

DEMOGRAPHIC FACTORS, PERSONALITY TRAITS, AND THE PERFORMANCE OF CRYPTOCURRENCY TRADERS

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ABSTRACT: The study determines the relationship between demographic factors and personality traits with the performance of cryptocurrency traders. The research data is obtained from 100 cryptocurrency traders using the quota sampling method, correlational, with a quantitative approach. This study applies the Chi-square test to examine the relationship of demographic factors with performance and the Rank-Spearman test for the relationship of personality traits with performance. The results found that demographic characteristics (gender, age, length of trading) were positively associated with performance. Furthermore, personality traits (extraversion, agreeableness, conscientiousness, neuroticism, openness to experience) have negative and insignificant influences on the performance of cryptocurrency traders.

Keywords: Demographics; Personality Traits; Performance; Cryptocurrency; Traders

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INTRODUCTION

Due to the Covid-19 pandemic, purchasing power has declined, especially in the manufacturing and tourism industries. Adrian & Mancini-Griffoli (2019) said the existing money tends to be stored or invested in stocks, mutual funds, forex, and cryptocurrencies (digital currency). There are several options in cryptocurrency, namely lending, staking, or trading. Traders often use this trading activity to profit by taking advantage of price fluctuations (Solimano, 2018). Cryptocurrency traders expect optimal performance to increase the number of their earnings. Measuring the performance of a trader can be seen through the ROI (return on investment) he gets.

There are two types of traders in the crypto market: institutional and retail traders. Institutional traders buy and sell assets for the accounts they manage, while retail traders buy and sell assets for their performances. Usually, retail traders make transactions in small quantities, while institutional traders trade in large amounts. For retail traders to compete with institutional traders, retail traders need to perform well to be still able to make profits.

From the final quarter of 2020 to the first quarter of 2021, cryptocurrency trading activity showed a very positive trend or experienced a bull market. Since it was first launched in 2009, Cryptocurrencies have fascinated people, especially after the advent of blockchain technology (Nakamoto, 2008; Vigna and Casey, 2015). The *coinmarketcap.com* site recorded an increase in Bitcoin coins from the beginning of October 2020 to its mid-April 2021 peak of more than 500%. If used properly, it will provide a massive profit for a trader. However, traders still experience losses due to a lack of concentration when making transactions, less ability to do market analysis, and Fear of Missing Out (Pichet, 2017).

Individual factors might have led investors to cryptocurrency investments, despite the shortcomings mentioned above and concerns. Warren et al. (1990) and Jamshidinavid et al. (2012) state that person's investment choices are related to their personality traits and demographic characteristics (age, gender, education level, length of trading). Studies have suggested that investors' personalities, such as openness, extraversion, agreeableness, and neuroticism of the Big Five, affect investment decisions (Zhang et al., 2014; Conlin et al., 2015; Tauni et al., 2017; Oehler et al., 2018). This trader's investment options will determine how to manage their capital. In choosing among demographic factors, traders such as gender, education level, age, and extended trading may have a role. Bohr and Bashir (2014) found to form their study that cryptocurrency investors have significantly different characteristics compared to general investors, such as younger age.

Personality can also affect a person's performance in addition to demographic factors. Pervin et al. (2010) explained that personality affects people's thoughts, feelings, and behavior. McCrae & Costa Jr (2013) developed the personality category in The Big Five character, consisting of five primary dimensions: Extroversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. This model does not group a person's personality into just five categories, but these five dimensions are a group of personality traits

(Ramdhani, 2012). Differences in character can consider by a person in choosing a job that suits his personality. This consideration will allow a person to feel comfortable in doing his work. This sense of comfort and fit in work is what will eventually improve one's performance. It is in line with the research results from Fiernaningsih (2017) that personality influences team member performance.

The nature of cryptocurrency is very transparent because all transactions will be recorded. If a trader enters a cryptocurrency address, the number of cryptocurrencies owned will be visible (Bunjaku et al., 2017). He further added that although it is very transparent, information about the sender and recipient remains anonymous because it requires a high level of security. The use of cryptocurrencies has several advantages, including inflation cannot develop in peer-to-peer cryptocurrency systems and networks, and there is no master server responsible for all operations. Hundreds of distributed servers can carry out transactions. Neither governments nor banks can control cryptocurrency exchanges. Each cryptocurrency user can make unlimited transactions without being limited by personal, location, and amount. Payments made in this system are impossible to cancel. Cryptocurrencies cannot be counterfeited, copied, or double-spend, so this capability guarantees the entire system's integrity, and lastly is, the low operating costs of cryptocurrencies. Ivaschenko (2016) mentions that the use of cryptocurrencies has disadvantages in addition to advantages. Some of them are significant changes in the ups and downs of cryptocurrency currencies depending directly on government statements in various countries that cause problems in the short term. Investing in cryptocurrencies has a considerable risk that must be considered in the medium and long term.

It becomes essential to conduct a study based on the nature and risk of trading cryptocurrency for a trader into a study to determine the relationship between demographic factors (gender, age, education, length of trading) and personality traits (extraversion, agreeableness, conscientiousness, neuroticism, openness to experience) with the performance of cryptocurrency traders. This study seeks to identify which individual factors might lead investors to cryptocurrency performance, despite the drawbacks above and concerns. We specifically try to focus on the psychological and demographic aspects of investors.

THEORETICAL REVIEW

Performance of Trader

The trader is a term for people who trade on specific instruments such as stocks, forex, or digital currency in a short period. Currently, traders and investors are quite a rising job in Indonesia. Traders have the principle of buying when the price goes down and selling when the price goes up. The trader will benefit from capital gains when the price rises. Trading is a profession that requires thorough analysis to achieve the target and maximum profit. Before starting trading, it is recommended to know the correct type of trading and the proper application.

Until now, there is still little interest in studying the performance of individual traders and investors in the market developing country (Garay & Pulga, 2021). Campbell et al. (2014), using Indian stock portfolio data, found that investment experience and feedback on investment returns significantly affect investor behavior, performance, and favorite stocks. Trading performance can be described as a mechanism used to evaluate a trader's return and risk tolerance or lack thereof. All types of traders can be measured, from day traders, to swing traders and everything in between. Traders are disappointed with all the ratios and formulas for measuring trading performance because the majority are not statisticians, so they start to focus on this measurement, namely calculating how many winning trades, how much trading loss, and net profit.

Demographic Factors

The word demography comes from the word *demos* meaning resident, and *graph* means drawing or writing. So demographics are defined as writings or images related to the population (Faqih, 2010:3). In a broad sense, it is a systematic study of the symptoms and direction of population development within its social framework. Population analysis can cover the entire community or be categorized based on specific criteria, including gender, age, level of education, and experience (length of trading).

Gender/sex is an innate person from birth that causes physical and psychological differences between men and women. A person should be able to take advantage of the advantages and disadvantages that arise due to sex differences in his work. In specific fields, the position is neutral for the sex so that it can be done by both men and women, although there will still be differences between the work results. Green et al. (2009) conducted a study and showed that the accuracy of the thinking of female employees is significantly less expected compared to men. Eckel & Grossman (2008) also stated that women are more sensitive to risk than men, as seen from their decision-making.

Age is a social learning process that can form self-efficacy that can affect performance (Bandura, 1997). Age is considered a broad measure of experience and attitude towards decision-making. Employees have more experience, high commitment, and a good work ethic (Robbins & Judge, 2015). Age is a measure of a person's maturity in thinking. A person who has grown up must be responsible for his decisions, so he will be more careful in making choices. Decisions taken with careful consideration should provide the expected output. The older you get, the longer you work and the more proficient you are in your field of work (Selmer & Luring, 2016).

Education is the basis for a person to gain knowledge and broad insights. Educational background influences a person's behavior and mindset (Lin, 2011). Bandura (1997) suggests that education is a learning process that a person receives and forms self-efficacy that affects performance. A person who has a high level of education has a higher self-efficacy. The higher the formal education received, the more opportunities to learn and get better knowledge to complete a job.

The longer a person's work experience, the more expert he will be in doing his work. The longer they do the job, the more people understand the work and find the most efficient way to do it. If the implementation of the work is exemplary, then the performance will also be judged suitable. Christanti & Mahastanti (2011) stated that investment over a long period affects investors' investment decisions. Investors new to trading consider all factors related to their investment decisions. While the longer an investor trades, the fewer or fewer factors are considered. The longer you trade, the more experience you get, so investment decisions are more influenced based on experience.

A person's gender makes the difference between men and women, both physical and psychic. Men prioritize logic, and women prioritize feelings. This assumption is in line with research from Green et al. (2009) that the accuracy of male employees' thinking is significantly better. The more mature one should be more controlling and think logically to distinguish which needs and wants and determine their priorities. According to Selmer & Luring (2016), with increasing age, it will be longer to work and more proficient in work. Education is a way for a person to gain knowledge that can be used for various things and facilitate things. Learning is applicable to find a suitable method of completing a job in a job. The length of trading can determine how much experience a trader has. The more knowledge one has, the more intelligent a person does his job. Christanti & Mahastanti (2011) found that the length of trading influences an investor's investment decisions.

Research on the relationship between demographic and performance factors by Kurniasih and Lestari found that education affected performance, while gender, age, and working life had no effect. Anggita & Kawedar (2017) found that the level of education and length of a position affected performance, while generation had no effect. Guterresa et al. (2020) found evidence that education affects team member performance, and thus:

H1: There is a relationship between gender and trader's performance.

H2: There is a relationship between age and trader's performance.

H3: There is a relationship between the level of education and the trader's performance.

H4: There is a relationship between the length of trading and the trader's performance.

Personality Traits

Many characters and personalities attached to the individual can identify the prominent personalities that govern the individual's behavior. These personalities correspond to their characteristics. Two personality models commonly used to classify and identify individual characters are the Myers-Briggs Type Indicator (MBTI) and the prominent five personalities (Robbins & Judge, 2015:130).

The Big Five Personality is a personality model that encapsulates key human personality traits (Mount et al., 2005) and is relevant to different cultures (McCrae & Costa Jr, 2013). The selection of the name Big Five Personality does not mean that there are only five personalities, but rather a grouping of thousands of individual characteristics into five large sets called personality

dimensions (Ramdhani, 2012). Robbins & Judge (2015:132) state that the personality dimensions of the Big Five Personality model are as follows: (a) Extraversion, which is a personality that describes someone who is supple, friendly, and assertive; (b) Agreeableness which is a personality that describes the character of someone kind, happy to cooperate, and full of trust; (c) Conscientiousness which is a personality that describes someone trustworthy, persistent, organized, and responsible; (d) Emotional Stability which is a personality that describes someone calm and not easily nervous; and (e) Openness to experience which describes someone who likes new things.

Nasyroh & Wikansari (2017) suggest that the personality dimensions of agreeableness and neuroticism significantly correlate with performance. The personality dimensions of extraversion, conscientiousness, and openness have an insignificant connection with performance. On the other hand, Putri & Isbanah (2020) found that extraversion and agreeableness affect performance. Based on this description, the proposed hypotheses and the conceptual model are:

H 5: There is a relationship between extraversion and trader performance.

H 6: There is a relationship between agreeableness and trader performance.

H 7: There is a relationship between conscientiousness and trader performance.

H 8: There is a relationship between neuroticism and trader performance.

H 9: There is a relationship between openness and trader performance.

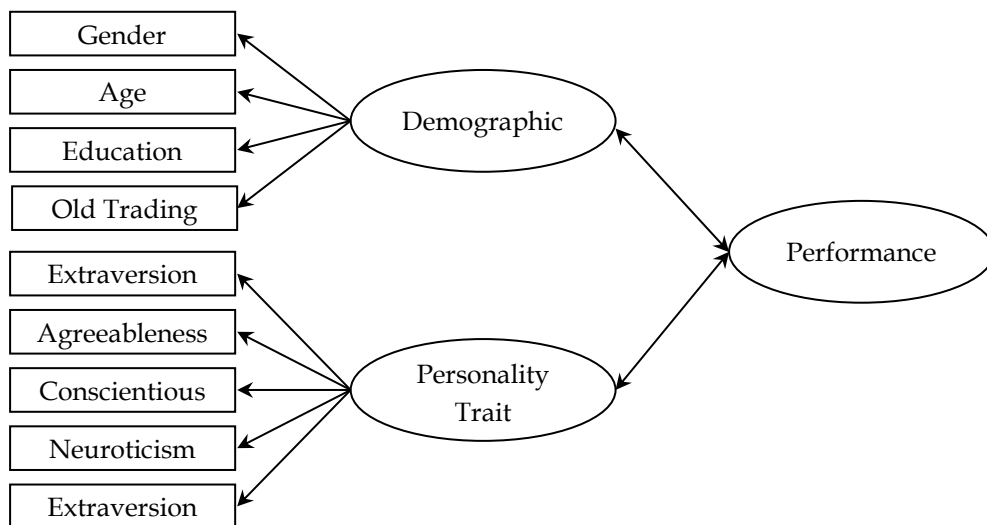


Figure 1. Conceptual Framework

METHODOLOGY

According to data from the Indonesian Blockchain Association, as of July 2021, there are 7.4 million crypto traders in Indonesia. This figure is an 85 percent increase compared to 2020, which only amounted to 4 million people. This number is expected to increase in the following years, so the number of crypto traders cannot be directly ascertained because it is dynamic. Because the population was not certainly known at the time of the study, the sampling method in this study used the quota sampling method with the Lemeshow formula (Bungin, 2009: 99), so we obtained a sample of 100 people.

This type of data is primary data obtained directly from research respondents. The instrumentation uses a validity test with the Pearson Product Moment method (Pardede & Manurung, 2014:31) and a reliability test with the Cronbach-Alpha method (Ghozali, 2017:47). This research is a correlational study because the aim is to analyze the relationship and the degree of relationship between two or more variables. Hypothesis testing uses the Chi-square test to test the relationship between demographic factors and performance. Because the Chi-square test is a non-parametric comparative test performed on two variables, the data scale of one or both variables is nominal (Sutrisno, 2000), and the Rank-Spearman test on personality trait-to-performance relationships (Nugroho, 2005:36).

RESULTS

Respondent Demographics Data

The results of observations of 100 respondents obtained demographic data of respondents covering gender, age, education last, and length of trading as presented in the following table:

Table 1. Respondent Demographics Data

Demographic	Category	Frequency	Percentage
Gender	Male	56	56%
	Female	44	44%
Age	20-24 years	59	59%
	25-29 years	22	22%
	30-34 years	15	15%
	35-39 years	2	2%
	40-44 years	2	2%
Education	Upper School of Advanced Schools	45	45%
	Diploma	23	23%
	Bachelor	27	27%
	Master	3	3%
	Doctor	2	2%
Length of Trading	One year	39	39%
	Two years	33	33%
	Three years	7	7%
	Four years	11	11%
	Five years	10	10%
Return On Investment (ROI)	0-20%	14	14%
	21-40%	29	29%
	41-60%	18	18%
	61-80%	22	22%
	81-100%	17	17%

Instrument Test

The results of the data instrument test, which include the validity test (Pearson Product Moment) and reliability test (Cronbach-Alpha), show the results as presented in Table 2:

Table 2. Instrumentation Test Results

Grain	Validity Test			Reliability Test	
	r-count	r-table	Meaning	α	Meaning
X5.1	0,733	0,195	Valid	0,694	Reliable
X5.2	0,859	0,195	Valid		
X5.3	0,775	0,195	Valid		
X6.1	0,846	0,195	Valid	0,814	Reliable
X6.2	0,872	0,195	Valid		
X6.3	0,843	0,195	Valid		
X7.1	0,808	0,195	Valid	0,769	Reliable
X7.2	0,878	0,195	Valid		
X7.3	0,792	0,195	Valid		
X8.1	0,782	0,195	Valid	0,655	Reliable
X8.2	0,733	0,195	Valid		
X8.3	0,674	0,195	Valid		
X9.1	0,830	0,195	Valid	0,686	Reliable
X9.2	0,790	0,195	Valid		
X9.3	0,735	0,195	Valid		

Validity test results show that all items on the personality traits variable have an r-count > r-table, suggesting the reliability of a research tool.

Hypothesis Testing

Hypothesis test results of the relationship between demographic and performance factors and the personality traits and performance are as follows:

Table 3. Hypothesis Testing Results

Test	Free Variable	Result	Significance
Chi-square	Gender	10,033	0,040
	Age	33,226	0,007
	Education	15,547	0,485
	Length of Trading	31,628	0,011
Rank-Spearman	Extraversion	-0,105	0,299
	Agreeableness	-0,098	0,334
	Conscientiousness	-0,150	0,135
	Neuroticism	-0,100	0,320
	Openness	-0,183	0,069

In Table 3, the Chi-square test results show that there is a relationship between gender, age, and length of trading with the performance of cryptocurrency traders with a value of significance $< \alpha$ (0.05). There is no relationship between education and the performance of cryptocurrency traders with a value of significance of $> \alpha$ (0.05). The results of the Rank-Spearman test (Table 3) show that there is no relationship between personality trait variables and the performance of cryptocurrency traders with a value of significance $> \alpha$ (0.05).

DISCUSSION

The chi-square test results found that gender has a relationship with performance. In this case, it cannot describe the direction of the relationship because the gender variable uses a nominal scale with no level. It is impossible to determine the direction of the relationship of the variable that has this minor scale. There is no definite measure for knowing how male or female a person is. The distribution of the frequency of gender with the level of performance (ROI), if averaged, shows that the average ROI for men is 45.85% and for women 55.95%. This can indicate that female traders perform better than male traders on average. This confirms the assumption that women are more thorough than men to be more precise in analyzing the crypto market.

There is a significant relationship between age and performance. From the cross tabulation results, it can be seen that the age range with the most significant number of respondents is in the age range of 20-24 years. When calculating the average ROI obtained from each age range, the 20-24-year age range obtains the highest average of 55.6%. This can be interpreted that a trader's performance is in its prime in this age range. At this age, range traders have a high enthusiasm for work and prove their ability to succeed. A cryptocurrency trader in this age range also mostly does not have significant responsibilities such as supporting his family, so traders can be more willing to take risks to get more profits. In terms of performance, it will show better results and a significant relationship between age and trader's performance. This result is in line with Anggita & Kawedar (2017) and Putri (2021), who found the effect of age demographic on performance.

There is no relationship between the respondent's education and performance. It could be because the education variable measured in this study is the level of formal education, while in cryptocurrency trading, technical knowledge from informal education may be more applicable. The results of the cross tabulation show that the majority of respondents are high school graduates or the equivalent. The calculation of ROI obtained from each level of education reveals that high school graduate obtains an average of 50.5%, still below Diploma graduates who have an average ROI of 55.7%. Meanwhile, S3 or Doctoral graduates have an average ROI of only 30.5%. This shows that it is not a guarantee that higher education will always excel in cryptocurrency trading. The absence of associations in this study is not necessarily the same as the

relationship between formal education and one's performance in other fields of work. For jobs that require formal education as a basis for competence, such as architect or teacher, one's performance is most likely related to the last formal education taken (Pebrianti and Trianasari, 2021).

There is a strong relationship between the length of trading and performance. The longer the trader pursues trading crypto assets, the more experience. This experience can teach traders how to deal with the condition that occurs in the future. From the calculation results of the average ROI, traders who have one year of experience get an ROI of 48.4%, while traders who have three years of experience get the highest ROI of 63%. Although the chi-square test cannot show the direction of the relationship, the greater the ROI of traders with more extended experience indicates that the longer a trader trades, the higher his performance (ROI).

The results of the Spearman rank analysis show that extraversion does not have a significant relationship with trader performance. Extraversion is a person's positive traits such as having high enthusiasm, friendliness, energy, and ambition. This study confirms that although respondents have high extraversion, it is not directly related to high performance. That is because cryptocurrency traders can still earn without directly connecting with other people.

The agreeableness has no relationship with the trader's performance. Friendliness has positive traits such as being cooperative, friendly, and caring for others. Although respondents have relatively high agreeableness, it has no relationship with traders' performance. There is no relationship between the nature of friendship and traders' performance in line with the absence of a connection between the previous character of extraversion. The spirit of agreeableness also measures the high low nature of interacting with others. The research results contradict Nasyroh & Wikansari (2017), who found a significant association between agreeableness and performance.

There is no relationship between conscientiousness and performance. People with high conscientiousness have traits such as being punctilious, orderly, meticulous, and full of preparation. Although these traits are necessary for traders to trade crypto assets, the results of this study show no association between conscientiousness and performance. Although not measured based on interactions with others, the nature of conscientiousness can still have no relation to a trader's performance. It is not easy to refrain from emotions from taking a role in trading crypto assets. The influence of emotions or passions in trading assets can mess with the nature of prudence. The nature of diplomacy will be disturbed by emotions, and excessive caution can also worsen performance. It is because if you are too careful, then you cannot bring out your optimal abilities. It may result in a lack of a relationship between conscientiousness and performance. These results align with Nasyroh & Wikansari's (2017) finding that conscientiousness is related to performance but is insignificant.

There is no relationship between neuroticism and performance. People with high neuroticism tend to feel anxious, temperamental, moody, and self-pitying. Neuroticism measured the emotional control of the study respondents. Reasonable dynamic control is needed so that when trading crypto assets, the

trader still executes the trading strategy by what he planned and does not get carried away with emotions or passions. The study results that did not show any association between neuroticism and performance are inversely proportional to Nasyroh & Wikansari's (2017) research. The results showed that neuroticism has a significant association with performance. This difference can occur because the investigated object is the team member of the Human Resource Management division.

There is no relationship between openness and trader performance. The nature of transparency will be related to the number of knowledge traders have. The amount of knowledge is related to the performance of traders. Although not directly related to traders' performance, good openness is still necessary for trading crypto assets. It is because the cryptocurrency world continues to undergo changes and developments. If you cannot keep up with it, the trader will find it difficult to profit. The results of studies that show the absence of an association between openness and performance, in contrast to the effects of research conducted by Nasyroh & Wikansari (2017), found that transparency has an association with performance, although not significant.

This study explores whether demographic characteristics and human personality are closely related to a trader's ability to trade cryptocurrencies. This research shows that women have a higher potential to become successful cryptocurrency traders than men. Trading activities should be started at a young age because the focus and productivity are still high, plus the need for consistency in trading because the length of trading is also related to the ability to generate ROI as an indicator of trader performance. Although only the three variables of this study were significantly related to a trader's performance, we believe the results obtained offer some contribution to the literature. Studies such as this that describe the performance of cryptocurrency traders based on statistical evidence are rarely conducted. As stated by Bartos (2015), the discussion of whether efficient market conditions better explain the performance of cryptocurrency traders, psychological states, or investment patterns is still a matter of debate.

FURTHER STUDY

Based on the study results, gender, age, and length of trading experience have a relationship with cryptocurrency traders' performance. Education has nothing to do with performance. Personality traits (extraversion, agreeableness, conscientiousness, neuroticism, and openness) have no connection with the performance of cryptocurrency traders. This study shows that traders with neuroticism or emotional control traits that are not good should learn to control their emotions. Researchers should then discuss the relationship of demographic factors better using analysis that can also describe the direction and intensity of a relationship. In addition, it is also advisable to add other demographic factors such as marital status, type of employment, and informal education.

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