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## Testing for break-even effect in the Indonesian capital market

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### ABSTRACT

This study aims to find out whether investors experience a break-even effect. The research method used in this study was the Leal et al. (2017) method to find the break-even effect. The results show a break-even effect in several years, 2012 and 2015. This means that only in those two years did individual investors experience a break-even effect as indicated by the Proportion of Winners Additionally Purchased (PWAP), which was more significant than the Proportion of Losers Additionally Purchased (PLAP). The limitation of the research is that there are still several other methods that can be developed to find the break-even effect. Bullish and bearish market conditions are also expected to influence investors' decisions. The research implication for securities companies and capital market authorities is that it is necessary to support individual customers through education to avoid these two effects. Investors need to be aware of the break-even effect. Research on individual investors is still minimal. In addition, it uses a sample of secondary data from individual investor transactions to find the relatively new break-even effect on the Indonesia Stock Exchange.



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## INTRODUCTION

In recent years, the capital market in Indonesia has shown an increasing number of retail investors. On the 44th anniversary of the re-activation of the Indonesian Capital Market, Chairman of the Board of Commissioners of the Financial Services Authority (OJK), Wimboh Santoso, said that from the beginning of the pandemic until July 2021, investor growth has doubled. This shows the high optimism of investors toward the Indonesian capital market. The increase in investors in the Indonesian capital market is dominated by retail investors who, on average, come from millennials under 30 years of age (Magdalena, 2021).

The Covid-19 pandemic has also pushed up investors in the Indonesian capital market. Several factors that caused the increase in the number of retail investors during the Covid-19 pandemic period were due to the availability of time and funds. During the pandemic, some people have to work at home, and the rest who work in the office cannot do activities at the cafe after work. As a result, there is enough time available (Waweru et al., 2008). In addition, funds for consumption at cafes and discussions with friends are not used. According to the Chairman of the OJK Board of Commissioners, Wimboh Santoso, during the pandemic period, public consumption has not recovered due to the Covid-19 pandemic. This prompted a shift in income from consumption to investment, resulting in an increase in the number of retail investors. Advances in technology also encourage ease of making investments. Advances in technology have made the information very easy to obtain to support investment activities. Data from OJK shows that there were almost 4 million retail investors during the Covid 19 pandemic (Wareza, 2021).

Indonesian Capital Market statistics published by (KSEI, 2021) show that in December 2021, the number of capital market investors reached 7,489,337, an increase of 92.99% compared to 2020 at 3,880,753. Of that number, most of the Indonesian capital market investors are young, where 59.23% are under 30 years old, and 21.54% are aged 31-40 years. Most of them are employees at work, which are 32.68%, then students, 28.03%, and entrepreneurs 14.47%. The education aspect is quite surprising because 58.65% have high school education and below, 7.48% have D3 education, and 31.05% have S1 education. There are only 2.82% have a master's degree or above.

The increase in retail investors is perfect for developing the Indonesian capital market because it increases the retail investor base. However, retail investors often follow the behavior and are often

trapped in stocks that are not fundamentally good and are indicated to be liquid for a moment (Barberis, 2013). This causes many market participants to suffer losses, thus spreading bad news about the stock market. (Mitchell, 2018) writes that the majority of traders in the stock market experience losses, where statistics show 95% of financial losses. This shows that most of the market participants are losing money.

The magnitude of the loss of market participants needs to be investigated to find a solution so that the number of local investors increases from time to time. (Burns, 2014) writes that one of the reasons stock market traders suffer losses is because they are afraid of losing their profits. This causes the trader to miss the opportunity to make big profits in the market. Still, according to (Burns, 2014), profitable traders make big profits in their trades. The trader only leaves the market if there is a good reason. This is known as holding a losing stock too long and selling the stock too soon (Odean, 1998).

The phenomenon of loss of market participants is also influenced by market volatility that is too high. The high volatility of financial markets is difficult to explain by efficient market theory through rational assumptions. Changes began to occur in the 1980s when the focus of financial industry research began to use a behavioral finance approach (Prast, 2004). One of the essential things in the form of a market participant's utility curve, where the prospect theory proposed by (Kahneman & Tversky, 1979) can explain how an investor makes decisions when faced with uncertainty or risk. Behavioral finance studies loosen the rational assumptions of standard finance and explain that investors are influenced by various psychological biases (Barber et al., 2007).

(Shefrin, 2002) wrote a study on behavioral finance to study how a person's psychological aspects affect financial decisions. Behavioral finance studies include elements of emotions, attitudes, and preferences of a person in making economic decisions. A person's experience, educational background, family, culture, and social community influence decisions. (Kapoor & Prosad, 2017) write that humans are influenced by emotions that ultimately affect their decisions. Therefore, behavioral finance studies consider the psychology of market participants and social and economic factors (Pan, 2019).

The phenomenon of market participants related to behavioral finance is that market participants often prefer to buy additional shares that experience losses rather than buying additional profitable shares. According to (R. H. Thaler & Johnson, 1990), this is called the break-even effect because of the desire of market participants when experiencing losses to get out of the market in a state of break-even or without losses so that they do averaging down. The break-even effect can also be explained by prospect theory and mental accounting (Fulfer, J. D., & Maille, 2018). Mental accounting proposed by (R. Thaler, 1985) can explain break-even, where investors consider each investment in shares grouped into different accounts. To save a losing position, market participants make additional purchases of losing shares at a lower price to get a lower average price (Filbeck et al., 2005).

Previous research indicates that individual investors experience a break-even effect by adding loss shares compared to profit shares (Leal et al., 2017). The break-even effect is still the main problem faced by market participants. Currently, very few break-even studies with secondary data are conducted in Indonesia (Candraningrat et al., 2018).

## **RESEARCH METHOD**

This study aims to determine whether capital market players, especially individuals, are trapped in the break-even effect bias. The bias of the break-even effect is believed to cause some capital market participants to experience losses. Market participants who experience the bias break-even effect tend to buy additional shares that are experiencing losses compared to buying additional shares that are experiencing losses. This technique is known as averaging down and aims to reduce the average purchase price of a stock and hope that it can come out with a minimum break-even position when the stock price increases.

The type of data used in this research is to use secondary data sourced from PT. Indonesia Stock Exchange (IDX). The data sourced from the IDX in this study is the data of 5,000 (five thousand) market participants actively transacting on the stock exchange. This research data is huge because it uses transaction data per tick from 2012 to the end of 2017. The data collection is carried out randomly or randomly during the research period, from 2012 to 2017. Calculations are

carried out to find the disposition effect and break-even effect and compare with the sophistication of investors.

This study measures market participants' preferences by comparing the behavior of these market participants when experiencing gains or losses. What is analyzed in this study is whether market participants make additional purchases for profitable positions or lose positions. The measurement method was introduced by (Leal et al., 2017) in the context of the break-even effect. An additional purchase is calculated for a profit position and an additional purchase for a loss position by comparing the additional purchase price to the purchase price at the initial position or the first time. Calculating the potential for additional purchases is done by looking at each account that makes a transaction, whether the position is profit or loss. Profitable trading positions open up additional buying opportunities at higher prices (averaging up). Meanwhile, a losing transaction position opens additional opportunities for buying at a lower price (averaging down). Finally, the Proportion of Winners Additionally Purchased (PWAP) and the Proportion of Losers Additionally Purchased (PLAP) is calculated.

$$PWAP = \frac{\text{Winners Additionally Purchased}}{\text{Opportunities to Additionally Purchase Winners}}$$

$$Plap = \frac{\text{Loser Additionally Purchased}}{\text{Opportunities to Additionally Purchase Loser}}$$

## RESEARCH AND DISCUSSION

Break-even Effect is measured by comparing the Proportion of Winner Additionally Purchased (PWAP) with the Proportion of Losers Additionally Purchased (PLAP). The Proportion of Winner Additional Purchased (PWAP) shows the proportion of investors adding to the share of profitable shares. In contrast, the Proportion of Losers Additionally Purchased (PLAP) is the opposite, where this number shows the proportion of investors adding to the portion of the losing shares. The hypothesis in this study is that there is a break-even effect shown by the Proportion of Winners Additionally Purchased (PWAP), which is significantly greater than the Proportion of Losers Additionally Purchased (PLAP). (Leal et al., 2017) used a t-test to find a significant difference between PWAP and PLAP.

**Table 1.** Average PWAP-PLAP and Time to Add Stoc

Year	N	Mean		Day		Std. Deviation	
		PLAP	PWAP	Wins	Loss	PWAP	PLAP
2012	1659	0.2001	0.2057	4.9975	4.8614	0.1541	0.1440
2013	1813	0.1970	0.1908	5.0761	5.2411	0.1800	0.1557
2014	1518	0.1731	0.1565	5.7770	6.3898	0.1735	0.1524
2015	1256	0.1393	0.1496	7.1788	6.6845	0.1514	0.1630
2016	1264	0.1557	0.1405	6.4226	7.1174	0.1560	0.1524
2017	1263	0.1378	0.1457	7.2569	6.8634	0.1520	0.1589
Total	2476	0.1572	0.1495	6.3613	6.6890	0.1163	0.1025

Source: Indonesia Stock Exchange, data processed

Table 1 shows the average PWAP and PLAP and the duration of adding stocks from 2012 to 2017 and testing all data. Of the 5000 individual investors, not all are active in transactions every year, so there are only 1659 data in 2021, 1813 in 2013, 1518 in 2014, 1256 in 2015, 1264 in 2016, 1263 in 2017 and 2476 for all research data. It can be seen that the average of PWAP is smaller than the average of PLAP occurred in 2013, 2014, 2016, and testing of all data. Meanwhile, the average PWAP is greater than the PLAP average in 2012, 2015, and 2017. The PWAP average is greater than the PLAP average, indicating a break-even effect. Testing data from all data samples

from 2012 to 2017 and testing all data shows that the data distribution is not normal, so the Wilcoxon Signed Ranks Test is carried out to find the difference between the PWAP average and the PLAP average.

Table 2 shows the Wilcoxon Signed Ranks Test on the difference between PWAP and PLAP from 2012 to 2017 and testing all data. Hypothesis testing shows that in 2012, 2014, 2015, and 2016, the null hypothesis (H0) was rejected, meaning a break-even effect in that year where investors decided to averaging down on a losing position compared to averaging up a profitable position or adding more shares. The loss is compared to the portion of the share that gains. Meanwhile, in 2013 and 2017, testing all data on the null hypothesis (H0) was accepted, meaning there was no break-even effect. The explanation of this yearly hypothesis testing is explained below.

**Table 2 Difference between PWAP - PLAP and Wilcoxon Signed Ranks Test**

Year	PWAP-PLAP	Z	Asymp. Sig. (2-tailed)
2012	0.0056	-2.455	0.014 Tolak H0
2013	(0.0062)	-0.552	0.581 Terima H0
2014	(0.0166)	-3.335	0.001 Tolak H0
2015	0.0103	-3.172	0.002 Tolak H0
2016	(0.0152)	-6.526	0 Tolak H0
2017	0.0079	-0.866	0.386 Terima H0
Total	(0.0077)	-1.196	0.232 Terima H0

Source: Indonesia Stock Exchange, data processed

Table 2 shows the difference between PWAP - PLAP and Wilcoxon Signed Ranks Test from 2012 to 2017 and testing all data. The results in 2012 found the Z number at -2,455 with a significant 0.014. Because the test is carried out in one direction, the significant figures must be divided by two to get 0.007. The final result is significantly less than 5% alpha, so H0 is rejected, and H1 is accepted, meaning a break-even effect in 2012. The results in 2013 obtained the Z number at -0.552 with a significant 0.581. Because the test is carried out in one direction, the significant figures must be divided by two to obtain 0.2905. The final result shows that it is significantly greater than alpha 5%, so it fails to reject H0, meaning there is no break-even effect in 2013. The results in 2014 obtained a Z number at -3,335 with a significant 0.001. Because the test is carried out in one direction, the significant number must be divided by two to get 0.0005. The final result shows that it is significantly smaller than 5% alpha, but PWAP is smaller than PLAP, which means no break-even effect in 2014. The opposite happened. The results in 2015 obtained the Z number at -3,172 with a significance of 0.002. Because the test is carried out in one direction, the significant number must be divided by two to get 0.001. The final result is significantly less than 5% alpha, so H0 is rejected, and H1 is accepted, meaning a break-even effect occurred in 2015. The results in 2016 obtained a Z number at -6.526 with a significant 0.000. Because the test is carried out in one direction, the significant number must be divided by two to get 0.000. The final result shows that it is significantly smaller than alpha 5%, but PWAP is smaller than PLAP, which means there is no break-even effect in 2016, even the opposite. The results in 2017 found the Z number at -0.866 with a significant 0.386. Because the test is carried out in one direction, the significant figures must be divided by two to get 0.193. The final result shows that it is significantly greater than 5% alpha, so it fails to reject H0, meaning there is no break-even effect in 2017. The test results for all data from 2012 to 2017 obtained the Z number at -0.624 with a significant 0.533. Because the test is carried out in one direction, two significant numbers must be divided to get 0.2665. The final result shows that it is significantly greater than 5% alpha, so it fails to reject H0, meaning there is no proven break-even effect in the combined data from 2012 to 2017.

Investors have been proven to have decided averaging down on a losing position compared to averaging up a profitable position or increasing the share of losing shares compared to profitable shares in 2012 and 2015. This is because PWAP is greater than PLAP, and Hypothesis H0 is rejected.

Meanwhile, in 2013 and 2017, testing the combined data failed to reject the Ho hypothesis. Meanwhile, in 2014 and 2016, even though they rejected the Ho hypothesis, the PWAP data was smaller than the PLAP, indicating that the average investor did not experience a break-even effect.

**Table 3.** Number of Investors with Break-even Effect and Investors without Break-even Effect

Tahun	Total	Break Event Effect		No Break Event Effect	
		Jumlah	Persent	Jumlah	Persent
2012	1967	923	46.92%	1039	52.82%
2013	2011	976	48.53%	1027	51.07%
2014	1627	874	53.72%	751	46.16%
2015	1366	612	44.80%	754	55.20%
2016	1326	809	61.01%	515	38.84%
2017	1305	663	50.80%	638	48.89%
Total	2638	1288	48.82%	1343	50.91%

Source: Indonesia Stock Exchange, data processed

Table 3 shows the number of investors who experienced the break-even effect and investors who did not experience the break-even effect from 2012 to 2017 and testing all data. From the Wilcoxon Signed Ranks Test results, it was found that not all individual investors experienced the break-even effect. In 2012 from 1967 data on individual investors, it was found that 923 investors had an average PWAP smaller than the average PLAP, indicating that in 2012 these investors did not experience a break-even effect. Meanwhile, 1039 individual investors had an average PWAP greater than the average PLAP, which indicated that the investor experienced a break-even effect in 2012. This indicates that 47.04% of individual investors did not experience a break-even effect.

From the sample used. There were 52.95 % of individual investors who experienced a break-even effect in 2012. In 2013 from 2011 data on individual investors, it was found that 976 investors had an average PWAP smaller than the average PLAP, indicating that in 2013 these investors did not experience a break-even effect.

Meanwhile, 1027 individual investors have an average PWAP greater than the average PLAP, which indicates that these investors experienced a break-even effect in 2013. This indicates that from the sample used, 48.73% of individual investors did not experience a break-even effect and there were 51.27 % of individual investors experienced a break-even effect in 2013. In 2014 from 1627 individual investor data, it was found that 874 investors had an average PWAP smaller than the average PLAP, indicating that in 2014 these investors did not experience a break-even effect. Meanwhile, only 751 individual investors have an average PWAP greater than the average PLAP, which indicates that these investors experienced a break-even effect in 2014. This indicates that 53.78% of individual investors did not experience a break-even effect from the sample used, and only 46.22% of individual investors experienced a break-even effect in 2014. In 2015 from 1366 individual investor data, it was found that 612 investors had an average PWAP that was smaller than the average PWAP, indicating that in 2015 these investors did not experience a break-even effect. . Meanwhile, 754 individual investors had an average PWAP that is greater than the average PLAP, which indicates that the investor experienced a break-even effect in 2015. This indicates that from the sample used, 44.80% of individual investors did not experience a break-even effect and there were 55.20 % of individual investors experienced a break-even effect in 2015. In 2016 from 1326 individual investor data, it was found that 809 investors had an average PWAP smaller than the average PLAP, indicating that in 2016 these investors did not experience a break-even effect.

Meanwhile, only 515 individual investors have an average PWAP greater than the average PLAP, which indicates that the investor experienced a break-even effect in 2016. This indicates that 61.10% of individual investors did not experience a break-even effect from the sample used, and only 38.90% of individual investors experienced a break-even effect in 2016. In 2017 from 1305 individual investor data, it was found that 663 investors had an average PWAP smaller than the

average PLAP, indicating that in 2017 these investors did not experience a break-even effect. . Meanwhile, there are only 638 individual investors who have an average PWAP greater than the average PLAP, which indicates that the investor experienced a break-even effect in 2017. This indicates that from the sample used, there are 50.96% of individual investors did not experience a break-even effect, and only 49.04% of individual investors experienced a break-even effect in 2017. For processing all data from 2012 to 2017 from the Wilcoxon Signed Ranks Test results, it was found that more individual investors experienced a break-even effect from 2012 to 2017. From 2638 individual investor data, 1288 investors have an average PWAP, which is smaller than the average PLAP, indicating that from 2012 to 2017, these investors did not experience a break-even effect. Meanwhile, 1343 individual investors had an average PWAP greater than the average PLAP, which indicated that the investor experienced a break-even effect from 2012 to 2017. This indicates that 48.95% of individual investors did not experience a break-even effect from the sample used, and 51.05% of individual investors experienced a break-even effect from 2012 to 2017.

## Discussion

The results of data processing in research in 2012 and 2015 accept the research hypothesis, which states that there is a break-even effect shown by the Proportion of Winners Additionally Purchased (PWAP), which is significantly greater than the Proportion of Losers Additionally Purchase (PLAP). Meanwhile, in 2013, 2017, and testing of all data from 2012 to 2017, there was no break-even effect, which means these years rejected the research hypothesis. Individually, it was found that several individual investors experienced the break-even effect. In 2012 there were 1,039 or 52.82%, 2013 there were 1,027 or 51.07%, in 2014 there were 751 or 46.16%, in 2015 there were 754 or 55.20%, in 2016 there were 515 or 38.84% and in 2017 there were 638 or 48.89%. Some of the results of this study are similar to those of (Leal et al., 2017) found a break-even effect, where investors will accept risky bets when in a loss zone by averaging down. Leal et al. (2017) also find that investors are 1% more likely to buy additional units of the current loser's stock than other stocks currently held. The reason found by (Leal et al., 2017) is the expectation that the losses will dissipate more easily when the price rises in the near term and returns to break-even levels. Leal et al. (2017) explain this based on mental accounting bias behavior where investors keep the stock reference so as not to suffer losses. (Leal et al., 2017) also found that the greater the gain in the winning stock, the less likely (about 0.6%) investors are to buy additional units (averaging up).

The results show that only some individual investors add losing shares faster than adding profit shares. Some of these investors are affected by the break-even effect, which adds to the stock's position they lose. By averaging down, individual investors get a lower average purchase price and potentially experience a faster break-even when stock prices rise. Individual investors in a losing position expect to exit the market without experiencing a loss or break-even, as suggested by (R. H. Thaler & Johnson, 1990). The hope to get out with a minimum of break-even is due to mental accounting problems, as (R. Thaler, 1985) stated. Investors view each share held as a separate account and attempt to exit each share at a profit. One way is to hold the losing stock longer or average down or buy the losing stock so that the purchase price is lower and can immediately exit the market with a break-even condition. This causes some investors to average down rather than averaging up, and some prefer to hold the losing stock. Mental accounting helps individual investors make decisions through different mental accounts (Ozkan & Ozkan, 2020), thus viewing each position separately.

Prospect theory can explain the break-even effect through a utility function similar to the letter (Asad et al., 2018) say prospect theory discusses psychological factors that influence investment decisions. As proposed by (Kahneman & Tversky, 1979), the S-shaped utility model in Prospect Theory also influences this decision. The S-shape makes the added pain of experiencing additional losses less, making individual investors dare to add to their losing positions. The average buying price has decreased so that the break-even level is closer to the current price. There was a change in the reference point from the first purchase price level to the average purchase price. Individual investors expect that individual investors can exit with minimal break-even when stock prices rise. This is also why investors are reluctant to buy profitable shares or averaging up and prefer averaging down.

Anchoring also plays a significant role in buying additional loss shares. (Elhussein & Abdelgadir, 2020) write that anchoring strongly influences investment decisions. Anchoring is a reference for investors in making decisions by referring to a specific reference point, usually the purchase price, because that is the last reference for investors before buying shares. Investors try to lower the reference point by averaging down. By purchasing additional shares that are losing, the break-even point of these shares decreases because the average purchase price decreases. In this way, investors can exit the market with minimal break-even faster.

Investors also avoid feeling regret, so they are reluctant to sell shares at a loss. On the other hand, some individual investors do not make additional purchases by averaging down to lower the purchase price. The activity of selling or adding shares to losses also can cause potential errors that have the potential to cause regret. Adding loss shares can cause regret if the share price continues to fall after the additional purchase is made. Therefore, not all individual investors are averaging down or experiencing a break-even effect to avoid feeling regret. This is similar to the experimental (Fioretti et al., 2020) found that regret avoidance strongly influences decisions.

The study results support the idea that individual investors often act irrationally in making decisions. These are the subsequent studies conducted in various behavioral finance studies. The study results support the break-even effect bias proposed by (R. H. Thaler & Johnson, 1990). Although not all individual investors experience the break-even effect, they buy loser stocks more quickly than winning stocks. The break-even effect can be explained by the prospect theory proposed by (Leal et al., 2017) and mental accounting (mental accounting) proposed by (R. Thaler, 1985). No break-even effect was found in some of the data in this study because individual investors avoid regret by adding to a losing stock position. Buying additional shares can result in significant losses, so it is considered a wrong decision. Individual investors seem to avoid regret and prefer to hold shares at a loss so that the disposition effect is more dominant.

The research implication is that individual investors need to train in trading psychology and/or behavioral finance. Individual investors need to be aware that the bias break-even effect is one of the leading causes for these investors to experience losses. Individual investors also need to equip themselves with knowledge of money management and risk management to determine the area of buying and selling. Individual investors must use securities companies that provide online trading system application facilities equipped with automatic orders such as a cut loss feature to limit customer losses. Individual investors need to attend regular education to be accustomed to using the automatic feature and significantly cut losses so that they do not experience losses.

## CONCLUSION

The results showed a break-even effect in 2012 and 2015. The correlation test results for those years were the same as the research hypothesis, which stated a break-even effect indicated by the Proportion of Winners Additionally Purchased (PWAP), which was significantly more significant than the Proportion of Losers Additional Purchased (PLAP). Meanwhile, in 2013 and 2017, testing of all data from 2012 to 2017 did not find a break-even effect. Furthermore, the study found that more than 50% of individual investors in the research sample experienced a break-even effect for several years, namely in 2012, 2013, and 2015. Meanwhile, in 2014, 2016, and 2017, less than 50% of individual investors in the research sample experienced a disposition effect. This break-even effect can be explained by prospect theory. The investor's utility function is similar to the letter S, and there is a reference point that is an anchor for investors to make decisions. In addition, the mental influence of accounting and investors' efforts to avoid regret causes both break-even effects to occur.

## REFERENCE

- Asad, H., Khan, A., & Faiz, R. (2018). Behavioral biases across the stock market investors. *Pakistan Economic and Social Review*, 56(1), 185–209.
- Barber, B. M., Lee, Y., Liu, Y., & Odean, T. (2007). Is the aggregate investor reluctant to realise losses? Evidence from Taiwan. *European Financial Management*, 13(3), 423–447.
- Barberis, N. C. (2013). Thirty years of prospect theory in economics: A review and assessment. *Journal of Economic Perspectives*, 27(1), 173–196.

- Burns, S. (2014). 10 Reasons Traders Lose Money In The Market. <https://www.seeitmarket.com>
- Candraningrat, I. R., Salim, U., Indrawati, N. K., & Ratnawati, K. (2018). Influence of framing information and disposition effect in decision of investment: Experimental study on investor behavior at Indonesia Stock Exchange Representative on Denpasar, Bali. *International Review of Management and Marketing*, 8(3), 59.
- Elhoussein, N. H. A., & Abdelgadir, J. N. A. (2020). Behavioral Bias in Individual Investment Decisions: Is It a Common Phenomenon in Stock Markets. *International Journal of Financial Research*, 11(6), 25.
- Filbeck, G., Hatfield, P., & Horvath, P. (2005). Risk aversion and personality type. *The Journal of Behavioral Finance*, 6(4), 170–180.
- Fioretti, M., Vostroknutov, A., & Coricelli, G. (2020). Dynamic regret avoidance. *American Economic Journal: Microeconomics*, 14(1), 70–93.
- Fulfer, J. D., & Maille, P. J. (2018). Power and Prospect Theory. Working Paper, January. <https://doi.org/10.13140/RG.2.2.12322.94409>
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. In *Handbook of the fundamentals of financial decision making: Part I* (pp. 99–127). World Scientific.
- Kapoor, S., & Prosad, J. M. (2017). Behavioural finance: A review. *Procedia Computer Science*, 122, 50–54.
- KSEI. (2021). Statistik Pasar Modal Indonesia Desember 2021.
- Leal, C. C., Loureiro, G., & Armada, M. J. R. (2017). Selling winners, buying losers: Mental decision rules of individual investors on their holdings. *European Financial Management*, 24(3), 362–386.
- Magdalena. (2021). Jumlah Investor Ritel di Pasar Modal Naik. <https://rri.co.id/ekonomi/1145509/jumlah-investor-ritel-di-pasar-modalnaik>
- Mitchell, C. (2018). Why Most Traders Lose Money and Why the Market Requires It. <https://vantagepointtrading.com>
- Odean, T. (1998). Are investors reluctant to realize their losses? *The Journal of Finance*, 53(5), 1775–1798.
- Ozkan, M., & Ozkan, O. (2020). Financial evaluation of mental accounting.
- Pan, Z. (2019). A review of prospect theory. *Journal of Human Resource and Sustainability Studies*, 7(1), 98–107.
- Prast, H. M. (2004). Investor psychology: A behavioural explanation of six finance puzzles. De Nederlandsche Bank Amsterdam.
- Shefrin, H. (2002). Beyond greed and fear: Understanding behavioral finance and the psychology of investing. Oxford University Press on Demand.
- Thaler, R. (1985). Mental accounting and consumer choice. *Marketing Science*, 4(3), 199–214.
- Thaler, R. H., & Johnson, E. J. (1990). Gambling with the house money and trying to break even: The effects of prior outcomes on risky choice. *Management Science*, 36(6), 643–660.
- Wareza, M. (2021). OJK: Negara Covid, Jumlah Investor Ritel Hampir Tembus 4 Juta. CNBC Indonesia. <https://www.cnbcindonesia.com/market/20210201191110-17-220288/ojk-gegaracovid-jumlah-investor-ritel-hampir-tembus-4-juta>
- Waweru, N. M., Munyoki, E., & Uliana, E. (2008). The effects of behavioural factors in investment decision-making: a survey of institutional investors operating at the Nairobi Stock Exchange. *International Journal of Business and Emerging Markets*, 1(1), 24–41.