & Gefen, D. (2004). Validation guidelines for IS positivist research. *Communications of the Association for Information Systems*, 13(1), 24.
- Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, 6(2), 144–176.
- Tommasetti, A., Singer, P., Troisi, O., & Maione, G. (2018). Extended theory of planned behavior (ETPB): investigating customers' perception of restaurants' sustainability by testing a structural equation model. *Sustainability*, 10(7), 2580.
- Urbach, N., & Ahlemann, F. (2010). Structural Equation Modeling in Information Systems Research Using Partial Least Squares. *Journal of Information Technology Theory and Application*, 11(2), 5–40.
- Zubir, A. S., Awi, N. A., Ali, A., Mokhlis, S., & Sulong, F. (2020). Doing Business using Cryptocurrency in Malaysia. *International Journal of Management and Humanities*, 4(9), 148–157. <https://doi.org/10.35940/ijmh.i0899.054920>