An Islamic point of view of cryptocurrency investment: Generations z fear of missing out (FOMO) and their personal traits as traders

Nurul Widyawati Islami Rahayu[1*], Hepni[1], Fauzan[1], Djoko Poernomo[1], Dafik[2,3], Indah Lutfiyatul Mursyidah[3], Excelsa Suli Wildhatul Jannah[3]
[1]Department of Islamic Banking, UIN Kiai Achmad Shiddiq Jember, Jember, Indonesia;
nurulwidya.febi@uinkhas.ac.id (N.W.I.R.) hepni@uinkhas.ac.id (H.) fauzan@uinkhas.ac.id (F.) djoko-poernomo.fisip@unej.ac.id (D.P.)
[2]Department of Mathematics, University of Jember, Indonesia; d.dafik@unej.ac.id (D.)
[3]PUI-PT Combinatorics and Graph, CGANT-University of Jember, Indonesia; mursyidahindah6@gmail.com (I.L.M.)
excelsawildhatul@gmail.com (E.S.W.J.)

Abstract: The rise of cryptocurrency has sparked a global financial revolution, captivating the interest of various demographics, including the digitally savvy Generation Z. This study explores the Islamic perspective on cryptocurrency investment, focusing particularly on the intersection of Generations Z Fear of Missing Out (FoMO) and their personal traits of traders. Within Islamic finance, which emphasizes ethical investing and prohibits speculative activities akin to gambling, cryptocurrency presents a unique challenge. The rapid appreciation of digital currencies and the pervasive influence of social media amplify FoMO among young investors, driving them to partake in high-risk ventures. This behavioral inclination often conflicts with Islamic principles, which advocate for risk-sharing and tangible asset-backed transactions. The study delves into how Generations Z psychological predispositions, such as overconfidence, risk tolerance, and the allure of quick gains, align or clash with Islamic ethical standards. It examines the potential for educational interventions to reconcile these differences by promoting financial literacy that aligns with Sharia law. Additionally, the study addresses the broader implications of these trends on the development of Islamic financial products tailored to digital assets, aiming to bridge the gap between religious adherence and modern investment opportunities. This research highlights the necessity for a nuanced understanding of Generations Z investment motivations and the importance of integrating Islamic ethical considerations into the evolving landscape of cryptocurrency. The method used in this study is a mixed method, namely a combination of quantitative and qualitative methods. The quantitative method is used to analyze multi-time series forecasting on Generations Z fear of missing out (FoMO) and their personal traits as traders. While the qualitative method is used to analyze the results of an in-depth interview and find the potential conflicts with Islamic principles advocating for minimum transaction risk and for the use tangible asset-backed transactions. The results suggest that generation Z becomes more immersed in digital and social media landscapes, their susceptibility to FoMO intensifies, driving more frequent and sometimes impulsive trading behaviours. Concurrently, as these young investors gain more experience and exposure to the cryptocurrency market, their personal traits such as risk tolerance, adaptability, and tech-savviness also evolve, potentially leading to more sophisticated trading strategies. However, these practices conflict with Islamic point of view.

Keywords: Cryptocurrency investment, Fear of missing out (FoMO), Islamic point of view, Personal traits.

1. Introduction

Cryptocurrency is a type of digital or virtual currency that uses cryptography for security and operates independently of a central authority, such as a bank or government [1]. The decentralized nature of cryptocurrencies is facilitated by blockchain technology, a distributed ledger that records all transactions across a network of computers. Bitcoin, created in 2009 by an unknown person or group of people using the name Satoshi Nakamoto, was the first and remains the most well-known cryptocurrency. Since then, thousands of alternative cryptocurrencies have been developed, each with unique features and uses. Cryptocurrencies offer benefits such as lower transaction fees compared to traditional online payment systems, anonymity, and the potential for high returns on investment [2]. However, they also come with risks, including high volatility, regulatory uncertainty, and susceptibility to cyber-attacks. As the world becomes more digitized, cryptocurrencies continue to evolve, attracting interest from investors, technologists, and regulators alike.

Blockchain technology is the foundational framework that underpins cryptocurrencies, ensuring their decentralized and secure nature [3]. At its core, a blockchain is a distributed ledger that records all transactions across a network of computers, known as nodes. Each transaction is grouped into a block, which is then cryptographically linked to the previous block, forming a chain of blocks – hence the name "blockchain." This structure ensures that once a block is added, it cannot be altered without changing all subsequent blocks, making the blockchain highly resistant to tampering and fraud [4]. Consensus mechanisms like Proof of Work (PoW) or Proof of Stake (PoS) are employed to validate transactions and add new blocks, ensuring that all nodes agree on the current state of the ledger. This decentralized approach eliminates the need for a central authority, enhancing security and transparency. Blockchain technology not only powers cryptocurrencies like Bitcoin and Ethereum but also has potential applications in various fields, including supply chain management, healthcare, and finance, where secure, transparent, and tamper- proof record-keeping is essential.

Cryptocurrencies offer several advantages compared to the traditional fiat currencies, making them an increasingly attractive option for various financial activities [6]. One of the key benefits is the decentralized nature of cryptocurrencies, which eliminates the need for intermediaries such as banks and financial institutions, thus reducing transaction costs and processing times. Additionally, blockchain's transparency ensures that all transactions are publicly recorded and immutable, significantly reducing the risks of fraud and corruption [7]. Cryptocurrencies also provide enhanced security through cryptographic techniques, making it extremely difficult for unauthorized parties to alter transaction records. Furthermore, they offer financial inclusion to the unbanked or underbanked populations by providing access to financial services without the need for a traditional bank account. Unlike fiat currencies, which can be subject to inflation and government interference, cryptocurrencies often have a capped supply, potentially serving as a hedge against inflation. These factors, combined with the growing acceptance and integration of cryptocurrencies in various industries, position them as a promising alternative to conventional fiat currencies.

From an Islamic perspective, the existence of cryptocurrency raises several concerns that may render it counterproductive [8]. One major issue is the uncertainty and speculation (gharar) inherent in the cryptocurrency market, which can lead to extreme volatility and financial instability. Islamic finance principles emphasize stability and risk-sharing, discouraging investments that resemble gambling (maysir), which is often how speculative trading in cryptocurrencies is viewed. Additionally, the anonymity provided by many cryptocurrencies can facilitate illicit activities such as money laundering and financing terrorism, which contradicts the ethical and moral principles upheld in Islamic finance [9]. Furthermore, the lack of tangible backing and intrinsic value in cryptocurrencies challenges the Islamic requirement for assets to have intrinsic value and to be based on real economic activities. These factors contribute to the scepticism and cautious approach of many Islamic scholars and financial institutions towards the adoption and use of cryptocurrencies within the framework of Sharia law.

Cryptocurrency trading can be particularly perilous for Generation Z traders, who are often more susceptible to the psychological phenomenon known as Fear of Missing Out (FoMO) [10]. This intense

anxiety over the potential to miss out on lucrative investment opportunities can drive impulsive and irrational trading behaviours. Fuelled by the rapid dissemination of information and hype on social media platforms, young traders may make hasty decisions without fully understanding the risks involved. This can lead to significant financial losses, especially given the high volatility and speculative nature of the cryptocurrency market. Unlike traditional investments, where gradual accumulation of wealth and long-term strategies are common, the allure of quick gains in cryptocurrency can exacerbate FoMO, leading to a cycle of chasing trends and experiencing frequent disappointments [11]. Additionally, the relative lack of experience and financial literacy among younger traders further heightens their vulnerability, making it imperative for educational initiatives and robust risk management strategies to be emphasized within this demographic.

Fear of Missing Out (FoMO) is a psychological phenomenon characterized by the pervasive apprehension that others might be having rewarding experiences from which one is absent [12]. This feeling is often intensified by the extensive use of social media, where individuals are constantly exposed to the highlights of others' lives, leading to the perception that everyone else is enjoying life more fully. FoMO can manifest as anxiety, stress, and a compulsive desire to stay continually connected with what others are doing. This fear is not limited to social interactions but extends to various areas, including investment decisions, where it can drive individuals to make impulsive choices out of concern that they might miss lucrative opportunities. In the context of cryptocurrency trading, for instance, FoMO can prompt traders to hastily buy into a rising asset without adequate research or understanding, driven by the fear that they will miss out on potential profits. Over time, this behaviour can lead to poor decision-making, financial losses,

and decreased overall well-being. Understanding and mitigating FoMO involves recognizing its triggers, cultivating a more balanced view of others' activities, and developing a mindful approach to personal decision-making and social media use.

The main indicators of Fear of Missing Out (FoMO) include a constant need to check social media, feelings of anxiety when not connected to online networks, and a pervasive sense of dissatisfaction or envy when seeing others' activities and accomplishments [13]. Individuals experiencing FoMO often exhibit compulsive behaviour, such as frequently refreshing their social media feeds or joining trends without genuine interest, driven by the fear that they are being left out. This can lead to impulsive decision-making, particularly in areas like investments or social plans, as they seek to keep up with perceived opportunities. Emotional symptoms like stress, loneliness, and a diminished sense of self-worth are also common, as individuals compare their own lives unfavourably against the curated and often idealized portrayals of others. Recognizing these indicators is crucial for addressing FoMO and fostering a healthier, more balanced approach to social interactions and personal achievements.

Fear of Missing Out (FoMO) is particularly prevalent among Generation Z. It is due to several key factors. This generation, born between the mid-1990s and early 2010s, has grown up in an era dominated by social media and digital connectivity [14]. Platforms like Instagram, Snapchat, and TikTok play a significant role in their daily lives, creating constant exposure to the curated highlights of others' experiences. This perpetual stream of social media updates fosters a sense of comparison and inadequacy, as individuals perceive that they are missing out on exciting events, achievements, or opportunities that others are enjoying. Additionally, Generation Z tends to place a high value on social validation and belonging, which can exacerbate feelings of exclusion when they are not part of trending activities or conversations. The fear of being left out or not keeping up with peers drives them to stay constantly connected, often at the expense of their mental health and well-being. Research indicates that this heightened connectivity and the pressure to present an idealized online persona contribute significantly to anxiety, stress, and the pervasive experience of FoMO among young people. Here are some indicators and sub-indicators of FoMO can be seen in Table 1. These indicators and sub-indicators can be used to assess the presence and intensity of FoMO in individuals, especially in the context of how it influences their behaviour and decision-making processes.

Table 1.
Historical thinking skill indicators.

No.	Indicators	Sub Indicators
1	Social media engagement	Frequency of checking social media Engagement in online activities
2	Social comparison	Comparing lives with others Perceived social pressure
3	Emotional responses	Anxiety and stress Negative emotions
4	Behavioral impacts	Impulsivity Changes in routine
5	Communication patterns	Constant connectivity Seeking validation
6	Cognitive aspects	Preoccupation with others' activities Difficulty focusing

Generations Z susceptibility to Fear of Missing Out (FoMO) can make cryptocurrency trading activities particularly hazardous for them, and it also create conflicts with Islamic principles [15]. This generations constant engagement with social media exposes them to the perpetual highlights of others' lives, intensifying their fear of missing out on potential gains in volatile markets like cryptocurrencies. This psychological pressure can drive impulsive trading decisions, often based on hype and trends rather than informed analysis, leading to significant financial losses. The speculative nature of such trading resembles gambling, which is discouraged in Islamic finance due to its emphasis on risk-sharing and ethical investment. Furthermore, the volatility and uncertainty in cryptocurrency markets contradict the Islamic prohibition against gharar (excessive uncertainty) in financial transactions. The anonymity and potential misuse of cryptocurrencies for illicit activities also raise ethical concerns in Islamic teachings. These factors together make cryptocurrency trading a risky endeavour for Generation Z, exacerbating their FoMO- driven behaviours while conflicting with Islamic financial principles.

Apart from FoMO, the personal traits of Generations Z traders significantly influence their approach to cryptocurrency trading, often leading to heightened risks [16]. This generation, characterized by their digital nativeness and constant connectivity, tends to exhibit traits such as impulsivity, a desire for instant gratification, and a high tolerance for risk. These attributes can drive them to make swift trading decisions without thorough research or consideration of long-term consequences, often based on fleeting social media trends and peer influences. The desire to quickly capitalize on perceived opportunities can lead to substantial financial losses, especially in the highly volatile cryptocurrency market. Additionally, Generations Z traders often rely heavily on social media for information and advice, where misinformation and hype can be rampant. This reliance can skew their perceptions and strategies, making them more susceptible to market manipulations and speculative bubbles. Their inherent trust in digital platforms,

coupled with a competitive and comparison-driven mindset, further exacerbates the pressures to succeed quickly, reinforcing risky trading behaviours.

Moreover, the psychological effects of FoMO can amplify these tendencies, pushing them to engage in high-stakes trading to avoid feeling left out of potential gains [17]. These behaviours not only lead to financial instability but also conflict with the principles of prudent and ethical financial conduct, which are emphasized in many traditional financial systems, including Islamic finance. This clash arises because Islamic finance discourages excessive risk-taking (gharar) and speculative activities (maysir), promoting instead a balanced and ethical approach to wealth generation and investment. The main indicators of personal traits as traders, especially among Generation Z, include impulsivity, risk tolerance, reliance on digital information sources, and a desire for instant gratification [18]. Impulsivity

is evident in their tendency to make quick trading decisions without thorough analysis, driven by the fast-paced and ever-changing nature of digital environments. Their high-risk tolerance allows them to engage in volatile markets like cryptocurrencies, where they are more willing to take chances in hopes of achieving substantial returns. This generations deep reliance on social media and online platforms for financial information and trading advice often leads to decisions based on trends and peer influence rather than solid financial principles. Additionally, the desire for instant gratification is a significant trait, reflecting their preference for quick profits over long-term investment strategies. This can be problematic in cryptocurrency trading, where market dynamics require careful analysis and patience. Furthermore, Generations Z competitiveness and tendency to compare themselves with others can exacerbate these traits, as they strive to keep up with or surpass their peers in financial success. These indicators collectively shape their trading behaviours, making them more vulnerable to market volatility and speculative bubbles, and can conflict with the principles of prudent and ethical financial conduct. This research divides personal traits into two parts, namely bright personality traits and dark personality traits. Table 2 shows the indicators and sub- indicators of bright personality traits. Table 3 shows the indicators and sub-indicators of dark personality traits. Table 4 shows the indicators and sub-indicators of trading behaviour.

Table 2.
Indicators and sub indicators of bright personality traits.

No.	Indicators	Sub Indicators
1	Honesty in transactions	Ensuring transparency in all trading transactions. Avoiding manipulation of information for personal gain. Trading with integrity.
2	Humility in success	Avoiding excessive boasting about trading successes Valuing input from others regarding trading strategies
3	Risk Tolerance	Ready to take risks in investments Comfortable with the volatility of the cryptocurrency market Seizing opportunities for significant profits
4	Dependence on digital information sources	Using social media and online platforms. Making decisions based on trends and peer influence. Depending on digital information rather than solid financial principles.

Table 3.
Indicator and sub indicator of dark personality traits.

No	Indicators	Sub indicators
		the Islamic value of honesty.
		Prioritizing self-interest over community welfare, contrary to Islamic teachings of altruism.
2.	Narcissism	Believing oneself to be superior to others, which is contrary to the Islamic teaching of humility.
		Seeking praise and recognition excessively, which Islam discourages in favour of modesty.
3.	Psychopathy	No feelings of guilt or remorse, conflicting with the Islamic principle of compassion.
		Impulsive behaviour and disregard for social norms, which Islam advises against in favour of thoughtful and respectful conduct.
4.	Risk-taking	Taking significant risks in dangerous situations, which Islam advises caution against.

		Lack of consideration for consequences, which goes against the Islamic teaching of prudence and foresight.
5.	Impulsivity	Making hasty decisions, which Islam discourages in favour of careful deliberation.
		Acting on impulse, which contradicts the Islamic principle of self-control.

Table 4.
Indicators and sub indicators of trading behaviour

No.	Indicators	Sub Indicators
1.	Market analysis skills	Conducting technical analysis using charts and indicators.
		Understanding fundamental analysis, including economic reports and news impacts.
		Utilizing quantitative methods for predicting market movements.
2.	Investment strategy development	Developing a diversified portfolio to mitigate risk.
		Regularly reviewing and adjusting strategies based on performance.
3.	Regulatory compliance	Following legal requirements in different markets.
		Ensuring transparency and ethical behaviour in trading activities.
		Staying updated on regulatory changes and their implications.
4.	Long-term planning and vision	Setting long-term investment targets.
No.	Indicators	Sub Indicators
5.	Decision-making under pressure	Aligning short-term actions with long-term objectives. Monitoring progress towards financial independence. Evaluating risk vs. reward quickly and accurately.
		Maintaining composure during market volatility.

Numerous studies have explored cryptocurrency trading from an Islamic perspective, addressing the legality and ethical considerations under Sharia law, as well as the psychological traits of traders, such as the fear of missing out (FoMO) and risk-taking behaviours akin to gambling. However, these studies often lack a multi-step time series forecasting approach to predict these behaviours over time. Such forecasting could provide valuable insights into how these psychological traits evolve and influence trading activities. This gap in research highlights the need for advanced predictive models to understand and anticipate the dynamics of risk-taking and FoMO in cryptocurrency trading, particularly within the context of Islamic financial principles.

Based on this fact, our research questions are as follows: (1) Can multi-time series forecasting predict Generations Z fear of missing out (FoMO) and their personal traits as cryptocurrency traders? (2) What do the phase portraits of Generations Z fear of missing out (FoMO) and their personal traits as cryptocurrency traders look like? (3) Do Generations Z fear of missing out (FoMO) and their personal traits as cryptocurrency traders resemble gambling (maysir)?

2. Methods

2.1. Research Framework

We analyze the application of bright personality traits and dark personality traits in influencing FoMO and trading behaviour. The indicators in this study include bright personality traits, dark personality traits, FoMO, and trading behaviour indicators. The research framework can be seen in
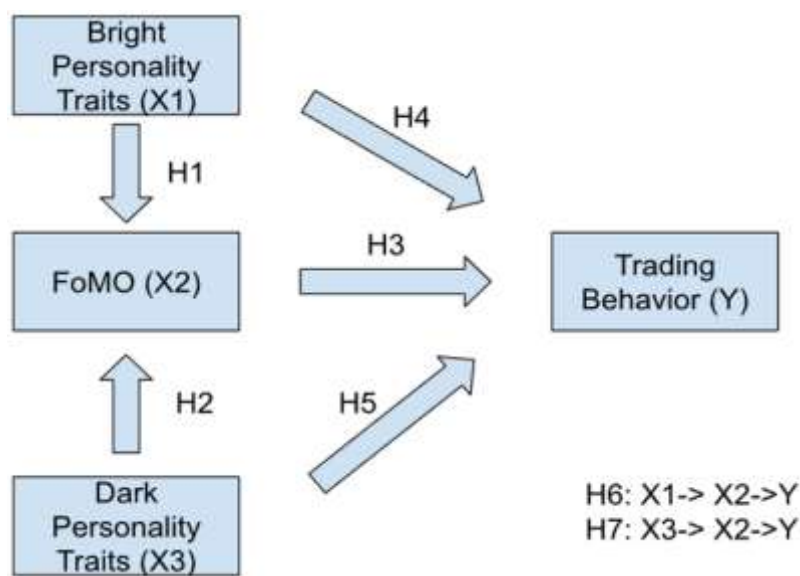
Figure 1.

Figure 1.
Research framework.

2.2. Research Method

This research uses descriptive qualitative research, which aims to explore and understand Islamic views on cryptocurrency investment, as well as identify the phenomenon of Fear of Missing Out (FoMO) and the personal characteristics of generation Z as traders. Qualitative descriptive research is suitable for uncovering the perspectives and experiences of individuals, as well as how they understand and interact with the phenomenon under study. This method allows researchers to gain in-depth insight into the context and meaning behind participants' experiences. The approach used in this research is phenomenological. The phenomenological approach aims to understand the subjective experiences and perceptions of Generation Z towards cryptocurrency investment from an Islamic perspective. By focusing on direct experiences and personal perceptions, this approach allows the researcher to capture the essence of the participants' lived experiences. Through this approach, the researcher can explore how FoMO and their personal characteristics influence their trading decisions in the context of Islamic values.

The research procedure involved several key stages. First, the selection of participants was done by purposive sampling, by selecting a class of students who were expected to have basic knowledge of cryptocurrencies and be representative of generation Z. This selection aimed to obtain participants who were relevant to the research topic. This selection aimed to obtain participants who were relevant to the research topic.

The next stage is the development of a questionnaire designed to collect data on Islamic views towards cryptocurrency investment, FoMO experience, and personal characteristics as a trader. The questionnaire will consist of both open and closed questions to capture both qualitative and quantitative data, allowing the researcher to obtain comprehensive information. Once the questionnaire has been completed, the next step is the distribution of the questionnaire to participants in one class session. The researcher will explain the purpose of the study and provide instructions on how to complete the questionnaire, ensuring that participants understand the process and provide honest and informative answers.

Once the questionnaires are collected, the data will be analyzed qualitatively to identify key themes that emerge from the participants' answers. This analysis process involves coding the data and grouping

relevant themes, allowing the researcher to find patterns and meaning in the collected data. To ensure the validity and reliability of the data, the researcher will triangulate the data by using other data sources, such as in-depth interviews with several participants and analysis of related literature. This triangulation aims to strengthen the research findings and ensure that the results obtained are accurate and reliable.

The results of the research will be compiled in the form of a report that outlines the main findings on Islamic views on cryptocurrency investment, the influence of FoMO, and the personal characteristics of generation Z as traders. The report will also provide recommendations for further research and practical implications of the research findings, making a meaningful contribution to the understanding of cryptocurrency investment in Islamic perspective and generation Z behaviour.

2.3. Research Subject

The subjects of this study were students of the Department of Economics and Islamic Business, UINKHAS, Jember, Indonesia. The sample in this study used two classes, each class consisted of 41 and 44 students. The respondents were students who took the course of Shariah Financial Management. This sample selection was approved by the Research Ethics Committee - Faculty of Economics and Islamic Business, UINKHAS, Jember, Indonesia. The sample selection uses proportional random sampling to determine each class by considering the research proposal that has been reviewed by an independent ethics committee, namely the Research Ethics Committee - Faculty of Economics and Islamic Business, UINKHAS. All collected data will be analyzed using Matlab, Python, NVivo, and Smart-PLS applications.

2.4. Data Collection and Instrument

Fear of Missing Out (FoMO) was measured using a 12-item questionnaire administered to 85 respondents. This assessment uses a Likert scale model with 4 alternative answers, where the highest score is (4 x 12) = 48 possibilities and the lowest score is (1 x 12) = 12 possibilities. The questionnaire in this study was distributed online using Google Forms. The final instrument was an interview text related to students' Fear of Missing Out (FoMO) and their personal traits as traders.

2.5. Data Analysis Procedure

The data analysis method uses in-depth interviews to triangulate the results of data analysis [19]. The selection of students to be interviewed is based on the results of the Fear of Missing Out (FoMO) questionnaire and their personal characteristics as traders. One student from the low-level group, one student from the medium level group, and one student from the high-level group. The results of the interview are in the form of phase portraits. This phase portrait is used to conduct an in-depth meta-analysis regarding Fear of Missing Out (FoMO) and his personal characteristics as a trader. The phase portrait procedure begins by selecting students from three levels of Fear of Missing Out (FoMO), namely low FoMO, medium FoMO, and high FoMO. The subjects' responses are recorded and compared using interview cards. These cards are derived from the Fear of Missing Out (FoMO) sub-indicator by assigning a specific code to the back of the card. Once the interviewer knows the logical response, the interviewer develops relationships between sub-indicators, represented by nodes and edges, to create a portrait of the student's Fear of Missing Out (FoMO) phase. Researchers also analyzed the use of NVivo software to explore students' perceptions of this activity. Smart-PLS to test hypotheses among latent variables in research.

3. Result of Research

3.1. Portrait Phase Analysis

A phase portrait depicts a person's thought process in the form of an illustration or diagram. In this study, students' phase portraits were constructed from indicators and sub-indicators of Generations Z Fear of Missing Out (FoMO) and their personal traits as traders. Student 1's (M1) response shows the

questionnaire results indicating a high FoMO category. Figure 2(a) visually depicts the FoMO pattern of students in the high category, while Figure 2(b) shows the one-dimensional adjacency matrix of the graphical representation. The phase portrait serves as a visual tool for understanding and analyzing individual thinking patterns in a given situation. In this context, these FoMO patterns help provide a comprehensive understanding of the dynamics of cryptocurrency investment among Generation Z from an Islamic perspective, focusing on the emotional aspects (FoMO) and personal characteristics of investors. The questionnaire results provide insight into the FoMO analysis of these students, and the adjacency matrix helps identify the relationship and proximity between elements in the graphical representation.
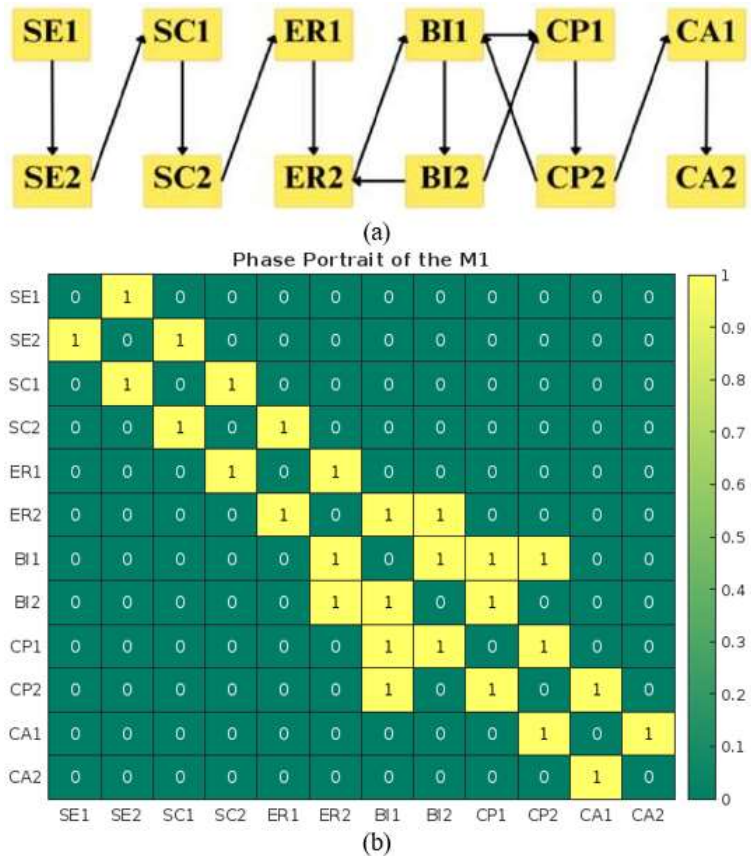

Figure 2.
(a) Graph representation of M1, (b) Adjacency matrix of distance 1 of M1.

Then, we analyzed the total depth (TD), average depth (MD), relative asymmetry (RA), and apparent relative asymmetry (RRA) of M1's flow of thought. This analysis allows us to evaluate Fear of Missing Out (FoMO) through the perspective of furrow configuration. Total depth (TD) refers to the sum of the path lengths of the observed sub-indicators. Average depth (MD) is calculated as TD divided by n-1, relative asymmetry (RA) is calculated as 2(MD-1) divided by n-2, global asymmetry (GL) is given by 2L(L) 1/2-2L + 1(L-1) (L-2), and apparent relative asymmetry (RRA) is determined as RA divided by GL. These formulas result in the distribution of values presented in Table 5. In Table 5, it can be seen that sub-indicator BI1 has an RRA value of 0.96. The RA value for this sub-indicator is considered optimal because a lower RRA value, as long as it is not negative, indicates higher integrity and is considered good. This indicates that sub-indicator BI1 is the most frequently used sub-indicator in answering the questions presented in the questionnaire.

By examining these metrics, we gain a comprehensive understanding of how students navigate and integrate Fear of Missing Out (FoMO). Total depth measures the level of engagement across different Fear of Missing Out (FoMO) indicators, while average depth provides the average level of that engagement. Relative asymmetry highlights variations and imbalances in student responses, and apparent relative asymmetry provides a better view by considering the overall configuration. Thus, this multi- faceted analysis provides a deeper insight into students' Fear of Missing Out (FoMO) to understand the extent to which this Fear of Missing Out affects their lives, both academically and socially.

Table 5.
TD, MD, RA, and RRA values of m1 phase portrait.

No.	Sub indicator	TD	MD	RA	RRA	No.	Sub indicator	TD	MD	RA	RRA
1.	SE1	65	5.90	0.98	2.90	7.	BI1	29	2.63	0.32	0.96
2.	SE2	54	4.90	0.78	2.31	8.	BI2	41	3.72	0.54	1.61
3.	SC1	45	4.09	0.61	1.83	9.	CP1	62	5.63	0.92	2.74
4.	SC2	38	3.45	0.49	1.45	10	CP2	36	3.27	0.45	1.34
5.	ER1	33	3.00	0.40	1.18	11.	CA1	45	4.09	0.61	1.83
6.	ER2	30	2.72	0.34	1.02	12.	CA2	56	5.09	0.81	2.42

Next, we look at the phase portrait of Student M2, who has a moderate level of Fear of Missing Out (FoMO). Figure 3(a) shows a graphical representation of Student M2's thought flow, while Figure 3(b) shows the one-dimensional adjacency matrix corresponding to the graphical representation. Analyzing these figures allows us to understand how M2 students navigate the Fear of Missing Out (FoMO), providing insight into their cognitive patterns and the integrity of the Fear of Missing Out (FoMO). The frequent crossing of certain sub-indicators highlights important areas in their thought process, which is essential for the effectiveness of their questionnaire results.
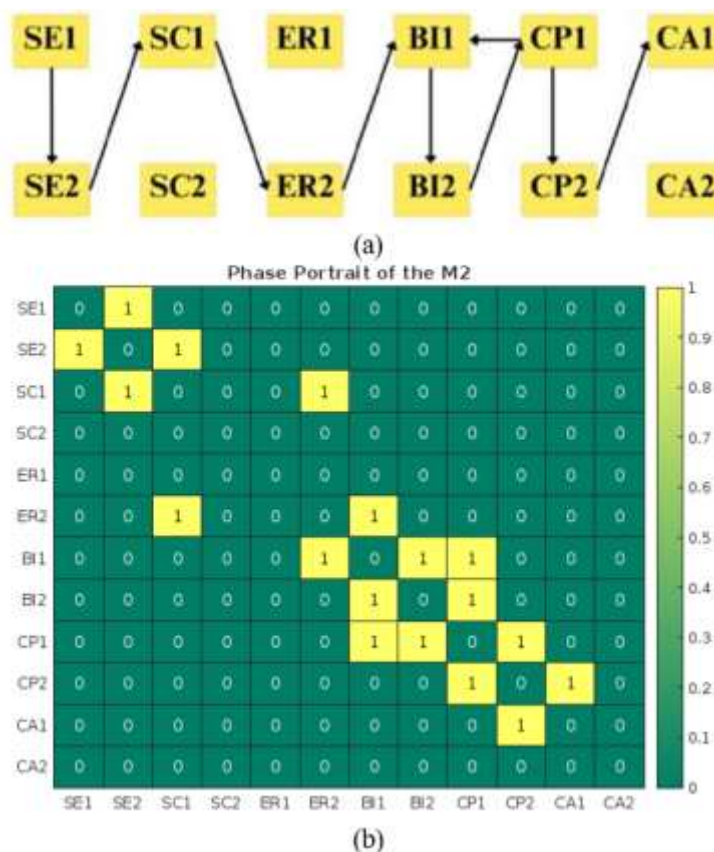
Figure 3.
(a) Graph representation of M2, (b) Adjacency matrix of distance 1 of M2.

We analyzed the total depth (TD), average depth (MD), relative asymmetry (RA), and apparent relative asymmetry (RRA) of M2's flow of thought. This analysis allows us to evaluate Fear of Missing Out (FoMO) through the perspective of furrow configuration. Total depth (TD) refers to the sum of the path lengths of the observed sub-indicators. Average depth (MD) is calculated as TD divided by n-1, relative asymmetry (RA) is calculated as 2(MD-1) divided by n-2, global asymmetry (GL) is given by $2L(L) 1/2-2L + 1(L-1)(L-2)$, and apparent relative asymmetry (RRA) is determined as RA divided by GL. These formulas result in the distribution of values presented in Table 6. In Table 6, it can be seen that sub-indicator BI1 has an RRA.

value of 0.9. The RA value for this sub-indicator is considered optimal because a lower RRA value, as long as it is not negative, indicates higher integrity and is considered good. This indicates that sub-indicator BI1 is the most frequently used sub-indicator in answering the questions presented in the questionnaire.

By examining these metrics, we gain a comprehensive understanding of how students navigate and integrate Fear of Missing Out (FoMO). Total depth measures the level of engagement across different Fear of Missing Out (FoMO) indicators, while average depth provides the average level of that engagement. Relative asymmetry highlights variations and imbalances in student responses, and apparent relative asymmetry provides a better view by considering the overall configuration. Thus, this multi-faceted analysis provides a deeper insight into students' Fear of Missing Out (FoMO) to understand the extent to which this Fear of Missing Out affects their lives, both academically and socially.

Table 6.
TD, MD, RA, and RRA values of M2 phase portrait.

No	Sub indicator	TD	MD	RA	RRA	No.	Sub indicator	TD	MD	RA	RRA
1.	SE1	33	4.12	0.89	2.5	6.	BI2	21	2.62	0.46	1.3
2.	SE2	26	3.25	0.64	1.8	7.	CP1	19	2.37	0.39	1.1
3.	SC1	21	2.62	0.46	1.3	8.	CP2	24	3.00	0.57	1.6
4.	ER2	18	2.25	0.35	1.0	9.	CA1	31	3.87	0.82	2.3
5.	BI1	17	2.12	0.32	0.9						

Next, we look at the phase portrait of Student M2, who has a moderate level of Fear of Missing Out (FoMO). Figure 4(a) shows a graphical representation of Student M3's thought flow, while Figure 4(b) shows the one-dimensional adjacency matrix corresponding to the graphical representation. Analyzing these figures allows us to understand how M3 students navigate the Fear of Missing Out (FoMO), providing insight into their cognitive patterns and the integrity of the Fear of Missing Out (FoMO). The frequent crossing of certain sub-indicators highlights important areas in their thought process, which is essential for the effectiveness of their questionnaire results.
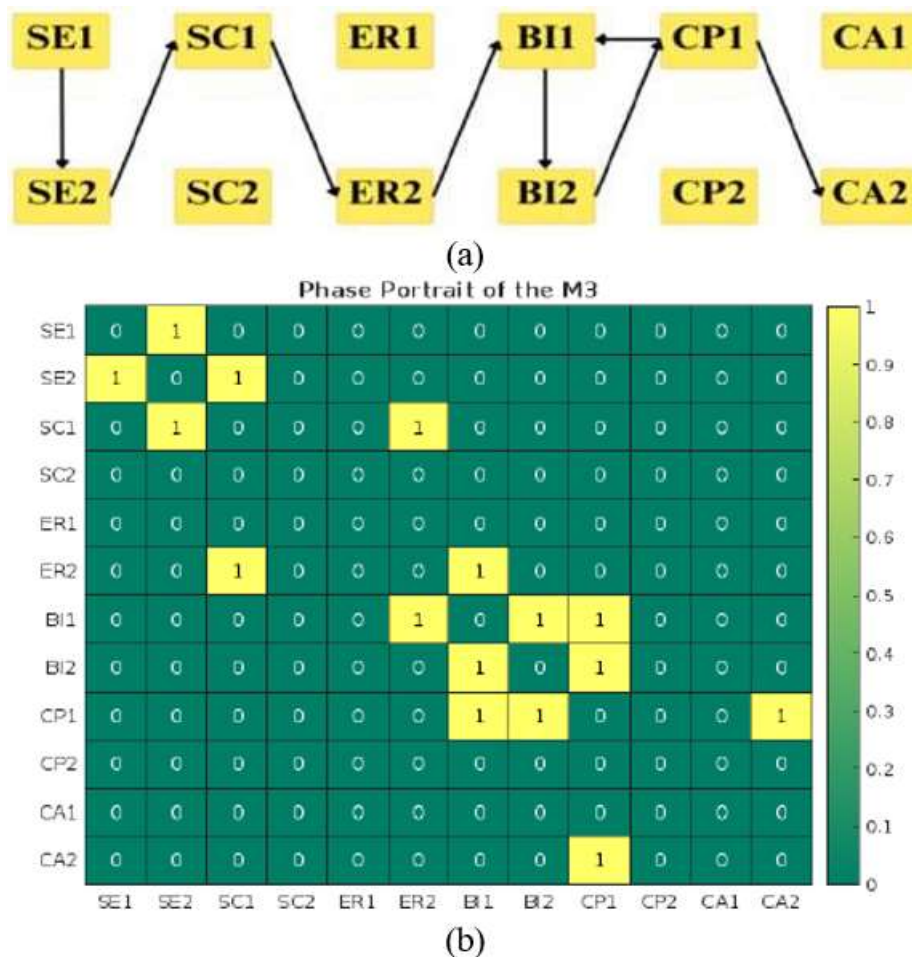

Figure 4.
(a) Graph representation of M3, (b) Adjacency matrix of distance 1 of M3.

We analyzed the total depth (TD), average depth (MD), relative asymmetry (RA), and apparent relative asymmetry (RRA) of M3's flow of thought. This analysis allows us to evaluate Fear of Missing Out (FoMO) through the perspective of furrow configuration. Total depth (TD) refers to the sum of the path lengths of the observed sub-indicators. Average depth (MD) is calculated as TD divided by n-1, relative asymmetry (RA) is calculated as 2(MD-1) divided by n-2, global asymmetry (GL) is given by 2L (L) 1/2-2L + 1(L-1) (L-2), and apparent relative asymmetry (RRA) is determined as RA divided by GL. These formulas result in the distribution of values presented in Table 7. In Table 7, it can be seen that sub-indicator ER2 and BI1 have an RRA value of 0.91. The RA value for this sub-indicator is considered optimal because a lower RRA value, as long as it is not negative, indicates higher integrity and is considered good. This indicates that sub-indicator ER2 and BI1 is the most frequently used sub-indicator in answering the questions presented in the questionnaire.

By examining these metrics, we gain a comprehensive understanding of how students navigate and integrate Fear of Missing Out (FoMO). Total depth measures the level of engagement across different Fear of Missing Out (FoMO) indicators, while average depth provides the average level of that engagement. Relative asymmetry highlights variations and imbalances in student responses, and apparent relative asymmetry provides a better view by considering the overall configuration. Thus, this multi- faceted analysis provides a deeper insight into students' Fear of Missing Out (FoMO) to understand the extent to which this Fear of Missing Out affects their lives, both academically and socially.

Table 7.
TD, MD, RA, and RRA values of M3 phase portrait.

No	Sub indicator	TD	MD	RA	RRA	No.	Sub	TD	MD	RA	RRA
1.	SE1	22	3.71	0.90	2.49	6.	BI1	14	2.00	0.33	0.91
2.	SE2	20	2.85	0.61	1.70	7.	BI2	18	2.57	0.52	1.44
3.	SC1	16	2.28	0.42	1.17	8.	CP1	17	2.42	0.47	1.31
4.	ER2	14	2.00	0.33	0.91	9.	CA2	23	3.28	0.76	2.09

3.2. NVivo Analysis

NVivo is a qualitative data analysis (QDA) software designed to help researchers organize, analyze, and find insights in unstructured or qualitative data such as interviews, open-ended survey responses, articles, social media, and web content. NVivo facilitates the coding of text and visual data, allowing researchers to identify patterns and themes, manage data, and generate visualizations such as word clouds, charts, and diagrams. It is particularly useful for handling large volumes of data, enabling a detailed and nuanced analysis that can inform conclusions and recommendations.

Figure 5 presents a word cloud generated using NVivo, visualizing the key themes and concepts extracted from a study on Generations Z Fear of Missing Out (FoMO) and their personal traits as cryptocurrency traders, viewed from an Islamic perspective. In this word cloud, the size of each word indicates its frequency or importance within the data set. The most prominent word in Figure 5 is "social," suggesting that social media significantly influences the FoMO experienced by young cryptocurrency traders. Social media platforms appear to be major sources of information and pressure, affecting their investment decisions. "Connectivity" also stands out, highlighting the critical role of constant connectivity via social media and online platforms in driving the FoMO phenomenon. Additionally, the frequent appearance of the word "engagement" indicates that active participation in social media and online communities is crucial in the trading activities of these individuals.

Figure 5.
Student interview word cloud.

The behavioral and emotional aspects of these traders are also emphasized in Figure 5. The word "impulsivity" points to a tendency among young traders to make quick, often irrational decisions influenced by FoMO. The terms "constant" and "checking" suggest habitual behaviors where traders frequently monitor their investments and market trends, driven by a fear of missing out on potential gains. The word "emotionally" underscores the emotional nature of their trading decisions, reflecting how emotions, rather than rational analysis, often guide their actions.

Furthermore, the impact of trading activities on daily routines is indicated by the word "routine." This suggests that trading activities disrupt regular routines, requiring significant time investment to stay updated with market movements. The combination of "high" and "activities" implies that these traders engage in trading with high frequency, indicating substantial time dedication to their trading endeavors. Figure 5 also highlights the comparative and validation aspects of their engagement. Words like "comparison" and "validation" hint at a comparative nature, where traders frequently compare their performance with others and seek validation through their successes or perceived status. Additionally, the presence of the word "negative" suggests an awareness of the downsides of their behaviors and the potential negative impacts on their mental health and well-being. Although less prominent, elements of stress and anxiety are likely inferred from the overall theme of the word cloud, reflecting the pressures associated with FoMO.

In conclusion, Figure 5 provides a clear visualization of the key themes and concepts related to Generations Z FoMO and personal traits as cryptocurrency traders from an Islamic perspective. The significant focus on social media, connectivity, engagement, and emotional impulsivity highlights the central factors influencing their trading behaviour. Understanding these aspects offers valuable insights for developing strategies to address the negative impacts and foster healthier trading practices within this demographic.
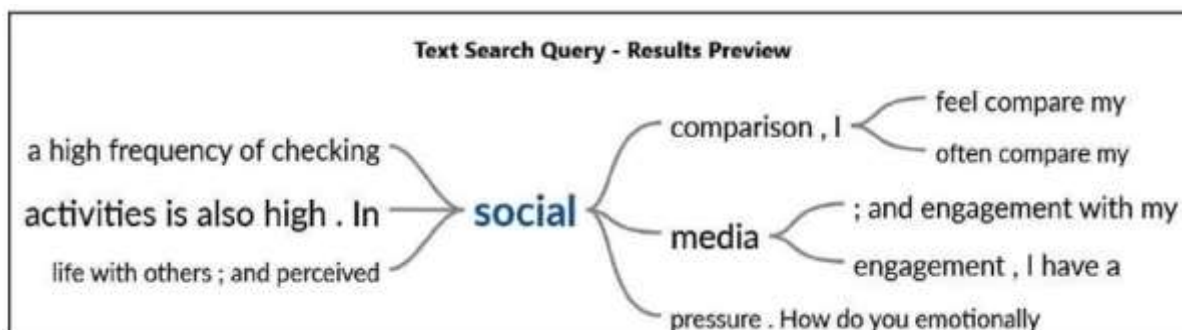
Figure 6.
Word tree.

Figure 6 is a text search query results preview from NVivo, centered around the term "social." The visualization resembles a word tree, showing how "social" is used within the text. The main node, "social," branches into various phrases, highlighting key themes related to social interactions and behaviours. One prominent theme is the high frequency of checking social activities, suggesting a compulsive behaviour associated with staying updated on social interactions. This frequent checking is tied to how individuals perceive their lives compared to others, reflecting a strong element of social comparison. Phrases like "comparison, I feel compare my" and "often compare my" emphasize that individuals regularly measure themselves against others, a common phenomenon on social media. Additionally, the word tree connects "social" with "media" and "engagement," underscoring the role of social media in personal interactions and the pressures it brings. The repeated focus on "engagement" indicates that social media interactions significantly impact users' emotions and perceptions. This is further highlighted by the mention of "pressure," suggesting that the emotional stress from social comparisons and constant engagement is a notable concern. Overall, the visualization illustrates that within the context of cryptocurrency investment and the Fear of Missing Out (FoMO), social interactions, especially via social media, play a crucial role in shaping individuals' perceptions, behaviours, and emotional well- being.
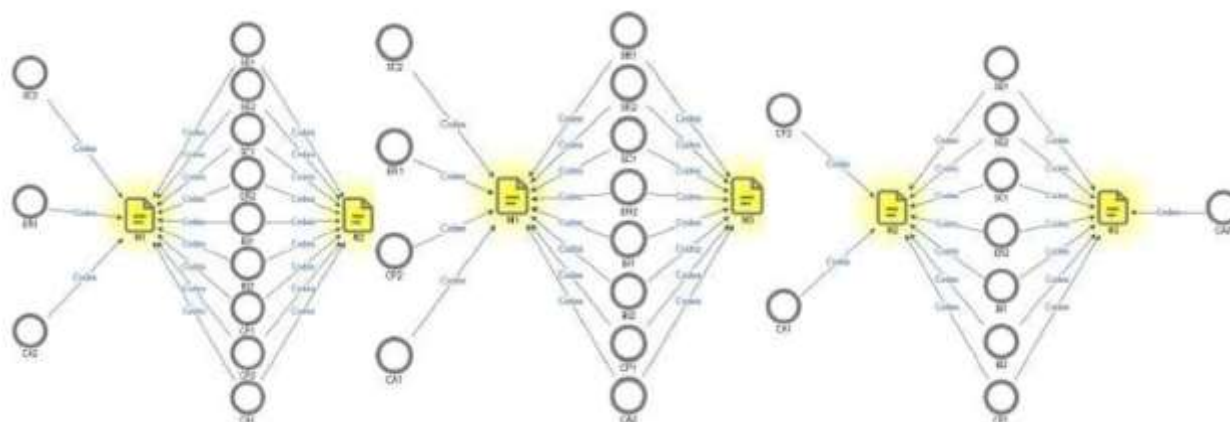

Figure 7.
Comparison between (a) M1 and M2, (b) M1 and M3, (c) M2 and M3.

Next, we will analyze the comparative data obtained from the three interviews. Comparative data is a valuable feature of NVivo. In Figure 7(a), we observe differences in sub-indicators between M1 and M2. Specifically, the sub-indicators SC2, ER1, and CA2 can only be achieved by M1. Figure 7(b) illustrates the specific sub-indicators that can be achieved by M1 compared to M3, where SC2, ER1,

CF2, and CA1 can only be achieved by M1. Similarly, Figure 7(c) shows the differences in sub-indicators that can be achieved by M2 and M3. Specifically, CF2 and CA1 can only be achieved by M2, whereas CA2 are sub-indicator that can only be achieved by M3. Finally, we analyze the overall student interview data and its relationship to the predetermined categories. Additionally, we will present the classification results from the interviews. Figure 8 shows the features of the NVivo Project Map. This project map is consistent with our previous analysis, indicating that M1 meets almost all sub-indicators, while P1 and P2 do not meet certain sub-indicators.
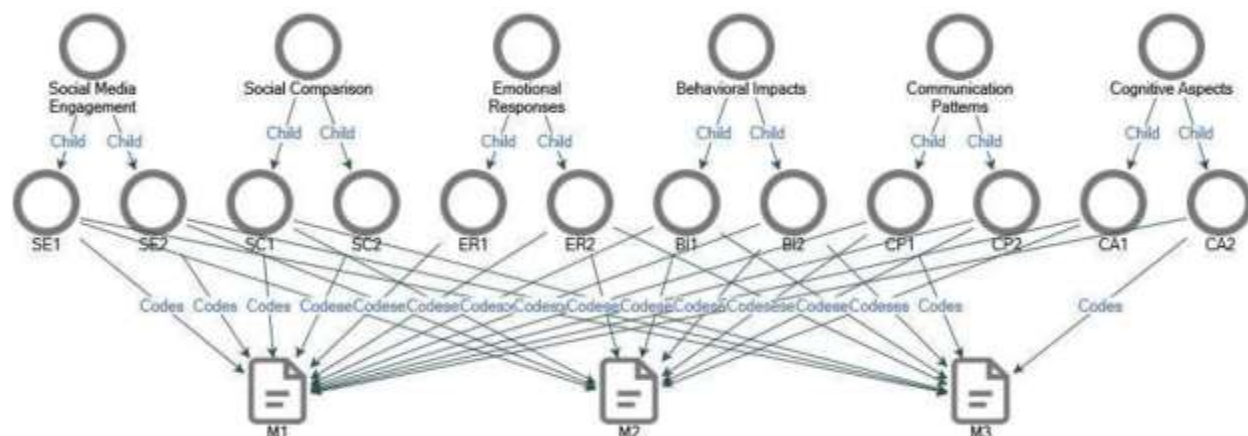

Figure 8.
Project map.

3.3. Smart-PLS Analysis

The conclusion analysis has determined that Smart-PLS will be used. In this study, we use several sub-indicators of latent variables. There are 11 sub-indicators of the latent variable from the Bright Personality Test (B), which are Ensuring transparency in all trading transactions (B1), Avoiding manipulation of information for personal gain (B2), Trading with integrity (B3), Avoiding excessive boasting about trading successes (B4), Valuing input from others regarding trading strategies (B5), Ready to take risks in investments (B6), Comfortable with the volatility of the cryptocurrency market (B7), Seizing opportunities for significant profits (B8), Using social media and online platforms (B9), Making decisions based on trends and peer influence (B10), and Depending on digital information rather than solid financial principles (B11).

Additionally, there are 12 sub-indicators of the latent variable Fear of Missing Out (F), which are Frequency of Checking social media (F1), Engagement in Online Activities (F2), Comparing Lives with Others (F3), Perceived Social Pressure (F4), Anxiety and Stress (F5), Negative Emotions (F6), Impulsivity (F7), Changes in Routine (F8), Constant Connectivity (F9), Seeking Validation (F10), Preoccupation with Others' Activities (F11), and Difficulty Focusing (F12). Then there are 13 sub-indicators of the latent variable Trading behaviour (T), which are Conducting technical analysis using charts and indicators (T1), Understanding fundamental analysis, including economic reports and news impacts (T2), Utilizing quantitative methods for predicting market movements (T3), Developing a diversified portfolio to mitigate risk (T4), Regularly reviewing and adjusting strategies based on performance (T5), Following legal requirements in different markets (T6), Ensuring transparency and ethical behaviour in trading activities (T7), Staying updated on regulatory changes and their implications (T8), Setting long-term investment targets (T9), Aligning short-term actions with long-term objectives (T10), Monitoring progress towards financial independence (T11), Evaluating risk vs. reward quickly and accurately (T12), and Maintaining composure during market volatility (T13).

Finally, there is the latent variable dark personality traits (D) consisting of 11 sub-indicators which are Using others for personal gain, which goes against Islamic principles of justice (D1), Deceiving

others to achieve objectives, conflicting with the Islamic value of honesty (D2), Prioritizing self-interest over community welfare, contrary to Islamic teachings of altruism (D3), Believing oneself to be superior to others, which is contrary to the Islamic teaching of humility (D4), Seeking praise and recognition excessively, which Islam discourages in favour of modesty (D5), No feelings of guilt or remorse, conflicting with the Islamic principle of compassion (D6), Impulsive behaviour and disregard for social norms, which Islam advises against in favour of thoughtful and respectful conduct (D7), Taking significant risks in dangerous situations, which Islam advises caution against (D8), Lack of consideration for consequences, which goes against the Islamic teaching of prudence and foresight (D9), Making hasty decisions, which Islam discourages in favour of careful deliberation (D10), Acting on impulse, which contradicts the Islamic principle of self-control (D11).

The first step is to apply the SEM-PLS algorithm to evaluate the feasibility of the model and the related indicators and sub- indicators for this research. As shown in Figure 9, the standardized algorithm will be assessed based on several elements including loading factor values, reliability, and average variance extracted (AVE). The loading factor value aims to confirm the convergent validity of each sub-indicator, which is considered strong if its value is above 0.7. The specific loading factor values are 0.733 for the Dark Personality Traits indicator (T), 0.814 for the FoMo indicator (F), 0.932 for the Bright Personality Traits indicator (B), and 0.98 for the trading behaviour indicator. A comprehensive presentation of the loading factor values, Cronbach's alpha reliability, composite reliability, and AVE is presented in Table 8. Utilizing Smart-PLS in this analysis enables researchers to employ the SEM-PLS algorithm for a thorough evaluation of the research model's feasibility and validity. This evaluation involves several key parameters, including loading factor values that indicate how strongly sub-indicators contribute to the main indicators. Convergent validity is confirmed when loading factor values exceed 0.7, signifying a high correlation between sub-indicators and their respective constructs. Furthermore, Cronbach's alpha and composite reliability measure the internal consistency of the indicators, while the Average Variance Extracted (AVE) shows the proportion of variance that the indicators capture compared to the error variance. This detailed methodology ensures the model's robustness and reliability, thereby providing a strong foundation for the research conclusions.
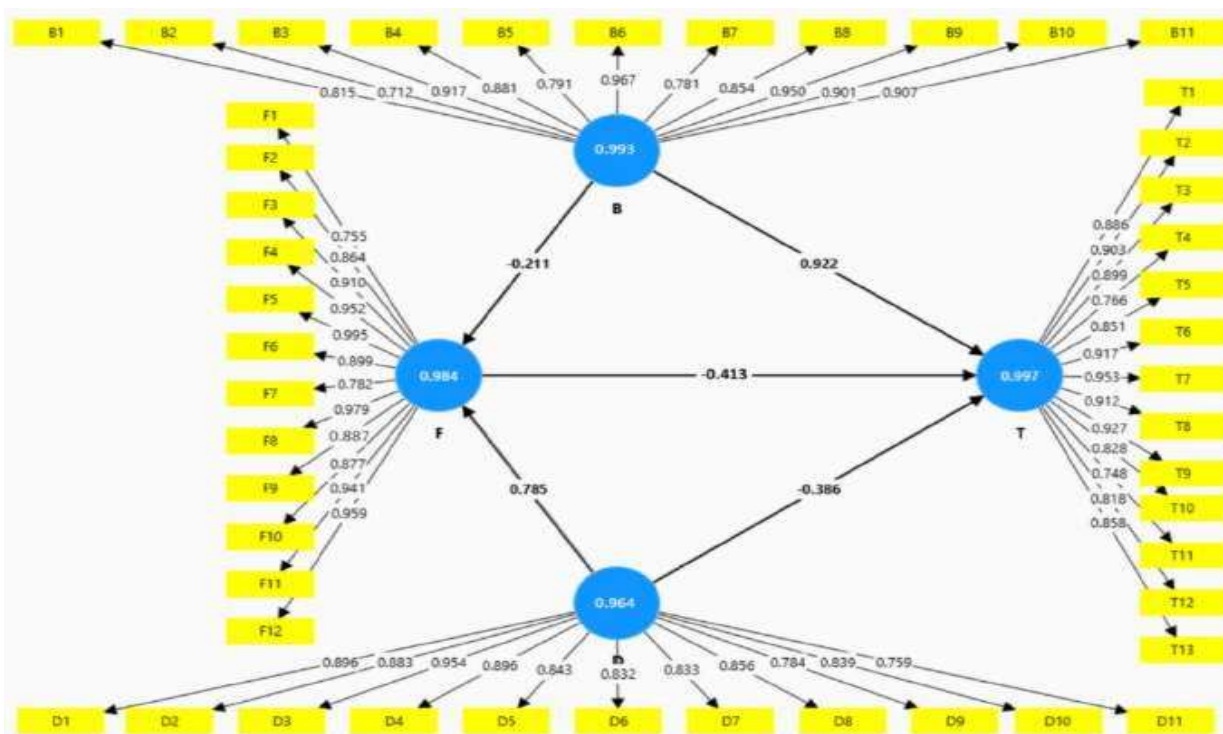
Figure 9.
SEM-PLS.

Table 8.
Loading factor, reliability Cronbach's alpha, composite reliability, AVE of SEM-PLS.

Indicator	Sub indicator	Loading factor	Reliability Cronbach's alpha	Composite reliability	AVE
B	B1	0.815	0.993	0.994	0.995
	B2	0.712			
	B3	0.917			
	B4	0.881			
	B5	0.791			
	B6	0.967			
	B7	0.781			
	B8	0.854			
	B9	0.950			
	B10	0.901			
	B11	0.907			
F	F1	0.755	0.984	0.986	0.982
	F2	0.864			
	F3	0.910			
	F4	0.952			

Indicator	Sub indicator	Loading factor	Reliability Cronbach's alpha	Composite reliability	AVE
	F5	0.995			
	F6	0.899			
	F7	0.782			
	F8	0.979			
	F9	0.887			
	F10	0.877			
	F11	0.941			
	F12	0.959			
D	D1	0.896	0.964	0.962	0.963
	D2	0.883			
	D3	0.954			
	D4	0.896			
	D5	0.843			
	D6	0.832			
	D7	0.833			

Indicator	Sub indicator	Loading factor	Reliability Cronbach's alpha	Composite reliability	AVE
	D8	0.856			
	D9	0.784			
	D10	0.839			
	D11	0.759			
T	T1	0.886	0.997	0.996	0.995
	T2	0.903			
	T3	0.899			
	T4	0.766			
	T5	0.851			
	T6	0.917			
	T7	0.953			
	T8	0.912			
	T9	0.927			
	T10	0.828			
	T11	0.748			
	T12	0.818			
	T13	0.858			

The provided tables illustrate a detailed reliability and validity analysis for several subs dimensions and their respective indicators within a structural equation model (SEM). All sub-indicators exhibit

loading factor values greater than 0.7, indicating strong convergent validity. This implies that each sub-indicator effectively measures its intended construct, ensuring that the indicators within a construct are highly correlated and consistently measure the same underlying concept.

Additionally, the evaluation includes key reliability metrics such as Cronbach's alpha and composite reliability. Cronbach's alpha measures the internal consistency of the indicators, ensuring they yield similar results under consistent conditions. Composite reliability provides a more precise measure by considering the varying factor loadings of the indicators. Both metrics exceed the threshold of 0.7, confirming the robustness and reliability of the indicators in evaluating the SEM model. This high reliability indicates that the indicators consistently measure their respective constructs, providing dependable data for further analysis.

Average Variance Extracted (AVE) is another critical metric for assessing convergent validity, requiring a value above 0.5. The AVE values in the analysis surpass this standard, indicating that the latent constructs are well-represented by their indicators. Higher AVE values demonstrate that a significant portion of the variance in the indicators is captured by the underlying construct, affirming the strong convergent validity of the model.

Furthermore, the analysis includes cross-loading factor values to assess discriminant validity. Discriminant validity ensures that each latent construct is distinct and not overlapping with others. The distinct cross-loading values confirm that each construct uniquely measures a specific aspect of the theoretical framework, with no overlap between different constructs. This is essential for the overall validity of the model, as it verifies that each construct is capturing a unique dimension of the underlying theory, providing a clear and distinct measurement structure.

In summary, the results demonstrate that the SEM model has high reliability and validity. The strong loading factors, robust Cronbach's alpha and composite reliability values, and high AVE scores all confirm that the indicators effectively measure their respective constructs. The discriminant validity further ensures that each construct is uniquely defined, contributing to the overall robustness and validity of the model.
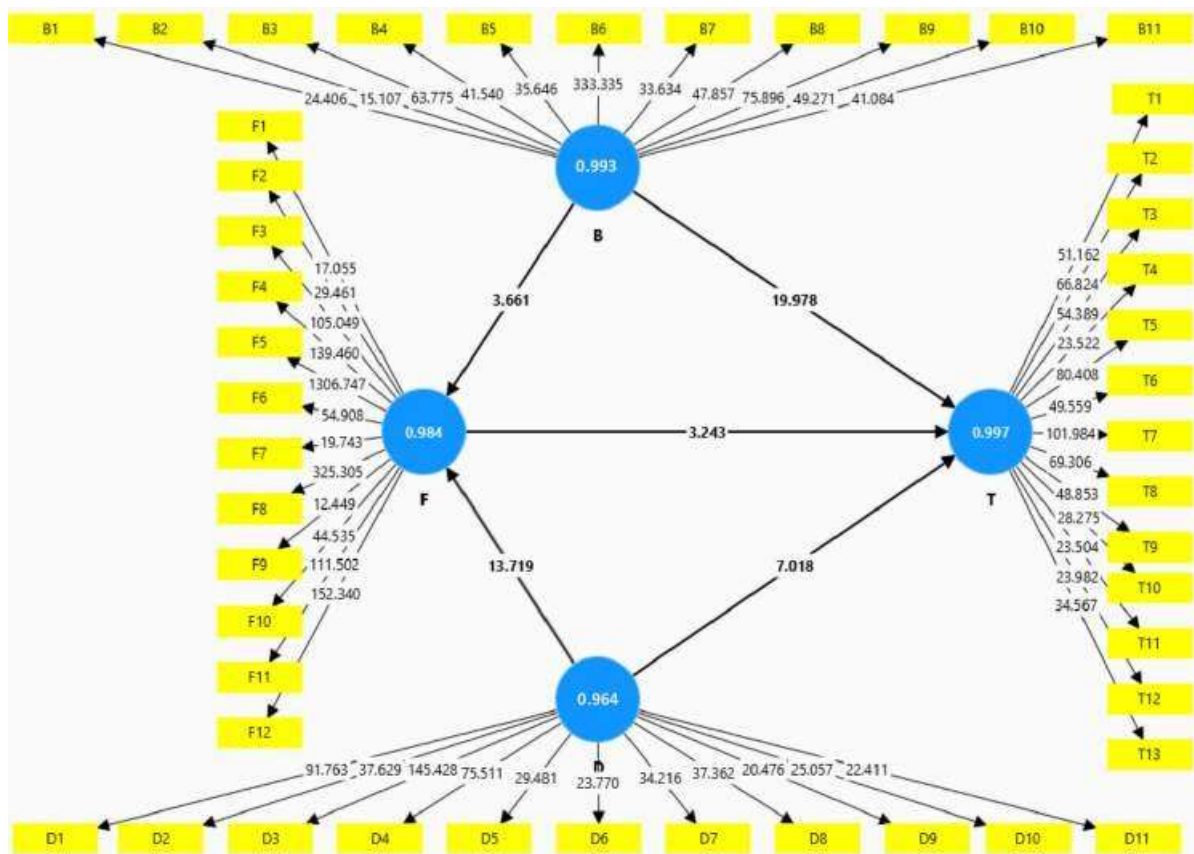
Figure 10.
Bootstrapping of SEM-PLS.

The analysis depicted in Figure 10 uses t-values to assess the relationships between the constructs B, F, D, and T, each representing different sub dimensions within a structural equation model (SEM). The t-values help determine the statistical significance of these relationships, providing insights into the strength and reliability of the model.

Table 9.
Path coefficient.

Path	Direct effect	
	p-values	T-values
H1: Bright personality traits -> FoMo	0.001	3.661
H2: Dark personality traits -> FoMo	0.000	13.719
H3: FoMo -> Trading behavior	0.011	3.243
H4: Bright Personality traits -> Trading behavior	0.000	19.978
H5: Dark Personality traits -> Trading behavior	0.000	7.018
H6: Bright Personality traits -> FoMo -> Trading behavior	0.000	11.672
H7: Dark Personality traits -> FoMo -> Trading behavior	0.000	12.731

The study tested seven hypotheses, each demonstrating significant impacts. Based on Figure 10 and Table 9, hypothesis 1 (H1) found that the relationship between B (a construct representing a specific

subdimension) and T (another construct) is statistically significant with a high t-value, indicating a strong association. This suggests that the underlying factors measured by B have a substantial impact on the factors measured by T. Similarly, Hypothesis 2 (H2) revealed that the connection between B and F (another construct) is significant, with a high t-value confirming a strong correlation. This implies that the variables within B are closely linked to the variables within F, supporting the hypothesis that B significantly influences F. Hypothesis 3 (H3).

demonstrated that the association between F and T is robust, as indicated by the high t-value. This relationship highlights the direct influence of the variables measured by F on those measured by T, suggesting that enhancements in F can directly impact the outcomes measured by T.

The analysis also examined both direct and indirect effects to understand the pathways through which B impacts T. The direct path from B to T (H4) has a significant t-value, demonstrating the immediate impact of B on T. Similarly, the path from D to T (H5) is supported by a significant t-value, illustrating a direct influence. These direct paths suggest that the constructs have immediate and significant impacts on each other, confirming the strength of the relationships within the model.

Moreover, the indirect path from B through F to T (H6), supported by significant t-values, underscores the mediating role of F in the relationship between B and T, with a t-value of 11.672. This indirect effect highlights how F serves as an intermediary that enhances the impact of B on T, suggesting a pathway through which B influences T via F. Then, the indirect path from D through F to T (H7), supported by significant t-values, underscores the mediating role of F in the relationship between D and T, with a t-value of 12.731. This indirect effect highlights how F serves as an intermediary that enhances the impact of D on T, suggesting a pathway through which D influences T via F.

Overall, the analysis reveals that the constructs B, F, D, and T are strongly interconnected, with significant t-values supporting the hypothesized relationships. The high t-values for the direct paths indicate robust immediate effects, while the indirect paths illustrate the mediating roles within the model. These findings underscore the importance of each construct and their interrelations in understanding the overall structure and functionality of the SEM model. The significant t-values confirm that the relationships between these constructs are statistically meaningful, reinforcing the model's validity and reliability. This comprehensive evaluation demonstrates the critical role of integrated practices and leadership within an organization, contributing to the effectiveness and efficiency of the measured outcomes.

4. Discussion

The intersection of Islamic principles and cryptocurrency investment, particularly among Generation Z, reveals a complex dynamic influenced by both religious ethics and modern psychological phenomena. This study highlights the prominent role of social media and the Fear of Missing Out (FoMO) in driving the investment behaviours of young Muslim traders. The qualitative and quantitative analyses demonstrate that the allure of quick gains and the social validation derived from successful trading often overshadow the ethical considerations emphasized in Islamic finance.

From an Islamic perspective, the principles of risk-sharing and the prohibition of speculative activities are critical. Cryptocurrency, with its inherent volatility and speculative nature, poses a challenge to these principles. The study's findings indicate that Generation Z traders often engage in high-risk trading behaviours driven by FoMO, which conflicts with the Islamic prohibition against gharar (excessive uncertainty) and maysir (gambling). This conflict is exacerbated by the psychological traits of young traders, such as impulsivity and a high tolerance for risk, which are amplified by the constant connectivity and social comparison facilitated by social media.

Moreover, the ethical concerns surrounding cryptocurrency, such as its potential use for illicit activities and the lack of intrinsic value, further complicate its acceptance within Islamic finance. The study points out that while some Islamic scholars and institutions view cryptocurrencies like Bitcoin as permissible under certain conditions, the majority remain cautious due to the speculative risks and

ethical implications. The NVivo analysis provides a deeper understanding of how social interactions and media engagement influence the trading behaviours of Generation Z. The frequent checking of social activities, comparison with others, and the emotional stress from these interactions highlight the significant impact of social media on their investment decisions. This behavior not only leads to impulsive trading but also disrupts regular routines and affects mental well-being, indicating a need for better financial literacy and risk management education tailored to align with Islamic values.

From a jurisprudential perspective, several Islamic authorities have pronounced their positions on the permissibility of cryptocurrency. Al-Azhar's Majma' al-Buhuts al-Islamiyah and Dar al-Ifta in Egypt, along with the Indonesian Ulema Council (MUI), have declared dealings in bitcoin and similar cryptocurrencies as haram. This stance is supported by prominent figures such as the Grand Mufti of Egypt, Shaykh Shawki Allam, and authorities in Turkey and Palestine, who highlight the issues of excessive uncertainty and the potential for illicit activities. Quranic verses and Hadiths underpinning this prohibition include: Al-Nisa [4:29]: "O believers! Do not devour one another's wealth illegally but rather trade by mutual consent. And do not kill each other or yourselves. Surely Allah is ever Merciful to you." Al-Maidah [5:90]: "O you who have believed! Indeed, intoxicants, gambling, [sacrificing on] stone altars [to other than Allah], and divining arrows are but defilement from the work of Satan, so avoid it so that you may be successful." Hadiths further emphasize the prohibition against uncertain and speculative transactions. For example, Prophet Muhammad (PBUH) forbade transactions determined by throwing stones and those involving gharar (uncertainty), as recorded in Sahih Muslim and Musnad Zaid.

Despite these prohibitions, some scholars argue for the permissibility of cryptocurrencies under certain conditions. The Darul Uloom Zakariyya Fatwa Center in South Africa, for instance, permits cryptocurrencies as long as they are accepted by the local community and approved by the local government. From a Sharia perspective, proponents like Abu-Bakar argue that Bitcoin and similar digital currencies can be permissible if they function as valuable commodities, are accepted as a medium of exchange, and
fulfill the roles of a measure of value and a unit of account. They contend that the speculative and illegal uses of cryptocurrencies do not inherently render them haram, as similar issues can arise with traditional currencies like gold, silver, and fiat money.

There is a famous rule in ushul fiqh (principles of Islamic jurisprudence): "The original rule in transactions is permissibility." According to this principle, cryptocurrencies are fundamentally allowed if they meet specific criteria: 1. Considered valuable by society, 2. Accepted as a medium of exchange by all or most people, 3. Function as a measure of value, 4. Serve as a unit of account. Quranic verses supporting the general permissibility of beneficial objects include: Al-Baqarah [2:29]: "It is He who created for you all of that which is on the earth." Al-Jatsiyah [45:13]: "He also subjected you to whatever is in the heavens and whatever is on the earth—all by His grace. Surely in this are signs for people who reflect." Furthermore, Hadiths emphasize that what is not explicitly prohibited by Allah remains permissible: Hadith from Ibn Abbas: "What Allah has permitted in His Book is halal, and what He has forbidden is haram, and what He has remained silent about is forgiven (allowed)." (Sunan Abu Dawood).

The Smart-PLS analysis offers a robust methodological approach to evaluating the relationships between various constructs related to cryptocurrency trading behaviours among Generation Z. Using the SEM-PLS algorithm, the study assesses the feasibility and validity of the model, involving constructs such as Bright Personality Traits, Dark Personality Traits, FoMO, and Trading Behavior. Key findings from the Smart-PLS analysis include the strong convergent validity of sub-indicators, evidenced by loading factor values exceeding 0.7. The internal consistency of indicators is confirmed through Cronbach's alpha and composite reliability values, indicating that the indicators reliably measure their respective constructs. The Average Variance Extracted (AVE) values surpass the threshold of 0.5, affirming the constructs' representation by their indicators.

Discriminant validity is established through distinct cross-loading values, ensuring that each

construct uniquely measures a specific aspect of the theoretical framework without overlap. This comprehensive evaluation underscores the model's robustness, highlighting the significant relationships between the constructs. For instance, the direct path from Bright Personality Traits to Trading Behavior and from FoMO to Trading Behavior demonstrates immediate impacts, while the indirect path through FoMO indicates a mediating effect. The t-values derived from bootstrapping confirm the statistical significance of these relationships, reinforcing the model's validity and reliability. The high t-values for direct paths indicate robust immediate effects, while the indirect paths illustrate the mediating roles within the model, emphasizing the interconnectedness of psychological traits and trading behaviours.

In conclusion, the discussion section integrates the findings from the NVivo and Smart-PLS analyses, along with the Islamic jurisprudential perspectives, underscoring the need for a balanced approach. There is a clear necessity for educational interventions that enhance financial literacy among young traders, helping them understand the risks and ethical implications of cryptocurrency trading. Additionally, developing Islamic financial products tailored to digital assets could bridge the gap between traditional religious principles and modern investment opportunities, ensuring that the evolving landscape of cryptocurrency aligns with the values and ethics of Islamic finance.

5. Conclusions

From an Islamic finance perspective, ethical investing principles emphasize the prohibition of excessive speculation (gharar) and interest (riba). Cryptocurrency investment, when aligned with these principles, can be deemed permissible (halal). However, the high volatility and speculative nature of many cryptocurrencies pose significant challenges in ensuring compliance with Islamic laws. This necessitates a careful consideration of the ethical implications of cryptocurrency investments within the framework of Islamic finance. The study also reveals that FoMO significantly influences the investment behaviours of Generation Z traders. The constant exposure to social media and online platforms often exacerbates the fear of missing lucrative investment opportunities, leading to impulsive and sometimes irrational trading decisions. This psychological factor is crucial in understanding the motivations behind cryptocurrency investments among young traders, highlighting the need for strategies to manage FoMO effectively.

Furthermore, Generation Z traders exhibit distinct personal traits such as tech-savviness, a preference for digital assets, and a higher risk tolerance compared to previous generations. These traits, coupled with FoMO, drive their active participation in the cryptocurrency market. However, these characteristics also expose them to higher financial risks, emphasizing the need for better financial education and awareness tailored to their unique needs and behaviours. The study suggests that integrating Islamic ethical guidelines with an understanding of FoMO can lead to more responsible and ethical investment behaviours among Generation Z traders. This integration can help mitigate the negative impacts of FoMO by promoting investment strategies that align with Islamic values, such as long-term investing and avoiding excessive speculation. By fostering a balance between ethical considerations and psychological insights, young traders can make more informed and sustainable investment decisions.

There is a critical need for educational programs that address both the financial and ethical aspects of cryptocurrency investments. By fostering a deeper understanding of Islamic finance principles and the psychological impacts of FoMO, these programs can equip young traders with the tools needed to navigate the cryptocurrency market responsibly. Such initiatives can promote more informed and ethical investment practices that align with both religious principles and the unique characteristics of young investors. In conclusion, the study underscores the importance of considering both Islamic ethical perspectives and psychological factors such as FoMO in understanding the cryptocurrency investment behaviours of Generation Z. By addressing these aspects, stakeholders can promote more responsible and sustainable investment practices that align with both religious principles and the unique characteristics of young investors.

6. Recommendations

For future research, it is recommended to further explore the integration of Islamic financial principles with cryptocurrency investment, particularly in the context of global regulations that can be practically implemented. The research could develop specific guidelines on how cryptocurrency can comply with Sharia principles, such as avoiding *gharar* (uncertainty) and *riba* (interest), as well as examine Sharia-compliant financial products designed for the digital market. Additionally, further studies are needed to explore the psychological impact of *Fear of Missing Out* (FoMO) on Generation Z's investment behavior and how more targeted financial literacy strategies can help manage this risk. Longitudinal studies to monitor the long-term investment behavior of Generation Z are also crucial in understanding changes in their financial habits. Collaboration between Islamic scholars, academics, and financial practitioners is strongly encouraged to create innovative and relevant halal investment products, and to strengthen Muslim investors' confidence in participating in the cryptocurrency market.

7. Limitations

This study has several limitations that should be noted. First, the research focuses solely on Generation Z as the subject, making the results potentially not generalizable to other generations involved in cryptocurrency investments. Additionally, the study employs a mixed-method approach, which may not fully capture the deeper psychological aspects related to Fear of Missing Out (FoMO) and its influence on investment decisions. Another limitation is the limited access to broader empirical data on investment behavior in accordance with Islamic financial principles across various countries, making the results potentially constrained to a local context. Further research is needed to expand the scope of data and the study population to achieve more comprehensive results.

Institutional Review Board Statement:
The Ethical Committee of the UIN Kiai Achmad Shiddiq Jember, Jember, Indonesia approved this study in August 2024 (Reff. No B-686/Un.22/L.2/8/2024)

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