Industry and Academic Research Review
Volume 5 Issue 1 September 2024
DOI: https://doi.org/10.53378/iarr.924.113

Investment behavior of cryptocurrency investors in Metro Manila

Eleazar B. San Miguel

Abstract

This study examines the behavioral differences among cryptocurrency investors in Metro Manila. It used a descriptive approach to assess the respondents' behavior in light of the researcher's questionnaire. Findings revealed that the respondents agreed on experience, vicarious learning, social persuasion, and physiological feedback which indicated that the sub-variables of self-efficacy affect the behavior of the respondents. The Kruskall-Wallis H Test, when applied to the data, revealed that there are significant differences between the respondents' profile in terms of age, highest educational level attained, net monthly income, employment status, source of income, number of financial management-related seminars attended, video conferences attended, or vlogs watched, and years invested in cryptocurrency, but not in terms of civil status and sex. Everyone who plans to start investing in cryptocurrencies and other risky securities should receive more education on financial management in general and cryptocurrency in particular. Conducting an in-depth study on the background and performance of cryptocurrencies will help to provide unbiased choices rather than relying solely on what's popular in social media. It is important to conduct further research into other sociodemographic traits and cryptocurrency properties that can influence the engagement of an individual in the cryptocurrency market.

Keywords: *cryptocurrency, self-efficacy, vicarious learning, physiological feedback, social persuasion, experience*

Article History:

Received: *May 15, 2024*
Revised: *July 28, 2024*
Accepted: *August 11, 2024*
Published online: *August 28, 2024*

Suggested Citation:
San Miguel, E. (2024). Investment behavior of cryptocurrency investors in Metro Manila. *Industry and Academic Research Review,* 5(1), 17-41. https://doi.org/10.53378/iarr.924.113

About the author:
Master in Business Administration - Financial Management, College of Business Administration Graduate School, Polytechnic University of the Philippines, Senior Specialist, FactSet Philippines Inc. Email: sanmigueleleazar@gmail.com

**This paper is presented at the 5th International Conference on Multidisciplinary Industry and Academic Research (ICMIAR)-2024*

1. Introduction

Many investors use the stock market for specific financial goals, such as buying properties, funding education, or planning for retirement (SEC, 2021). While some prefer short-term investments, those who familiarize themselves with fundamental concepts and various asset categories stand to reap significant benefits over time. Understanding different types of investments and their associated risks is a crucial first step (US SEC, n.d.).

Over the past decade, a wide variety of virtual currencies have emerged (Ciaian et al., 2016). Digital currency, as described by Blažeković and Vukina (2019), is an electronic form of money not issued by a government or central bank, not specifically tied to any currency, yet accepted as payment by individuals and entities, and can be electronically traded, stored, and sold. It serves as an electronic alternative to physical coins or bills for transactions (Venegas, 2014).

The volatility in financial markets caused by the COVID-19 pandemic has prompted investors to seek other investment avenues as many workers faced layoffs and sought new income sources. The Philippines ranks third globally in cryptocurrency usage, behind only Nigeria and Vietnam, as per the World Economic Forum (Buchholz, 2021). Compared to traditional stock markets, the blockchain industry presents a modern investment platform for buyers (Chowdhury & Mendelson, 2014). Consequently, the growth of the cryptocurrency market, especially Bitcoin, is garnering attention from both individual and institutional investors (Khan et al., 2020). Despite negative perceptions and widespread skepticism, cryptocurrency is gaining recognition from banks, legislatures, and businesses due to its significance (Coulter, 2022).

Financial planning entails informing Filipinos about the various kinds of targets they can achieve, including short-, mid-, and long-term objectives. To meet the country's growing demand for more investments, the financial industry advises Filipinos to save first and then spend what's left after they've set their savings aside. This study aims to assess the individual intention to invest in cryptocurrencies amidst its emergence as a potential investment option and public confusion surrounding it. The research also explores if motivations behind cryptocurrency investments differ significantly among participants when categorized by age, gender, education level, marital status, monthly income, and other demographic factors.

In this study, the following hypotheses were tested at a .05 margin of error.

***H*0**: Investment behavioral factors have no significant impact on the cryptocurrency investment decision-making of the respondents.

***H*1**: Investment behavioral factors have significant impact on the cryptocurrency investment decision-making of the respondents.

Investments can appear to be easy, but choosing the right investment requires expertise. Until beginning to invest, one should understand the economic climate. Not just that, but it should be considered in terms of a person's financial situation. Behavioral finance distinguishes how a person's behavior can influence the timing of his or her investments.

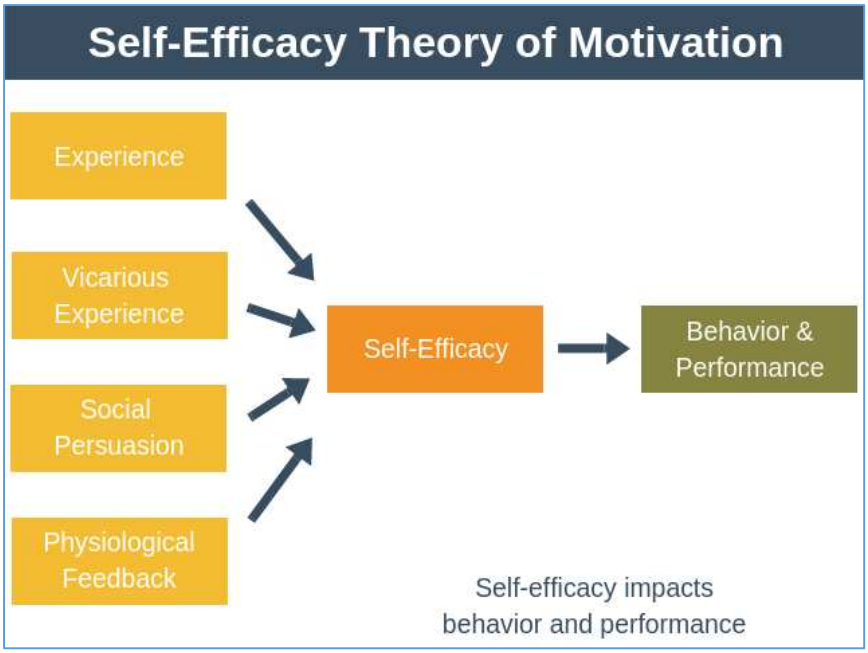
2. Literature Review

2.1 Theoretical Framework

This study examined the investment motivation of cryptocurrency investors in Metro Manila and their perspectives on the volatile performance of cryptocurrencies. It also explored their preferences and decision-making process. The Self-Efficacy Theory of Motivation was applied, emphasizing individuals' confidence in managing different scenarios.

Figure 1

Factors that affect self-efficacy



Source: Expert Program Management (2018)

Four determinants of self-efficacy were studied: experience, vicarious learning, social persuasion, and physiological feedback. Experience is the most significant, while vicarious learning involves learning through others' achievements or failures. Social persuasion suggests that encouragement or negativity from others impacts self-efficacy, as well as trends in social media. Lastly, physiological feedback refers to the physical and psychological responses while performing a task (Razzaq et al., 2018; Bandura, 2002).

2.2 Cryptocurrency Boom: History and Timeline

While "bitcoin" is a commonly used term, it represents just one type of cryptocurrency. Before its emergence, there were attempts to create online currencies with encrypted ledgers, such as B-Money and Bit Gold in the late 90s, but these never came to fruition (Marr, 2021). In 2009, the first decentralized cryptocurrency, Bitcoin, was introduced by an unknown individual or group named Satoshi Nakamoto (Duggan, 2022).

Bitcoin software was first made available for public use in 2010, initiating the process of mining, which involves creating new Bitcoins and validating transactions on the blockchain. In the same year, Bitcoin was assigned a monetary value for the first time. Since these units had only been mined and never traded, it was challenging to determine their worth. The first commerce with Bitcoin took place in 2010, with 10,000 Bitcoins exchanged for two pizzas. Had that amount been retained in Bitcoins, it would presently be worth over $100 million (Kamau, 2022).

In 2011, as Bitcoin gained momentum and the concept of decentralized, encrypted currency won favor, the earliest alternative cryptocurrencies, often dubbed "altcoins", started to emerge. These aimed to enhance the original Bitcoin model by offering faster transaction speeds, anonymity, or other benefits. Litecoin and Namecoin were among the first to surface. There are now over 18,000 cryptocurrencies in circulation, with more continually being created (Tardi, 2022).

The cryptocurrency market exhibits swift expansion and resilience against major thefts and governmental clampdowns. The quantity of coins that have circulated has greatly increased and the sector has seen progress in creating viable solutions for generating new coins. Even though Bitcoin might not dominate the market eventually, it paved the way for the establishment of the sector.

2.3 Social Media and Its Role in Cryptocurrency Awareness

Cryptocurrency's rise has the potential to trigger a disruptive revolution in the financial industry. The crucial topic of what establishes its value has important corporate and regulatory ramifications.

Social media is still having a significant impact on many industries. One such industry is blockchain and cryptocurrency. The majority of the growth and success of cryptocurrencies may be attributed to social networking. Social media and cryptocurrencies have a lengthy and symbiotic relationship that dates back to the early days of digital currency's social networks and current prominent social networking platforms. Blockchain, cryptocurrencies, and social networking are already interacting in intriguing new ways. The adoption of blockchain technology and cryptocurrencies is having a reciprocal effect on one another. Even social networks built on the blockchain are growing in popularity.

The relationship between social media and cryptocurrency is not new. The first Bitcoin (BTC) transaction ever happened when two pizzas were bought on a social media platform (NDTV Business Desk, 2021). The connection between cryptocurrencies and social media will keep advancing quickly (Rojas, 2020).

Indisputably, social media has been instrumental in elevating cryptocurrency's status. Multinational firms are earnestly exploring cryptocurrency and blockchain technologies as potential solutions to modernize their slightly outdated business protocols. Yet, the dynamics show signs of change. Social media platforms based on cryptocurrency are on the rise, remedying many challenges posed by traditional social networks for consumers and businesses.

2.4 Behavioral Finance, Self-Efficacy and Its Variables

Behavioral finance investigates how an individual or group responds to various psychological and environmental factors when acting as an investor, financial advisor, or portfolio manager. It draws attention to the fact that investors experience biases, has self-control limitations, and are not always rational (CFI, 2022). Researchers have been studying the cryptocurrency industry from a variety of angles since its inception. A few studies looked into cryptocurrency speculation, whereas others looked into the Bitcoin market's performance.

Experience. According to a study by Zhao and Zhang (2021), having financial literacy and investment expertise were both positively connected to buying cryptocurrencies, although

investment experience had a stronger influence. The findings also demonstrated that holding risky assets, in particular, played a significant mediating role in the association between subjective financial knowledge and bitcoin investment behavior.

The study by Subagio, et al. (2020) also looks into the indirect impact of investment experience and education on investment decision-making. The outcome demonstrates that the direct effect of investment education and investing experience on investment decision-making is stronger than the indirect effect. College students' financial understanding and decision-making abilities increase with their level of investment decision-making and investment experience.

Vicarious Learning. To lessen the uncertainty, information gathering is essential. A broad definition of information demand as shown in the Google search index is the focus of Figà-Talamanca's (2020) research. They contend that the quantity of internet searches for phrases linked to cryptocurrencies has a significant impact on that volatility (but does not yield a return), and that this impact vanishes once "relevant events" are considered. These noteworthy occurrences effectively serve as notifications of either usage limitation (and even outright prohibitions) for cryptocurrencies or the expansion of the cryptocurrency sector.

The structure and efficacy of capital market information must be understood to comprehend investor behavior, claims Madhavan (2000). In other words, the availability of a wealth of data to the general public ensures that investors have access to the knowledge they need to make informed decisions.

Social Persuasion. When examining the interaction of social elements affecting the Bitcoin market, it is essential to consider the impact of media on public perception. Newspapers, radio, television, and now online and mobile phone technologies all fall under the category of mass media communication and are used to disseminate information to the general public. The power of the media to teach people how to think, what to think about, and perhaps even what to do about, important topics is the focus of agenda-setting and framing theories in mass communication.

Values can change considerably overnight due to changes in mood, celebrity endorsements, or lone comments that garner a lot of attention on platforms like Reddit, similar to how speculative stocks can. While there is evidence that price increases in cryptocurrency stocks are somewhat predictable and correlate with Twitter activity (Kraaijeveld & De Smedt, 2020), many of these

other unrelated factors are unpredictable and therefore contain a significant amount of randomness or chance (like an unexpected run by a horse).

Trading cryptocurrencies has grown in popularity during the social media era. As a result, on platforms like Facebook or Youtube, a strong social media culture of cryptocurrency advisers, influencers, and more knowledgeable advisors has emerged. By instantly searching online, one can obtain at least one favorable evaluation of at least one big currency.

Physiological Feedback. There are several studies conducted on how physiological feedback affects the decision of an individual for their cryptocurrency investments.

An analysis of investor reactions to how their investments affected their well-being shows the importance of social media for tracking opinions and mental health (Liu, et al., 2018). There are also investor testimonies claiming that when they started investing in cryptocurrencies, it had a negative impact on their lifestyle and health. One of the studies that have been released on dealing with cryptocurrency is the experience of an investor who has sleepless nights, ongoing stress, and anxiety. Additionally, it changes how they interact with people and irritates them (Sharma, 2022).

3. Methodology

The study used Kruskal-Wallis H Test to determine the differences in the behavior of cryptocurrency investors in Metro Manila when grouped according to profile. This method helped to determine if the investors behave differently when classified according to different variables under consideration.

3.1 Population, Sample Size, and Sampling Technique

This study used data from cryptocurrency investors in Metro Manila, obtained through respondent-driven and purposeful sampling. Random individuals were selected and filtered for cryptocurrency investment experience until 385 responses were gathered, the number needed when the population size is uncertain. The selection criteria included possession of a bitcoin wallet, involvement in crypto-based activities like Axie Infinity, and other crypto exchange tools. The survey was distributed electronically with factors such as age, income, education, and investment experience being considered.

3.2 Research Instrument

The primary data collection tool was a questionnaire composed of three sections. Section 1 provided an overview of the study's purpose and a query about respondents' previous cryptocurrency trading experiences. Section 2 collected demographic information, including age, gender, education, income, employment, income sources, and prior cryptocurrency experience. Section 3 contained questions pertaining to self-efficacy sub-variables. These were adapted from various studies with a focus on self-efficacy theory (Excel at Life, 2022; Looney et al., 2004; Nguyen, 2016; Riopel, 2019, Schwarzer, & Jerusalem, 1995).

Table 1 displays the findings of the questionnaire's reliability test.

Table 1

Cronbach's Alpha Reliability test result

Indicators	Cronbach's Alpha	Interpretation
Experience	0.888	Good
Vicarious Learning	0.708	Acceptable
Social Persuasion	0.832	Good
Physiological Feedback	0.853	Good

The reliability test confirmed the dependability of all sub-variables. This test checked for consistency using Cronbach's alpha, an important metric for dependable measurement. This measure gauges the internal consistency or how closely related a set of items are. Peer reviews from academia and the finance field, validation by the research advisor, and reliability test by the statistician, assured the instrument's quality throughout its development.

Thirty-one participants responded to the survey for pilot testing of the survey instrument. Their response revealed the validity of the survey instrument to be utilized in the study. Using SPSS version 23, the statistician calculated the Cronbach's alpha. According to table 1, every Cronbach's alpha score is more than 0.70, indicating a satisfactory level of questionnaire reliability.

The study used a 5-point Likert Scale ranging from 'Strongly Agree' (5) to 'Strongly Disagree' (1) to assess the respondents' investment decisions to obtain an overall measurement of a subject, view, or experience, as well as to collect specific data related to the study.

3.3 Data Gathering Procedure

The researcher utilized a digital survey form via Google Forms to gather data from respondents, minimizing exposure risks in light of the ongoing COVID-19 pandemic.

Data was collected from April to June 2022 using an online survey questionnaire created via Google forms. As cryptocurrency investments are anonymous, respondents were reached through various social media groups dedicated to retail cryptocurrency investors. The survey link was then shared on these platforms.

By the end of the sampling period, 714 responses were collected, out of which the required 385 were completed. The initial question, "Do you have any experience investing in cryptocurrencies?" was used to filter and ensure the validity of the responses.

3.4 Statistical Treatment of Data

The statistician provided insight into how to classify the sample based on the instrument used and assisted with data statistical treatment. The statistical methods and techniques that were used in this analysis include frequency and percentage, ranking, weighted mean, and Kruskal-Wallis H Test.

4. Results and Discussion

The responses gathered from the respondents via the supplied questionnaires were entered into tables and ranked, and appropriate frequency and percentages were applied. The hypotheses that served as the foundation for this study are discussed and used to understand the data that indicated in each table.

Table 2 shows the Kruskal Wallis H-Test, emphasizing the differences in behavioral factors of cryptocurrency investors when grouped according to age. Results show that all sub-variables received significant remarks. Experience, vicarious learning, social persuasion, and physiological feedback rejected the null hypothesis. This means that all of the sub-variables have significant differences when grouped according to age.

Table 2

Differences in behavioral factors of cryptocurrency investors grouped according to age

Behavioral Factor	Age	Mean Rank	H-value	P-value	Decision	Remarks
Experience	Below 18 years old	127.31	27.412	0.000	Reject Ho	Significant
	18 - 23 years old	157.42				
	24 - 29 years old	190.11				
	30 - 35 years old	217.33				
	36 - 40 years old	242.89				
	Above 40 years old	260.07				
Vicarious Learning	Below 18 years old	159.54	24.667	0.000	Reject Ho	Significant
	18 - 23 years old	156.43				
	24 - 29 years old	187.95				
	30 - 35 years old	222.68				
	36 - 40 years old	249.61				
	Above 40 years old	226.36				
Social Persuasion	Below 18 years old	275.77	12.270	0.031	Reject Ho	Significant
	18 - 23 years old	184.46				
	24 - 29 years old	183.94				
	30 - 35 years old	197.22				
	36 - 40 years old	219.15				
	Above 40 years old	219.21				
Physiological Feedback	Below 18 years old	300.69	24.176	0.000	Reject Ho	Significant
	18 - 23 years old	219.84				
	24 - 29 years old	185.88				
	30 - 35 years old	184.74				
	36 - 40 years old	182.39				
	Above 40 years old	121.71				

A reason that there is a difference in age demographic is that an individual should have enough exposure to this type of investment – those who are below 18 years old are not expected to treat experience as their motivator while those who are in the middle age had already live longer to know more and has the capability to understand and take risk when investing. A supporting analysis conducted by Maheshwari and Mittal (2017) examines how this important demographic factor affects an investor to make investment decisions. The study concludes that investors' financial decisions are affected by their age. The documented variances in investing preferences can result from varied cognitive capacities or the needs and goals of people at various stages of life.

It can be seen in Table 3 that the sub-variables vicarious learning, social persuasion, and physiological feedback failed to reject the null hypothesis, while experience rejected Ho. This indicates that experience differs significantly when classified by sex.

Table 3

Differences in behavioral factors of cryptocurrency investors grouped according to sex

Behavioral Factor	Sex	Mean Rank	H-value	P-value	Decision	Remarks
Experience	Male	204.22	8.631	0.035	Reject Ho	Significant
	Female	171.67				
	LGBTQ + Member	214.39				
	Prefer not to say	195.66				
Vicarious Learning	Male	196.22	4.300	0.231	Failed to Reject Ho	Not Significant
	Female	185.16				
	LGBTQ + Member	229.16				
	Prefer not to say	176.48				
Social Persuasion	Male	204.03	6.942	0.074	Failed to Reject Ho	Not Significant
	Female	173.61				
	LGBTQ + Member	202.00				
	Prefer not to say	197.84				
Physiological Feedback	Male	200.41	2.283	0.516	Failed to Reject Ho	Not Significant
	Female	182.42				
	LGBTQ + Member	195.05				
	Prefer not to say	186.74				

The significant difference in experience indicates that there's a big gap in the investment preferences of males, females, LGBTQ+, and those who prefer not to say. Based on the demographic result, 53.25% are male which can be concluded that male has more experience investing in cryptocurrency than the other genders. A study conducted by Srijanani and Vijaya (2018) presents evidence of gender differences in risk-taking. The evidence suggests that men take more risks than women. Men and women have different risk-taking abilities, which is also evident in the types of investments they choose. According to the findings, males favor risky investments while women favor safe ones. The survey's findings may become important when compared to other sub-variables because of men's history of making riskier investments.

It can be seen in table 4 that all of the behavioral factors failed to reject Ho, this means that all sub-variables have no significant differences when grouped according to civil status.

Despite being single, married, or separated, according to the statistical result, all the civil status categories have no differences from one another when they are investing in cryptocurrency. Cryptocurrency is an investment vehicle that an individual can build their wealth (Reinicke, 2021). This could mean that if someone is married or with a partner, an investor's treatment of

cryptocurrency is a personal investment an individual decides on their own, most probably they put the excess of their income from their full-time job into investments for the opportunity to grow.

Table 4

Differences in behavioral factors of cryptocurrency investors grouped according to civil status

Behavioral Factor	Civil Status	Mean Rank	H-value	P-value	Decision	Remarks
Experience	Single	187.77	5.027	0.285	Failed to Reject Ho	Not Significant
	Married	212.44				
	Widowed	320.50				
	Separated	218.33				
	Divorced	151.50				
Vicarious Learning	Single	188.21	4.479	0.345	Failed to Reject Ho	Not Significant
	Married	210.72				
	Widowed	317.00				
	Separated	213.17				
	Divorced	162.00				
Social Persuasion	Single	188.96	3.405	0.493	Failed to Reject Ho	Not Significant
	Married	208.03				
	Widowed	155.00				
	Separated	259.67				
	Divorced	155.00				
Physiological Feedback	Single	197.56	5.841	0.211	Failed to Reject Ho	Not Significant
	Married	178.39				
	Widowed	4.00				
	Separated	136.17				
	Divorced	238.50				

Table 5 exhibits the respondents' assessment of the differences in behavioral factors of cryptocurrency investors when grouped according to highest educational attainment.

All of the sub-variables have significant remarks which means that all of the behavioral factors reject Ho. There are significant differences in all the sub-variables when grouped according to the highest educational attainment. It can be inferred that the educational background could be a differentiator when talking about cryptocurrency. To properly manage an investment or a portfolio, one must have studied basic financial management to be aware of what to expect when they start investing in cryptocurrency.

Table 5

Differences in behavioral factors of cryptocurrency investors grouped according to highest educational attainment

Behavioral Factor	Highest Educational Attainment	Mean Rank	H-value	P-value	Decision	Remarks
Experience	Junior High School	154.33	30.666	0.000	Reject Ho	Significant
	Senior High School	116.29				
	Vocational Studies	123.68				
	Undergraduate	208.15				
	Postgraduate	185.39				
	Doctoral Degree	272.21				
Vicarious Learning	Junior High School	164.17	29.931	0.000	Reject Ho	Significant
	Senior High School	131.76				
	Vocational Studies	124.45				
	Undergraduate	209.48				
	Postgraduate	173.25				
	Doctoral Degree	272.71				
Social Persuasion	Junior High School	271.94	49.541	0.000	Reject Ho	Significant
	Senior High School	262.42				
	Vocational Studies	235.63				
	Undergraduate	194.90				
	Postgraduate	131.19				
	Doctoral Degree	187.71				
Physiological Feedback	Junior High School	258.17	47.225	0.000	Reject Ho	Significant
	Senior High School	262.21				
	Vocational Studies	267.89				
	Undergraduate	193.77				
	Postgraduate	139.35				
	Doctoral Degree	103.36				

Numerous studies have demonstrated this difference in the assessment when grouped according to highest educational attainment (Lusardi, 2019; Kaiser and Menkhoff, 2017; Josephat, 2020). A focused study done by Baihaqqy (2020) revealed a substantial correlation between an investor's level of education and their understanding of financial literacy, which has an impact on the financial decisions that investors make. Making investment decisions in the capital markets requires a thorough understanding of financial literacy. To help investors understand the various levels of financial literacy in the capital market, education and training about financial literacy as sustainable capital are therefore essential.

It can be seen in table 6 that all sub-variables have significant remarks except social persuasion. This means that experience, vicarious learning, and physiological feedback have significant differences while social persuasion has no significant difference when grouped according to net monthly income.

Table 6

Differences in behavioral factors of cryptocurrency investors grouped according to net monthly income

Behavioral Factor	Net Monthly Income	Mean Rank	H-value	P-value	Decision	Remarks
Experience	Below 15,000 pesos	128.66	52.195	0.000	Reject Ho	Significant
	15,000 - 25,000 pesos	134.92				
	25,001 - 35,000 pesos	211.02				
	35,001 - 45,000 pesos	216.89				
	45,001 - 55,000 pesos	239.59				
	Above 55,000 pesos	220.58				
Vicarious Learning	Below 15,000 pesos	143.78	48.195	0.000	Reject Ho	Significant
	15,000 - 25,000 pesos	126.35				
	25,001 - 35,000 pesos	209.79				
	35,001 - 45,000 pesos	220.11				
	45,001 - 55,000 pesos	231.63				
	Above 55,000 pesos	209.06				
Social Persuasion	Below 15,000 pesos	221.61	10.973	0.052	Failed to Reject Ho	Not Significant
	15,000 - 25,000 pesos	200.16				
	25,001 - 35,000 pesos	190.86				
	35,001 - 45,000 pesos	196.03				
	45,001 - 55,000 pesos	165.59				
	Above 55,000 pesos	156.45				
Physiological Feedback	Below 15,000 pesos	242.90	51.608	0.000	Reject Ho	Significant
	15,000 - 25,000 pesos	211.85				
	25,001 - 35,000 pesos	213.94				
	35,001 - 45,000 pesos	177.39				
	45,001 - 55,000 pesos	158.02				
	Above 55,000 pesos	99.29				

An investor's wealth can significantly impact their investment choices. Essentially, the more income one has, the more investment opportunities they can explore. People with higher incomes have more options compared to those with lower earnings. Additionally, a larger income can offer more chances to invest surplus funds, influencing personal finance management and investment decisions.

High-income investors were more likely to exhibit higher overconfidence biases but lower representativeness, loss aversion, availability, and mental accounting biases, according to a correlation study by Renu and Christie (2019). This is the same outcome as the study by Arianti

(2018), in which the researcher concluded that income, financial behavior, and financial literacy all had a substantial impact on investing decisions.

Table 7

Differences in behavioral factors of cryptocurrency investors grouped according to employment status

Behavioral Factor	Employment Status	Mean Rank	H-value	P-value	Decision	Remarks
Experience	Employed, part-time	176.80	37.566	0.000	Reject Ho	Significant
	Employed, full-time	211.38				
	Self - Employed/Freelance	160.47				
	Not Employed, Looking for Work	112.50				
	Not Employed, Not Looking for Work	207.83				
	Student	116.83				
Vicarious Learning	Employed, part-time	178.52	25.713	0.000	Reject Ho	Significant
	Employed, full-time	207.72				
	Self - Employed/Freelance	172.97				
	Not Employed, Looking for Work	149.06				
	Not Employed, Not Looking for Work	86.67				
	Student	132.48				
Social Persuasion	Employed, part-time	186.55	5.161	0.397	Failed to Reject Ho	Not Significant
	Employed, full-time	192.16				
	Self - Employed/Freelance	167.85				
	Not Employed, Looking for Work	195.19				
	Not Employed, Not Looking for Work	207.33				
	Student	222.25				
Physiological Feedback	Employed, part-time	230.82	22.150	0.000	Reject Ho	Significant
	Employed, full-time	189.33				
	Self - Employed/Freelance	135.57				
	Not Employed, Looking for Work	188.81				
	Not Employed, Not Looking for Work	197.67				
	Student	246.99				

Table 7 shows the respondents' assessment of the variations in behavioral traits among cryptocurrency investors when they are categorized by employment status. All sub-variables have significant remarks except social persuasion. This means that experience, vicarious learning, and

physiological feedback have significant differences while social persuasion has no significant difference when grouped according to employment status.

Working full-time provides stable income and financial security, important factors when investing to avoid financial issues. Differences in investment behaviors may stem from varying employment statuses. Jenita and Rizwan (2022) explain both male and female salaried employees consider a regular income vital when investing in cryptocurrency.

Table 8

Differences in behavioral factors of cryptocurrency investors grouped according to source of income

Behavioral Factor	Source of Income	Mean Rank	H-value	P-value	Decision	Remarks
Experience	Salary	202.45	23.317	0.000	Reject Ho	Significant
	Allowance	116.01				
	Business Profit	190.58				
	Investment Profit	206.05				
	Inheritance	151.50				
	Other	130.25				
Vicarious Learning	Salary	201.75	16.187	0.006	Reject Ho	Significant
	Allowance	133.54				
	Business Profit	188.61				
	Investment Profit	169.64				
	Inheritance	162.00				
	Other	133.75				
Social Persuasion	Salary	192.64	4.784	0.443	Failed to Reject Ho	Not Significant
	Allowance	221.00				
	Business Profit	163.34				
	Investment Profit	178.41				
	Inheritance	155.00				
	Other	159.38				
Physiological Feedback	Salary	191.19	22.042	0.001	Reject Ho	Significant
	Allowance	258.33				
	Business Profit	145.50				
	Investment Profit	143.45				
	Inheritance	238.50				
	Other	97.88				

Table 8 demonstrates that the sub-variables experience, vicarious learning, and physiological feedback rejected the null hypothesis, while social persuasion failed to reject the null hypothesis. This means that there's a significant difference in the assessment of the respondents on sub-variables experience, vicarious learning, and physiological feedback when they are grouped by source of income. Income sources can influence individuals' attitudes towards utilizing earnings

for investment. Salaried individuals might invest to grow their income or establish a passive income strategy.

Regarding experience, those relying on allowances, often students, showed the lowest mean rank. This suggests that despite limited allowances, students risk investing to potentially increase their money. During the pandemic, student participation in cryptocurrency trading and investing reportedly rose by 400-500% at the largest exchanges (Dave, 2021).

Table 9

Differences in behavioral factors of cryptocurrency investors grouped according to the average number of seminar attended, video conferences, or vlogs watched related to financial management

Behavioral Factor	Number of Seminar Attended, Video Conferences, or Vlogs Watched Related to Financial Management	Mean Rank	H-value	P-value	Decision	Remarks
Experience	None	88.83	73.102	0.000	Reject Ho	Significant
	1 - 5	212.44				
	6 - 10	152.24				
	11 - 15	178.18				
	16 - 20	320.50				
	21 - 25	320.50				
	Above 25	246.41				
Vicarious Learning	None	192.43	70.902	0.000	Reject Ho	Significant
	1 - 5	206.94				
	6 - 10	176.18				
	11 - 15	192.39				
	16 - 20	6.50				
	21 - 25	155.00				
	Above 25	171.98				
Social Persuasion	None	227.28	10.378	0.110	Failed to Reject Ho	Not Significant
	1 - 5	218.77				
	6 - 10	172.85				
	11 - 15	184.21				
	16 - 20	171.00				
	21 - 25	116.00				
	Above 25	120.95				
Physiological Feedback	None	149.88	43.891	0.000	Reject Ho	Significant
	1 - 5	204.93				
	6 - 10	194.41				
	11 - 15	154.65				
	16 - 20	371.00				
	21 - 25	51.00				
	Above 25	208.44				

Table 9 exhibits the respondents' assessment of the differences in behavioral factors of cryptocurrency investors when grouped according to the number of seminars attended, video

conferences, or vlogs watched related to financial management. The sub-variable social persuasion failed to reject Ho, while the rest of the sub-variables rejected Ho. This means that experience, vicarious learning, and physiological feedback have significant differences when grouped according to the number of seminars attended, video conferences, or vlogs watched related to financial management.

For the social persuasion sub-variable, respondents who did not engage with cryptocurrency-related videos had the highest mean rank, suggesting they're swayed by peers' trends and social media. Social media, in the current era, is a primary channel for sharing information and news (Kavitha & Bhuvaneswari, 2017) used extensively by professionals, students, businesses, and others. Key investment information often circulates via popular platforms like YouTube, Telegram, Facebook, and Whatsapp. Investing involves foregoing current benefits for future rewards (Kavitha & Bhuvaneswari, 2017). According to Khan et al. (2021), there is a positive correlation between risk perception and social media information in influencing investor decisions. However, Nicolescu and Tudorache (2020) noted that investors only consider a subset of available information for investment decisions.

Table 10

Differences in behavioral factors of cryptocurrency investors grouped according to number of years invested in cryptocurrency

Behavioral Factor	Years Invested in Cryptocurrency	Mean Rank	H-value	P-value	Decision	Remarks
Experience	Less than a year	133.56	61.031	0.000	Reject Ho	Significant
	1 - 2 years	207.38				
	2 - 3 years	250.58				
	3 - 4 years	252.90				
	More than 5 years	278.25				
Vicarious Learning	Less than a year	142.40	50.651	0.000	Reject Ho	Significant
	1 - 2 years	203.58				
	2 - 3 years	257.67				
	3 - 4 years	259.20				
	More than 5 years	206.00				
Social Persuasion	Less than a year	179.94	6.483	0.166	Failed to Reject Ho	Not Significant
	1 - 2 years	202.70				
	2 - 3 years	197.02				
	3 - 4 years	165.05				
	More than 5 years	137.69				
Physiological Feedback	Less than a year	205.99	38.400	0.000	Reject Ho	Significant
	1 - 2 years	207.31				
	2 - 3 years	140.19				
	3 - 4 years	58.15				
	More than 5 years	84.69				

Table 10 presents the respondents' assessment of the variations in investor behavior elements when categorized by the number of years invested in cryptocurrencies. The sub-variable social persuasion failed to reject Ho, while the rest of the sub-variables rejected Ho. This means that experience, vicarious learning, and physiological feedback have a significant difference when grouped according to the number of years invested in cryptocurrency.

Highlighting the result of physiological feedback, it is clear that this behavioral component has had a significant impact on people who are relatively new to this form of investment. Cryptocurrency, a growing digital asset class, is relatively unknown and fresh, leading to hesitancy in investing. The uncertainty is due to a lack of knowledge about these assets, which are just over a decade old. Many financial firms continue to treat cryptocurrency as unfamiliar, failing to inform clients about its workings and uses. Second, cryptocurrencies are far too erratic. One of the world's most volatile assets. But the fact that it trades continuously, i.e., faster than any other market, is what makes it so volatile (Unbanked, 2020).

5. Conclusion

This research aimed to assess the self-efficacy practices of cryptocurrency investors in Metro Manila using a descriptive research method. Data was gathered using a questionnaire, and statistical tools such as frequency and percentage distribution, ranking, weighted mean, and the Kruskall-Wallis H Test were employed.

The study found varying behavioral factors among Metro Manila's cryptocurrency investors, based on their profiles. Age significantly impacted experience, vicarious learning, social persuasion, and physiological feedback. Sex only significantly influenced experience. All sub-variables were not significantly impacted by civil status. Educational attainment significantly affected all sub-variables. Source of income significantly affected experience, vicarious learning, and physiological feedback but not social persuasion. For net income, employment status, seminars attended, financial management-related video content viewed, and years invested in cryptocurrency, all sub-variables except social persuasion were significantly impacted.

Given the results of the study, the researcher puts forward the following recommendations:

Have a cryptocurrency trading strategy. Steer clear of cryptocurrencies making grand promises without fulfilling them. Manage risk by capping cryptocurrency investments and

resisting trading with unaffordable loss funds. Most respondents, aged 24 or older, are employed full-time and earn a net monthly income exceeding 25,000 pesos. These data suggest cryptocurrency investors are capable of earning, establishing a livelihood, and investing as desired. Given their undergraduate education, they should assess their choices, determine investment quality, and consider the cryptocurrency market's volatility.

Diversify investment portfolio. Just as with stocks and shares, diversify funds across various digital currencies to avoid overexposure if one's value drops. Over 80% of respondents have invested in cryptocurrency for less than two years, suggesting they may not view it as a long-term investment. Building a diversified portfolio can be beneficial for long-term investing. Beware of dramatic daily price changes which often trigger amateur traders to sell off in panic when prices dip. Cryptocurrencies, often predicted to appreciate over time due to their limited supply, are resilient to devaluation by political entities, bank failures, hyperinflation, and other economic disruptions. Long-term investment in a diverse portfolio may yield the best results.

Any cryptocurrency deals that seem too good to be true should be avoided. While online information sources must be reliable and legitimate, they may potentially lead to fraud and scams. The absence of any significant difference in the influence of social persuasion across demographic profiles indicates its strong impact on all respondents' investment decisions. Interestingly, some respondents did not utilize available free web tools to learn about cryptocurrencies in relation to their attendance at financial management seminars, video conferences, or viewing of vlogs. Education and investment institutes could launch free programs and resources to better educate people on the pros and cons of cryptocurrency.

Introduce financial management education, particularly about cryptocurrencies and other risky securities, to the public mass. It's clear that those aged 18 and below, and those without tertiary education, were mostly influenced to invest in cryptocurrency by social persuasion and demonstrated overconfidence in its ease and future growth. Government or educational institutions might incorporate courses focusing on general financial and investment management to enhance analytical abilities, especially among the youth. Skilled cryptocurrency investors should interpret facts and understand how new information might affect price or performance.

To ensure investor security and safety, and to build confidence in who would want to start investing in cryptocurrency, the Philippine legal and economic systems' cryptocurrency rules and legal frameworks should be improved/amended. Increased government support and adapted regulation could enhance investors' interest and trust in cryptocurrency, mirroring the

Philippine Stock Exchange's transparency for traditional stock investments. A unified cybersecurity policy for overseeing and regulating cryptocurrencies is needed, with assessments of varying cybersecurity adoption levels by cryptocurrency companies to ensure safe and secure data privacy and investment protection. Clear investors' rights should be specified by the government to guide potential complaint communications. Despite SEC's Section 82 penalty provision for digital asset exchanges, collaboration with Law Enforcement Agencies for prosecuting violations is necessary. The Consumer Act of the Philippines (Republic Act 7394) should be amended to include consumer protection in the financial technology and cryptocurrency sectors. Current active bodies such as Bangko Sentral ng Pilipinas and SEC, who provide information on registered cryptocurrency and Digital Asset Exchange companies and issue scam warnings, are encouraged to engage exclusively with legitimate entities.

References

Arianti, B. F. (2018). The influence of financial literacy, financial behavior and income on investment decision. *Economics and Accounting Journal (EAJ)*, 1, 1-10. https://doi.org/10.32493/eaj.v1i1.y2018.p1-10

Baihaqqy, M. (2020). The correlation between education level and understanding of financial literacy and its effect on investment decisions in capital markets. *Journal of Education and e-Learning Research*, *7(*3), 306-313. https://doi.org/10.20448/journal.509.2020.73.306.313

Bandura, A. (2022). *Self-efficacy in changing societies*. Cambridge University Press.

Buchholz, K. (2021). *These are the countries where cryptocurrency use is most common*. https://www.weforum.org/agenda/2021/02/how-common-is-cryptocurrency/

CFI Team (2022). *Behavioral finance*. https://corporatefinanceinstitute.com/resources/knowledge/trading-investing/behavioral-finance/

Chowdhury, A. & Mendelson, B. K. (2014). *Virtual currency and the financial system: The case of Bitcoin*. https://epublications.marquette.edu/cgi/viewcontent.cgi?article=1475&context=econ_fac

Ciaian, P., Rajcaniova, M., & Kancs, D. (2016). The digital agenda of virtual currencies: Can Bitcoin become a global currency? *Information Systems and eBusiness Management, 14(*4), 883-919. https://doi.org/10.1007/s10257-016-0304-0

Coulter, K. (2022). The impact of news media on bitcoin prices: Modelling data driven discourses in the crypto-economy with natural language processing. *Journal of the Royal Society*, 220276. https://doi.org/10.1098/rsos.220276

Dave, S. (2021). *Students hop on to the cryptocurrency bandwagon*. https://economictimes.indiatimes.com/tech/technology/

Duggan, W. (2022). *The history of bitcoin, the first cryptocurrency*. https://money.usnews.com/investing/articles/the-history-of-bitcoin

Excel at Life (2022). *General self-efficacy test*. https://www.excelatlife.com/questionnaires/self-efficacy.htm

Expert Program Management. (2018). *Self-efficacy theory of motivation*. https://expertprogrammanagement.com/2018/10/self-efficacy-theory-of-motivation/

Figà-Talamanca, G. & Patacca M. (2020). Disentangling the relationship between Bitcoin and market attention measures. *J. Ind. Bus. Econ*. 47, 71–91. https://doi.org/10.1007/s40812-019-00133-xE

Glen, S. (2022). *Kruskal Wallis H Test: Definition, examples, assumptions*, SPSS. https://www.statisticshowto.com/probability-and-statistics/statistics-definitions/kruskal-wallis/

Jenita, A.M.A. & Rizwan, F. (2022). A study on the perception of crypto currency investment among salaried employees in Chennai city with special reference based on gender. *Journal of Positive School Psychology*, *6(*6), 7733-7741

Josephat, L. (2020) Understanding sociodemographic factors influencing households' financial literacy in Tanzania, *Cogent Economics & Finance, 8:1*, 1792152, https://doi.org/10.1080/23322039.2020.1792152

Kaiser, T. & Menkhoff, L. (2017). Does financial education impact financial literacy and financial behavior, and if so, when? *Policy Research Working Paper*; No. 8161. World Bank. https://openknowledge.worldbank.org/handle/10986/27968

Kamau, R. (2022). *What is bitcoin pizza day, and why does the community celebrate on May 22?* https://www.forbes.com/sites/rufaskamau/2022/05/09/what-is-bitcoin-pizza-day-and-why-does-the-community-celebrate-on-may-22/?sh=70f10ab3fd68

Kavitha, S. (2017). Usage of social media among the equity investors with special reference to selected stock broking firms in Coimbatore. *Management Today, 7*(4), 214–221. https://doi.org/10.11127/gmt.2017.12.04

Khan, A., Anjum, R., & Khan, M. (2021). Investor perception of cryptocurrency: A moderating role of social media on decision-making. *Global Economics Review, 6*(4), 136-149. https://doi.org/10.31703/ger.2021(VI-IV).11

Khan, K., Zhao, H., Zhang, H., Yang, H., Shah, M. H., & Jahanger, A. (2020). The impact of COVID-19 pandemic on stock markets: An empirical analysis of world major stock indices. *Journal of Asian Finance, Economics and Business, 7*(7), 463- 474. https://doi.org/10.13106/jafeb.2020.vol7.no7.463

Kraaijeveld, O. & De Smedt, J. (2020). The predictive power of public Twitter sentiment for forecasting cryptocurrency prices. *Journal of International Financial Markets, Institutions and Money, 65*, 101188. https://doi.org/10.1016/j. intfin.2020.101188

Liu, M., Xue, J., Zhao, N., Wang, X., Jiao, D., & Zhu, T. (2021). Using social media to explore the consequences of domestic violence on mental health. *J Interpers Violence, 36*(3-4), 1965-1985. https://doi.org/10.1177/0886260518757756

Looney, C., Valacich, J., & Akbulut, A. (2004). Online investment self-efficacy: Development and initial test of an instrument to assess perceived online investing abilities. *37th Annual Hawaii International Conference on System Sciences,* 9, https://doi.org/10.1109/HICSS.2004.1265441

Lusardi, A. (2019). Financial literacy and the need for financial education: Evidence and implications. *Swiss J Economics Statistics 155, 1*. https://doi.org/10.1186/s41937-019-0027-5

Madhavan, A. (2000). Market microstructure: A survey. *Journal of Financial Markets, 3*(3), 205–258. https://doi.org/10.1016/S1386-4181(00)00007-0

Maheshwari, S. & Mittal, M. (2017). Effect of age on financial decisions. *International Journal of Advance Research and Innovative Ideas in Education, 3(*6).

Marr, B. (2021). *Blockchain, Bitcoin, cryptocurrency and ICOs – All you need to know in 10 minutes*. https://bernardmarr.com/blockchain-bitcoin-cryptocurrency-and-icos-all-you-need-to-know-in-10-minutes/

NDTV Business Desk (2021). *Bitcoin was first used to buy pizza. other interesting tidbits*. https://www.ndtv.com/business/the-first-bitcoin-transaction-was-for-buying-pizzas-more-interesting-tidbits-inside-2512643

Nguyen, H.T. (2016). *Financial self-efficacy scale: Development and validation of a measurement tool. University of Minnesota*. https://core.ac.uk/download/pdf/211361769.pdf

Nicolescu, L. & Tudorache, F. (2020). Investment behaviour in mutual funds: Is it a knowledge-based decision? *Kybernetes. ahead-of-print.* https://doi.org/10.1108/K-03-2020-0124

Razzaq, A., Samiha, Y. T., & Anshari, M. (2018). Smartphone habits and behaviors in supporting student's self-efficacy. *International Journal of Emerging Technologies in Learning (iJET), 13*(02), 94–109. https://doi.org/10.3991/ijet.v13i02.7685

Reinicke, C. (2021). *Cryptocurrencies can be a tool for building personal wealth long-term*. https://www.cnbc.com/2021/07/27/cryptocurrencies-can-be-a-tool-for-building-personal-wealth-long-term.html

Renu Isidore, R. & Christie, P. (2019). The relationship between the income and behavioural biases. *Journal of Economics*, *Finance and Administrative Science, 24(*47), 127-144. https://doi.org/10.1108/JEFAS-10-2018-0111

Riopel, L. (2019). *Measuring self-efficacy with scales and questionnaires*. https://positivepsychology.com/self-efficacy-scales/

Rojas, N. (2020). *The relationship between social media, cryptocurrency and blockchain*. https://topdogsocialmedia.com/social-media-cryptocurrency-and-blockchain/

Schwarzer, R. & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: NFER-NELSON

Securities and Exchange Commission (2021). *Introduction to investing*. https://www.investor.gov/introduction-investing

Securities and Exchange Commission (n.d.). *Ponzi scheme using virtual currencies.* https://www.sec.gov/files/ia_virtualcurrencies.pdf

Sharma, R. (2022). *'Crypto ruined my life': The mental health crisis hitting bitcoin investors*. https://www.vice.com/en/article/akvn8z/crypto-bad-for-mental-health

Srijanani, D. & Vijaya, T. (2018). A study on impact of gender in investment decisions. *Journal of Management Research and Analysis*, *5*(2), 161-165. https://doi.org/10.18231/2394-2770.2018.0025

Subagio, H., Satoto, S.H., & Ediningsih, S.I. (2020). The effect of investment education and investment experience on investment decision with financial knowledge as intervening variable. *Russian Journal of Agricultural and Socio-Economic Sciences. 99*. 143-150. https://doi.org/10.18551/rjoas.2020-03.16

Tardi, C. (2022). *Understanding the different types of cryptocurrency*. https://www.sofi.com/learn/content/understanding-the-different-types-of-cryptocurrency/

Unbanked (2020). *Overcoming the fear of investing in crypto*. https://unbanked.com/overcoming-the-fear-of-investing-in-crypto/

Venegas, T. (2014). Bitcoin: How, what, why? *The Bottom Line*. *29(*2), 8.

Zhao, H. & Zhang, L. (2021). Financial literacy or investment experience: Which is more influential in cryptocurrency investment? *International Journal of Bank Marketing, 39(*7), 1208-1226. https://doi.org/10.1108/IJBM-11-2020-0552