

The Prospect Theory Utility Function and Empirical Evidence for the Post of Pandemic Situation

Juninetenth Keeply F Sitanggang ¹, Mardani ² & Iskandar Muda ³

^{1,2,3} Universitas Sumatera Utara, Medan, Indonesia.

¹ junzee.borneo@gmail.com, ² mardanise@gmail.com, ³ iskandar1@usu.ac.id

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Abstract

This study examines the behavior of stock trading activities and JCI that cause noise after the Covid-19 pandemic. The research methodology carried out is qualitative research by conducting analysis sourced from library materials or also known as literature research. The sample data observed is stock trading data and JCI for the period December 2020 - 2021. The results of this research observation found during a pandemic. In addition, investors are completely correcting and overreactions that occur at trading intervals during the pandemic. Our analysis has adopted a new framework for determining stock market prices.

Keywords: Prospect theory, utility function, noise, overreaction and empirical evidence.

1. Introduction

It is proven that there is a valid covid 19 pandemic phenomenon, namely high trading volatility at the beginning of trading before the pandemic and stagnant trading after the pandemic. Amihud & Mendelson (1987) argue that the price pattern that occurs is due to differences in the mechanics of trading adopted by the stock exchange in pricing. However, even the most advanced approaches usually require controversial values for such an important parameter as investor risk aversion of consumption shocks. Amihud & Mendelson (1987) and Stoll & Whaley (1990) tested the mechanics hypothesis of trading by comparing the variance of returns at the opening price against the variance of the return of the closing price for NYSE-listed stocks. The NYSE adopted both trade mechanics. The opening price is determined by the mechanics of the call market, while the closing price is determined by the continuous method (Yulisfan et al., 2021). As a result, both studies found that the return variance during the open-to-open period was higher than the return variance during the close-to-close period and concluded that the results were consistent with the mechanized hypothesis of trade mechanics used. This is different from the mechanics of trading on the Indonesia Stock Exchange (IDX) where the opening and closing prices are determined by the continuous method. That is, if the trading mechanics move volatility then there is no significant difference between the variance of the opening price and the closing price. The intuition of Benartzi and Thaler (1995) developing in partial equilibrium cannot immediately be transferred to the equilibrium pricing model. Additional evidence of the influence of previous results on risky choices is also needed. The mechanistic hypothesis of trading is not the single factor that explains the high volatility of returns at the opening of the NYSE (Lam & Tong,

1999). This is supported by research conducted by Guner & Onder (2002) which states that the variance of opening returns on the ISE (Istanbul Stock Exchange) is higher than the variance of closing returns. Since there is no difference in trading procedures at the opening and resting phases of the ISE, the difference is due to the absence of trades during the previous non-trading period or those that are in the form of trading halt (Amihud & Mendelson, 1991). Stock price movements reflect two things, namely information and noise (Huang, Liu & Fu, 2000). Noise is seen by the inaccuracy of the perception or confidence of investors in the true value of securities. The opening return has higher volatility and is serially negatively correlated with the closing return (Steeley, 2001). This negative correlation is caused by overreaction and noise, so there is a difference in return behavior in the opening return and closing return. That is, the opening price determination error can be corrected on the trading time.

This study analyzed the trading volume of stocks and JCI during the pandemic which was used to validate the phenomenon. However, this research is more specific in relation to the capital market which is influenced by the pandemic situation in Indonesia. Likewise, the specification of a research model that constructs by fixing a longer period of time in the twelve-month interval for the duration of the trading period. The selection of the twelve-month time interval due to the circumstances, it can be concluded that the pandemic causes an anomalous phenomenon in which the opening stock price is actually unable to represent the value of stock trading.

2. Literatur Riview

Prospect Theory

The same research subject with several of the same options but formulated in different ways then the results of a person's decision will be different. Kahneman & Tversky (1979) in Polach (2019) named the person's behavior as risk aversion behavior dan risk seeking behavior. Thomas adopted the Prospect Theory developed by Kahneman and Tversky (1979) to explain the relevance of applying presumptive taxes to small businesses in order to lower the level of non-compliance of them paying taxes in the United States (Zhong, 2018). Engelschalk stated that it is indeed difficult to tax a small business, therefore creating a comfortable environment for small entrepreneurs to be tax compliant needs to be created (Liu, 2020). Prospect Theory is a branch of the cognitive theory that explains how individuals think/have opinions and make decisions in various options that are considered profitable by considering risks (Thomas 2013 dalam Van Bilsen, 2020).

Noise and Overreaction Market

The existence of information released overnight resulted in price changes that reflected risk expectations and investor gains due to investor reactions (Bery & Howe, 1994). As a result at the opening of trading there was high volatility (Amihud & Mendelson, 1987, Madhavan & Panchapagesan, 2002, Guner & Onder, 2002, Stoll & Whalley, 1990), Jain & Joh (1988), Foster & Viswanathan (1993). Chan, Chockalingan & Lai (2000) concluded some of the allegations of higher market activity at the opening. The volume at the opening and closing of the trading session indicates the trades made to rebalance the portfolio before and after trading stalled at night. Fourth, that the open-to-open return variance is greater than the close-

to-close return variance for stocks traded on the NYSE. This indicates that the opening price has a larger price error than the closing price (Haykal et al., 2018).

Steeley (2001) found that opening returns had higher volatility and were serially negatively correlated with closing returns. This is due to noise, so there are differences in return behavior at the opening return and closing return (Huang, Liu & Fu, 2000). That is, the opening price determination error can be corrected at the trading time. The noise trading approach states that there is price variability resulting from unexpected trades that are tested not correlated with valid information. Noise trading is based on as if noise is informational. More and more trading noise indicates that the market is increasingly illiquid, in the sense that the more frequent trades that allow observation of prices. But trading noise actually puts noise into prices (Harsono, 2003). The further the stock price moves away from its value, the faster it tends to revert back (Black, 1986).

A number of financial market anomalies, including excessive volatility and mean reversion in stock market prices, can be explained by the idea of trader noise. Professional arbitrage behavior is a response to trading noise rather than as fundamentally based trading. Most arbitrage professionals spend resources checking and predicting false signals that are followed by trader noise (Black, 1986; Wermers, 1998; Harsono, 2003). Trader noise forms incorrect estimates, especially regarding the variance of the distribution of certain assets. For such misperceptions, the noise of traders as a group that not only generates higher returns than rational investors produce. In reality, noise traders are still able to survive and dominate the market in terms of long-term wealth, even if they take excessive risks. The presence of noise is indicated by the presence of negative autocorrelation between the opening price and the periods after it (Huang, Liu & Fu, 2000).

When a market equilibrium occurs, a security is expected to provide a return equivalent to systematic risk. Investors try to This means that investors overreact to the stock's information so that the stock price tends to be set incorrectly. Furthermore, the market corrects through price reversals until a new equilibrium level is reached (DeBondt & Thaler, 1985, 1987) The results of research on the application of psychology which states that humans tend to overreact (overreact) to news or events of a dramatic nature (Claire & Thomas, 1995). The market makes slow price adjustments to pricing errors. DeBondt & Thaler (1987) divides portfolios into portfolio groups that consistently earn trading profit (for winners) and portfolios that do not get trading profit (for losers). Corrections to such information occur in the next period, and are made in the short term when corrections are made excessively and significantly and repeatedly. This is what is called overreaction.

3. Metodology

This research method uses qualitative methods. The source of this study uses indexed journals that have been published, proceedings, magazine working papers and news online and offline, then re-examined and retracted to be used as a basis for events or cases to be researched by the author. Another source, the author obtained the results of the analysis of stock trading volume data and the Joint Stock Price Indkes in Indonesia. Data analysis techniques use literature studies by collecting data in the form of documentation or using literature reviews. Researchers obtain problems that are drawn as a basis for analysis to answer research formulations.

4. Result and Discussion

Result for Deskriptive Statistic

This first part tests noise and overreaction by analyzing stock trading volume and the Composite Stock Price Index (JCI) which was formed based on a one-year interval after the Covid-19 pandemic. Furthermore, the second and third parts of the study analyze the relationship between noise and overreaction and the controlling of trading day factors based on Prospect theory. The full discussion is as follows:

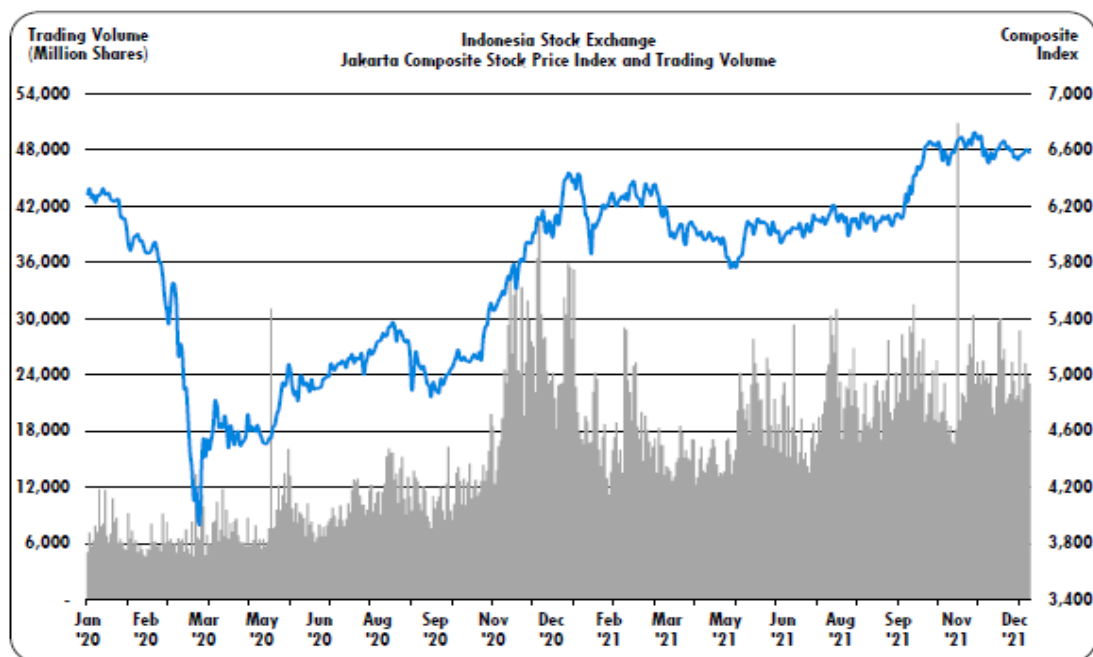


Figure 1; IHSI and Trading Volume Activity

Source: www.idx.co.id

The descriptive Statistical Graph shows that in the twelve-month interval post-covid 19 pandemic that occurred for 2021 it varied greatly. The amount of mean trading volume activity with the lowest figure was in the closing period of March 2020 of 9,000 million shares which traded with JCI closing at 4,000. The highest mean stock trading figure was in the November 2021 period of 52,000 million shares which traded with the JCI closing at 6,800. The inference that can be learned from this mean magnitude is that it has been shown with a descriptive statistical base that the impact of the Covid-19 pandemic has hit stock trading in Indonesia. This presents evidence that stocks fell and rose quite sharply in comparison with the intervals before and after the covid 19 pandemic.

Result for Noise Test

Thirteen months of statistical data on trading volume activity and JCI during post-pandemic observations were used to analyze noise, namely a 30-day interval for each period plus trading volume activity and JCI opening the next day. The noise hypothesis is proven when there is a difference in values between the opening period and the period after it. Negative data trends indicate noise while zero or positive data indicates information is linked to volatility at opening time. The results of the analysis for all samples are shown in the following graph.



Figure 2; IHSG and Trading Volume Activity

Source: www.idx.co.id

Figure 2 presents the autocorrelation of log returns and post-pandemic stock trading. As expected, our analysis yielded negative autocorrelation returns and resulted in lower average returns. This negative correction implies a reversal of the average of the long horizons of the type documented by Poterba and Summers (1988) and Fama and French (1988a). In addition, the observation of stock trading volumes and JCI in our model, perfectly matches its actual behavior. The low trading volume activity and JCI on the influence of the Pandemic are clearly observed in the graphic perspective presented in Figure 2. The mean return interval of 30 minutes of the beginning of the trading day in comparison with the entire sample shows that the 30 minutes of the beginning are graphically lowest. Meanwhile, the mean return interval of 30 minutes during the trading day in comparison with the entire sample shows that the last 30 minutes are sharply rising as well as graphically high.

Result for Overreaction Market

Overreaction analysis is used to prove the phenomenon of reversal of loser portfolios and winner portfolios, so a comparison is carried out between stock trading in the formation period before the pandemic and stock trading in the test period after the pandemic. The formation period is the opening stock trade, while the formation period is the period after which there is a total of 12 periods (months) for an interval of 30 days. If the investor overreacts then the loser's portfolio will be more outperform than the portofofolio winner after the formation period, then it can be concluded that. Statistical testing was carried out using a t-test (paired sample t-test). Graph 3 shows the overreaction test results of the entire sample.

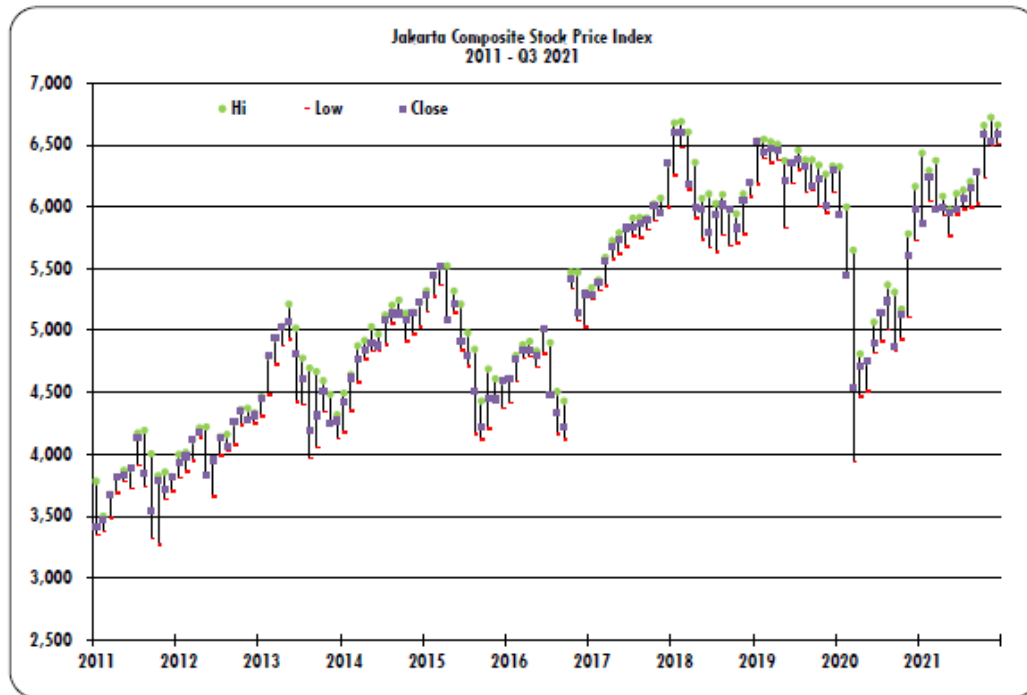


Figure 3; IHSG and Trading Volume Activity

Source: www.idx.co.id

Chart 3 shows the results at the formation period (JCI is at the level of 4,000). However, in the period after the pandemic, there was a phenomenon of JCI reversal between loser stocks and winner stocks using a 30-day interval formation period. In this testing period, there was a considerable JCI reversal after the pandemic, which was 6,700 at the end of stock trading in 2021. The difference in positive returns shows that the JCI corrected positively after the pandemic began to end bigger. The results in this period show a significant difference, in other words, there is a price reversal in the period after the pandemic.



5. Discussion

Adding empirical evidence about the effects of previous resarch results has improved the Prospect theory model's ability to understand some of the features of stock trading on the exchange. While we believe that the effects that can be explained are particularly relevant for the behavior of the aggregate stock market. The literature has produced other possible

findings for certain features of the data: excessive return volatility, for example, may also be the result of investors extrapolating earnings trends too far into the future, see Barsky and De Long (1993) and Barberis, Shleifer, Vishny (1998).

Lakonishok and Maberly (1990) show that stock volume on the NYSE is influenced by the pattern of daily trading activity carried out by investors due to the pandemic issue. Investors' desire to make transactions in the pandemic period is relatively higher compared to other trading days, so transaction activity in this period is higher than other days. This is triggered by the investor's desire to sell the stock higher than the desire to buy the stock, so the stock price tends to be lower. The lowest stock occurred in trading during the pandemic because during the weekend to post-pandemic, investors had a tendency to sell stocks more than the tendency to buy stocks. During the pandemic, the market experienced a surplus of selling demand (sell orders) which is an accumulation of selling demand during the market closes. Therefore, there are predictions where equity premiums and volatility figures actually represent a very conservative lower limit. This has already been explained by the model of Lucas (1978), which forces companies to divide the same dividends, while in fact they are completely different. We adopted this model because it is the simplest framework that can be illustrated. The perfect correlation that is so counterfactual that consumption-based models usually implicate is the source that continues to embarrass that paradigm.

6. Conclusion

The results of this research observation found during a pandemic. In addition, investors are completely correcting and overreactions that occur at trading intervals during the pandemic. Our analysis has adopted a new framework for determining stock market prices

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