Are Young Investors Leading the Herd? A Study on How Age Impacts Herding Behavior During Economic Crises

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Abstract. This study aimed to investigate how different characteristics of investors, such as their gender, generation, and proportion of income invested in stocks, affect their decision-making and herding behavior during an economic crisis. Using an Ordered Logit Model, the study found that these factors do indeed impact investor behavior. Specifically, the younger generation is more likely to engage in herding behavior during times of crisis and may panic when making investment decisions. These findings have important implications for financial advisors and policy makers who seek to understand and manage investor behavior during times of economic uncertainty. By considering these demographic and economic factors, they may be better able to predict and manage investor reactions to market events.

Keywords: herding behavior · investment decisions · capital market · economic crisis

1 Introduction

Developing nations' banking systems depend on the stock market. New and seasoned investors can profit from the stock market [1]. Due to the stock market's volatility, aggressive buyers buy low and sell high [2]. In January 2021, Indonesia's stock market could trade IDR 20 trillion daily. Since April 2021, daily trade value has dropped to IDR 9 trillion. Stock investor behavior caused this drop.

Financial norms assume rational investors who consider all available information. Orthodox economic theory states that capital market investors make rational investment choices [3]. The efficient market hypothesis states that the market price of securities is right and reflects all available information. The efficient market hypothesis states that stock prices reflect all knowledge [4].

Over the last decade, traditional finance has studied investor decision-making [5]. Behavioral economists argue that investors' irrationality can result from incorrect assumptions, scenario perceptions, and perceptual distortions that affect their daily investment decisions based on their emotions, goals, behavior, and social relationships.

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This study analyzes investor rationality in the context of investor behavior and decision-making bias during Indonesia's economic crisis. Investors react to and perceive the same information differently, which leads to different market signal interpretations and behavior [6]. Indonesia witnessed the 1997/1998 monetary crisis, the 2008 global crisis, the 2013 market turmoil caused by the Fed's plan to reduce Quantitative Easing (QE), and the 2020 COVID-19 pandemic. This empirical study will analyze behavioral bias in the Indonesian stock market and its effects on stakeholders. This study can help investors reduce behavioral bias's effect on expected utility. It can help practitioners spot biased trends in previous markets and create appropriate investment strategies. It aids capital market policymakers.

2 Literature Review

The prospect concept was proposed by Thaler (1980) for the financial system. He thinks as a financial theorist that people make mistakes when investing. Recent financial dynamics have critically stated that financial markets are becoming more competitive and uncertain [7].

In such cases, classical financial theory's predicted utility principle and Efficient Market Hypothesis cannot explain investors' investment behavior and preferences. Cognitive errors, fundamental heuristics, and psychological prejudices affect investment choices, according to Baker and Nofsinger (2010) [6].

Behavioral finance impacts investor performance, so it's important in investment decision making [8]. Herding, heuristics, and prospects all affect investment success, but prospects have a negative impact [9]. In Pakistan's stock market, behavioral factors like herding and several heuristics (over-trust, availability, and representativeness) positively affect investment success [10]. The above literature shows that behavioral factors can impact individual investors' investment performance.

Investors and financial analysts use heuristics to speed up investment analysis and choices [3]. Under uncertainty, psychological shortcuts allow quick choices [11]. In dynamic and unpredictable situations, people use these criteria to make choices and relate to heuristics [7]. Overconfidence—unjustified trust in one's logical judgments, decisions, and perceptual abilities—is a perceptual heuristic tendency. Investors make errors due to overconfidence [12]. When investors overestimate their investment ability, they make bad investment decisions. Investors overestimate investor awareness based on good business experiences [5].

Investor behavior and investment choices [13]. Herding, where investors seem to ignore their own opinions and trade similarly, is one such occurrence. Investors prefer to examine each aspect of their investment pool differently, which can lead to ineffective and uncertain investment decision making. Investor decisions are heavily influenced by market forces [5]. Market forces like price changes, market knowledge, historical stock trends, stock essence, customer goals, and excessive price response affect individual investment decisions [3].

Table 1. Description of Independent Variables

Variable	Description	Value
SEX	Gender	1 = male; 0 = female
AGE	Age/Generation (years)	1 = Gen Z (<25); 2 = Gen Y/Millennials (25–40); 3 = Gen X (41–56); 4 = Baby Boomers (>56)
EDU	Education	1 = SMA; 2 = Strata 1; 3 = Strata 2/Strata 3
INC	Income per month (IDR)	1 = <5 million; 2 = 5–10 million; 3 = 10–20 million; 4 = 20–30 million; 5 = >30 million
TIME	Trading period (years)	1 = <1; 2 = 1–3; 3 = >3–5; 4 = >5
INVES	Proportion of income invested in stocks (%)	1 = <10; 2 = 10–20; 3 = 21–30; 4 = >30
EQUITY	Number of shares owned (units)	1 = <3; 2 = 3–5; 3 = 6–10; 4 = >10

3 Methodology

This study seeks to verify that individual investors can simultaneously have complex rational and irrational thinking logics in their investment behavior. This study focuses on detecting behavioral bias and the impact of investor behavior bias in making investment decisions in the capital market during a crisis or market turmoil. Ordered Logit Model analysis is used to answer the research objectives, using data collected from 200 stock investor respondents. This analysis is used because the data characteristics of the dependent variable are multilevel answers submitted by investors regarding questions about the decision of investors who choose to sell their shares in the event of an economic crisis so that stock prices do not decrease further (DEC). Respondents' answers were assessed using a Likert scale, 1 to 5 (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree).

$$\begin{aligned} DEC = \beta_0 + \beta_1 SEX + \beta_2 AGE + \beta_3 EDU + \beta_4 INC \\ + \beta_5 TIME + \beta_6 INVES + \beta_7 EQUITY + \varepsilon \end{aligned}$$

The investor's decision is influenced by several factors related to the investor profile (gender, age, education, income), and investment profile (trading period, proportion of income used for investment, and number of shares owned).

4 Analysis and Discussion

In conditions of economic crisis, people have a tendency to worry that economic conditions will worsen. The behavior of stockholders can vary depending on how each individual perceives the current situation and expectations of future economic prospects.

The psychological condition of investors can differ depending on gender, age (reflecting more and more life experiences with age, so that they are wiser in dealing with things), education (higher education level means higher knowledge and skills in anticipating and responding to uncertainty), income (higher income is considered more resilient during a crisis because it has a larger income backup to deal with a crisis).

Another factor is investment profile: length of trading, proportion of income used for investment, and number of shares owned. Investors who have been trading for a long time must have more investment experience than those who have just traded stocks, so old investors will tend to be more resilient in dealing with crises. The more proportion of income used for investment, as well as the more shares owned, have a tendency to panic more during a crisis because the greater the possibility of facing capital loss. So that these various variables can influence investors' decisions whether to hold or release their shares in the event of an economic crisis.

Based on the results of the study (Table 1), the variables of gender, age/generation, and the proportion of income invested in stocks have a significant effect on investor decisions in times of crisis. Men tend to choose to sell stocks because they are worried that the stock price will fall even further, thus providing a larger capital loss. Female investors tend to be calmer in the face of crises, and choose to keep holding stocks. Female investors view stock investments as long-term investments, and view the economy in the long-term. According to classical economists, the economy is inherently stable. If there is turmoil in the economy, it is only temporary and the economy will make adjustments in the long term, and the economy will return to stability. In fact, female investors are not willing to release their shares when the price drops due to losses. Female investors are more patient waiting for economic conditions to stabilize, and stock prices will move up again.

Young investors panic more than elder investors during crises. Older investors are more resistant to the crisis and not selling shares when stock values fall. Panicky investors watch the market. Panicked buyers can sell shares to avoid further stock price declines during an economic crisis. Younger investors follow other investors releasing stock. The stock price index will fall, stock values will fall further, panic will rise, and herding behavior will rise (Table 2).

If you look at the experience of stock prices in Indonesia during a crisis, there is always a downward trend in stock prices. Like during the 1998 crisis, the JCI movement had reached 724.56 in June 1997. It fell to 276.15 or decreased by 61.89% in September 1998 due to investor panic. During the 2008 global crisis, in December 2007 the JCI stood at 2,745.83, slowly decreasing by 54.78% to 1,241.54 in November 2008 before closing at 1,355.41 at the end of the year. Throughout 2008, the total market capitalization on the IDX shrunk to Rp 1,076 trillion from Rp 1,988 trillion (investing.com).

Another variable that influences investors' decisions during a crisis is the proportion of income invested in stocks. The larger the proportion, the higher the tendency of investors to sell their shares during a crisis. Investors tend to panic because of the possibility of suffering a large amount of capital loss, so they choose to sell their shares in the hope of not facing even greater losses. In this case, the principle of risk diversification becomes very important. Don't put all your eggs in one basket. The asset portfolio is

Table 2. Ordered Logit Model

Dependent Variable: DEC
Method: ML - Ordered Logit (Newton-Raphson / Marquardt steps)
Included observations: 200
Number of ordered indicator values: 5
Convergence achieved after 5 iterations
Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
SEX	0.989025*	0.278782	3.547663	0.0004
AGE	-0.484917**	0.222558	-2.178834	0.0293
EDU	0.153956	0.277999	0.553800	0.5797
INC	-0.213428	0.161221	-1.323826	0.1856
TIME	0.266397	0.167924	1.586415	0.1126
INVES	0.627573**	0.147640	4.250686	0.0000
EQUITY	-0.019490	0.170339	-0.114419	0.9089
Limit Points				
LIMIT_2:C(8)	-2.889180	0.721804	-4.002723	0.0001
LIMIT_3:C(9)	0.424459	0.542776	0.782014	0.4342
LIMIT_4:C(10)	1.342697	0.547801	2.451066	0.0142
LIMIT_5:C(11)	2.957724	0.583598	5.068082	0.0000

Pseudo R-squared	0.078983	Akaike info criterion	2.754870
Schwarz criterion	2.936277	Log likelihood	-264.4870
Hannan-Quinn criter.	2.828283	Restr. log likelihood	-287.1685
LR statistic	45.36297	Avg. log likelihood	-1.322435
Prob(LR statistic)	0.000000		

Notes: Significance at 1% level, ** Significance at 5% level

not only the majority in stocks, but it is important to diversify financial assets into other forms such as bonds and short-term financial assets.

5 Conclusion

Just as there is heat and rain, Indonesia's economy has not only experienced the best of times, but has also experienced very bad times. This also applies to the capital market. The stock market crash had occurred in 1998 and 2008. Almost the same conditions were repeated 10 years later. In 2008, there was a crisis triggered by the sub-prime mortgage scandal in the United States which caused the capital markets around the world to suddenly collapse. 12 years later, in 2020, the spread of the corona virus (Covid-19) caused global concern and had a negative impact on the stock market in Indonesia. Many foreign investors choose to invest their capital in safe haven assets such as gold and debt securities and slowly begin to release their investment holdings on the Indonesia

Stock Exchange. It is natural for the stock market to go down when negative sentiment circulates. The condition that often occurs is panic selling. But panic in the market will always have an end and the market reverses direction from red to green.

During a crisis, it is best not to let go of the shares you already own, let alone have big cap stocks or blue chips, namely stocks with large market capitalization with good fundamentals. Stocks that fall into this category are stocks with a market capitalization of more than Rp 40 trillion. Big cap stocks can still be stored first because usually this type of stock rebounds the fastest after the decline in the JCI. It should be noted, this method only applies to those who invest in stocks using idle funds, because of course it takes time for the stock portfolio to return to the initial purchase price level or its fair price.

Another thing to note is that no matter how confident an investor is with their stock portfolio, make sure they have liquid funds that can be used for their daily needs. Like an umbrella before it rains, investors must be wise in managing their investments. Make sure the cash flow is not disrupted if any unwanted conditions occur in the market. Stock market conditions are not always good, but that doesn't mean one should give up on becoming a stock investor.

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