

STOCK ANALYSIS USING NET CURRENT ASSET VALUE (NCAV) METHOD INDONESIA STOCK EXCHANGE 2015 – 2020

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ABSTRACT

Net Current Asset Value (NCAV) as a conservative method in value investing, can use to identify undervalued stock. Graham and Dodd introduce NCAV for the first time in their book “Security Analysis” (1934). The empirical study in US stock market prove that NCAV method can outperform market. The aim of this study to test NCAV method in Indonesia Stock Exchange period 2015-2020. This study compared the performance of NCAV portfolio to Indonesia Stock Exchange (IDX) Composite as the market index by average return using paired sample t-test. The performance of NCAV portfolio would divide by 3 holding period; 6 month, 12 month, and 18 month. The result of this study shows that NCAV portfolio tends to has bigger return than IDX Composite in all holding period, but not significant.

Keywords: Net Current Asset Value, Investment, Stock, Value investing

ABSTRAK

Net Current Asset Value (NCAV) sebagai metode konservatif dalam value investing, dapat mengidentifikasi saham undervalue. Graham dan Dodd mengenalkan ide rasio NCAV pertama kali dalam bukunya “Security Analysis” (1934). Penelitian terdahulu di bursa saham Amerika Serikat membuktikan bahwa metode NCAV berhasil mengungguli pasar. Tujuan dari penelitian ini adalah untuk menguji kinerja portofolio NCAV di bursa efek Indonesia periode 2015-2020. Penelitian ini membandingkan kinerja portofolio NCAV dengan Indeks Harga Saham Gabungan (IHSG) sebagai indeks pasar berdasarkan rata-rata return menggunakan uji paired sample t-test. Kinerja dari portofolio NCAV dibagi berdasarkan 3 holding period; 6 bulan, 12 bulan, dan 18 bulan. Hasil penelitian ini menunjukkan portofolio NCAV cenderung memiliki return yang lebih besar daripada IHSG di semua holding period, tetapi tidak signifikan.

Kata Kunci: Net Current Asset Value, Investasi, Saham, Value investing

INTRODUCTION

Benjamin Graham is economist in United States and one of success professional investor. Graham and Dodd developed the concept of value investing specifically in his book: “Security Analysis (1934) and The Intelligent Investor (1949)”. The basic of value investing is buy the stock under their intrinsic value.

Value investing popularized by some professional investor such as; Warren Buffet CEO Berkshire Hathaway Inc, Peter Lynch investment manager in Fidelity Investment 1977-1990 and Lo Kheng Hong famous retail investor in Indonesia.

Value investing contrary with Efficient Market Hypothesis (EMH). EMH argue that the stock price already reflect all information and stock price always in fair condition. Thus Investor cannot beat the market constantly, Mikael (2007) suggest investor would not beat the market in the long term, because no one knows the future including the past data.

Many studies have been conducted to test the ratio of NCAV in the United States (Oppenheimer, 1986), (Vu, 1988), (Oxman et al, 2010), (Kim et al, 2015) and other countries in developing market such as; Saudi Arabia (Zakaria & Hashim, 2017) and Indian (Singh & Kaur, 2014). There were previous studies about value investing using low multiple to identify the value stock. Such as; in Dutch market (Doeswijk, 1997) and Indonesia stock exchange (Saranga, 2019) and (Sonya, 2020).

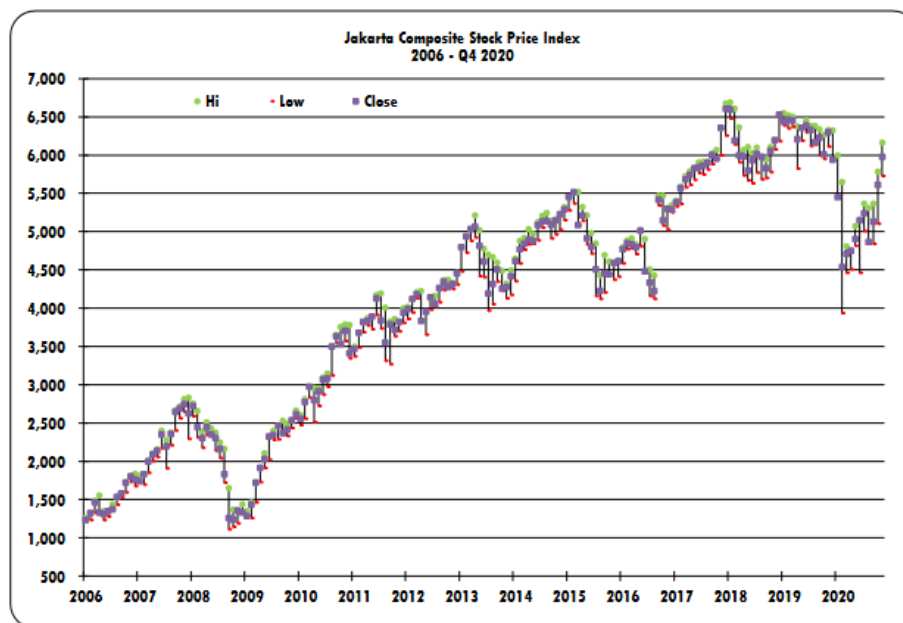


Figure 1

Indonesia Stock Exchange Composite Graph

(Source: Indonesia Stock Exchange)

Historically Indonesia Stock Exchange (IDX) Composite moved fluctuated. The graph above informs that during the last 14 years IDX Composite has CAGR by 12% although it had decline in 2009, 2017 and early 2020. IDX Composite tends to up trend in the long term. The decline in IDX Composite can be considered as opportunity for investor, it's a good news when the stock price drop because it can make investor to buy more stock with a cheap price (Jason Zweig, 2006: 229). Seeing these developments of Indonesia stock market attract the attention of market players. Hence important for investor to determine the right strategy in investing, especially in the capital market

Theoretical Basis

Efficient Market Hypothesis

Efficient market Hypothesis (EMH) developed by Eugene Fama (1970), there are 3 part of market (Tandelilin, 2017:227):

- a) The Weak: Assume that the current stock price reflected information available in the past. Furthermore, it said that performance of past stock is not relevant with the future stock price performance. Hence it assume that the investor cannot achieve return through technical analysis.
- b) The Semi Strong: assume that the current stock price have reflect information in the past and information can provide in public (such as; dividend, earning right issue, stock split, financial company's condition, and other public event which effect to future cash flow company). When there is an announcement about the company, investor can get abnormal return, due to the fast market response to the announcement
- c) The Strong: assume that the current stock price represent about the past data, published information, and unpublished information. In this form, investor will not be able to get abnormal return.

Gitman (2010) in the efficient market, current stock price has been traded by their fair value. Hence there is no one can outperform market. EMH proponent should "have the entire stock in the market" than try to outperform market. This premise supported by the fact that S&P 500 index overall outperform the market around 60% - 80% of the times (Simon, 2000)

Value Investing Method

Graham argue that a value investor have to see the true value of the company not just by their stock price. Hence an investor should buy the stock less than their intrinsic value (the fair value of the company). Graham & Dodd noticed that certain stock price were undervalued because the market had misjudged some of the company's fundamental

Furthermore, in the book *The Intelligent Investor* (1949) emphasize about Margin of Safety (MOS), which explain that investor only buy the stock when the stock were below their intrinsic value. The farther distance between the intrinsic value and the current stock price, the higher return that investors will get, to optimize the intrinsic value can take a relatively long term even years because basically the company's intrinsic value can change according to the company's current condition. There are two ways to determine the intrinsic value, first with the assessment method, technically this method relies on estimating the company's future earnings then multiplying it by a factor that suit certain stock (such as; discounted cash flow & multiples). The second focuses on the book value of the company (Graham, 1949: 232)

Damodaran (2012) there are 3 streams of value investing. The first passive value investing, in their portfolio consist of the stock has certain characteristic such as; low multiple from book value or earning, the high return in project or has the high margin and low risk. The second contrarian investing, invest in company had decline stock price because of performance of fundamental company or systematic decline by market. The third is activist value investing, investor have big portion of the company manage by bad management and this company has low value, then turnover that company into better company. The NCAV indicator is included in the first and second stream of value investing, because the criteria for NCAV stocks are found (abundant) when the market is underperforming (Oxman, et al, 2010)

H1:

- a) There is significant different between performance of NCAV portfolio and IDX Composite Holding period 6 month
- b) There is significant different between performance of NCAV portfolio and IDX Composite Holding period 12 month
- c) There is significant different between performance of NCAV portfolio and IDX Composite Holding period 18 month

Net Current Asset Value (NCAV)

Graham's idea in determine the intrinsic value of company focused in book value. Net Current Asset Value can use to identify deep value. The liquidation value of a firm, for which NCAV ratio can be used as a tool for the lowest measure in a firm's value (Oxman at al, 2010).

According to Benjamin Graham in the book "Security Analysis". The formula of NCAV is:

$$NCAV = Current Asset - Total Lialibilities$$

But Graham suggest for adjust the assumption with Asset value, Liabilities, and Business Model of the company. Because book value will not the same to market value when the firm got to be liquidate. Due to the research limitations the author did not include those assumption

1. RESEARCH METHODOLOGY

Table 1

Variable Operational Definition

Variable	Operational Definition	Measure
1. Return Portfolio	Portfolio return is the result of the performance of investment activities, which is generated from the average return of each stock include in portfolio.	$R_p = \sum_{i=1}^n W_i R_i$ R_p = Portfolio Return W_i = Weight of Stock in Portfolio R_i = Stock Return
2. Return IDX Composite	IDX Composite returns represent performance of all stock in Indonesia. IDX Composite is used as a benchmark portfolio	$R_m = \frac{IDX - IDX_{t-1}}{IDX_{t-1}}$ R_m = Return Market IDX = Current IDX Composite Value IDX_{t-1} = Previous IDX Composite Value

Source: Processed Data

The source of the data financial statements and historical stock price come from Indonesia Stock Exchange (IDX) and other financial website; Stockbit.com, investing.com, and emiten.kontan.co.id.

There are criteria to form sample portfolio:

1. Stock price < NCAV per share
2. Margin of Safety (MOS) $\geq$ BI rate

The portfolio exclude financial and investment sector. Fama & French (1993) argue that including financial institute can give bias result, because liability in financial institute have different meaning with non-financial sector. BI rate used as risk free rate, with the assumption that investor will not invest if the investment instrument offers a return less than current risk free rate. BI rate will be evaluated according to portfolio holding period.

Then to avoid the bias survivor, the stock that were delisted during the study period were still include in portfolio if the stock meet the criteria (Benz & Breen, 1986). But after the end of holding period portfolio delisted stock are not include to the portfolio though the stock meet the criteria.

This study try to simulate the performance of the NCAV portfolio by the holding period; 6 month, 12 month, and 18 month. Each stock included in portfolio has equal weight. The portfolio start formed in December 31 2015 – December 31 2020. The data used in the criteria to form the sample portfolio is the end of the month according to the holding period to be formed.

The author using paired sample t-test to analysis the average return of the return portfolio and IDX Composite. If Sig (2 tailed) < 0.05 there is significant different among variables, if Sig (2 tailed) > 0.05 there is no significant different among variables. Before use paired sample t-test there is need normality test in the data. Normality test data using Kolmogorov-Smirnov (KS) & Shapiro-Wilk (SW) test, if Sig > 0.05 there is normally distributed data, if Sig < 0.05 there is not normally distributed data

3. RESULTS & DISCUSSION

The following companies meet the sample portfolio criteria;

Table 2

Numbers of Companies in NCAV Portfolio Criteria

No	Period	Number of Companies (IDX)
1	Q4 2015	23
2	Q2 2016	15
3	Q4 2016	17
4	Q2 2017	14
5	Q4 2017	20
6	Q2 2018	16
7	Q4 2018	21

8	Q2 2019	19
9	Q4 2019	27
10	Q2 2020	38

Source: Processed Data

The lowest number of companies in Q2 2017 period by 14 stocks and the highest number of companies in Q2 2020 period by 38 stocks. IDX Composite recorded an all-time high in early 2018, then the IDX experienced a sharp decline at the end of 2015 and early 2020. It's the same result with Oppenheimer (1986) and Kim at.al (2010) that the stock under NCAV are most found when the market goes down.

The study found there are 3 delisted stock that were included in the portfolio;

- 1) Jaya Pari Steel Tbk (JPRS) delisted on October 8, 2018
- 2) Lamicitra Nusantara Tbk (LAMI) delisted on December 28, 2017
- 3) Cakra Mineral Tbk (CKRA) delisted on August 28, 2018

JPRS was delisted due to merger with PT Gunawan Dianjaya Steel Tbk (GDST), LAMI was delisted due to go private, and CKRA was delisted due to Indonesia Stock Exchange policy to force delisting because the company was assessed by the authorities not showing any performance recovery and considering the negative condition that effect to the company's sustainability.

Performance of NCAV Portfolio and IDX Composite Based on Holding Period

Table 3

6 Month Holding Period

No	Holding Period	NCAV Portofolio	IDX Composite
1	Q4 2015 – Q2 2016	10.06%	9.22%
2	Q2 2016 – Q4 2016	7.06%	5.58%
3	Q4 2016 – Q2 2017	26.15%	10.06%
4	Q2 2017 – Q4 2017	2.71%	9.02%
5	Q4 2017 – Q2 2018	11.68%	-8.75%
6	Q2 2018 – Q4 2018	-4.02%	6.82%
7	Q4 2018 – Q2 2019	7.94%	2.65%
8	Q2 2019 – Q4 2019	-4.35%	-0.93%
9	Q4 2019 – Q2 2020	-11.46%	-22.13%
10	Q2 2020 – Q4 2020	27.60%	21.89%
AVERAGE		7.34%	3.34%
STDV		12.61%	11.96%

Source: Processed Data

According to performance of NCAV portfolio in 6 month holding period, the highest performance in Q2 2020 – Q4 2020 period by 27.60% and the lowest performance in Q4 2019 – Q2 2020 by (-11.46%). Average return NCAV portfolio is 7.34% and standard deviation that describes the risk of return fluctuations by 12.61%. The highest performance of IDX Composite

in 6 month holding period in Q2 2020 – Q4 2020 period by 21.89% and the lowest performance in Q4 2019 – Q2 2020 by (-22.13%). Average return IDX Composite is 3.34% and standard deviation by 11.96%. The highest performance of NCAV portfolio and IDX Composite in 6 month holding period was driven by market recovery, after a sharp decline since early 2020 by Covid-19.

Table 4
12 Month Holding Period

No	Holding Period	NCAV Portofolio	IDX Composite
1	Q4 2015 – Q4 2016	26.54%	15.32%
2	Q4 2016 – Q4 2017	22.65%	19.99%
3	Q4 2017 – Q4 2018	-6.65%	-2.54%
4	Q4 2018 – Q4 2019	7.94%	1.70%
5	Q4 2019 – Q4 2020	2.36%	-5.09%
AVERAGE		10.57%	5.88%
STDV		13.89%	11.15%

Source: Processed Data

According to performance of NCAV portfolio in 12 month holding period, the highest performance in Q4 2015 – Q4 2016 period by 26.54% and the lowest performance in Q4 2017 – Q4 2018 period by (-6.65%). With average return by 10.57% and standard deviation by 13.89%. The highest performance of IDX Composite in 12 month holding period in Q4 2016 – Q4 2017 period by 19.99% and the lowest performance in Q4 2019 – Q4 2020 period by (-5.09%). With average return by 5.88% and standard deviation by 11.15%.

The market recovery after sharp decline at the end of 2015 turn out to have boosted the return from NCAV portfolio and this was evidenced in the realization of returns in the Q4 2015 – Q4 2016 period. IDX Composite was recorded all-time high in early 2018, in Q4 2017 – Q4 2018 period NCAV portfolio performance worse than IDX Composite. It can be concluded that performance of NCAV portfolio cannot be optimal when the market is in an uptrend

Table 5
18 Month Holding Period

No	Holding Period	NCAV Portofolio	IDX Composite
2	Q4 2015 – Q2 2017	72.53%	26.93%
3	Q2 2017 – Q4 2018	-2.63%	6.26%
4	Q4 2018 – Q2 2020	-10.38%	-20.81%
AVERAGE		19.84%	4.12%
STDV		45.79%	23.94%

Source: Processed Data

According to performance of NCAV portfolio in 18 month holding period, the highest performance in Q4 2015 – Q2 2017 period by 72.53% and the lowest performance in Q4 2018 – Q2 2020 period by (-10.38%). With average return by 19.84% and standard deviation by 45.79%. The highest performance of IDX Composite in 18 month hold period in Q4 2015 – Q2 2017 by 26.93% and the lowest performance in Q4 2018 – Q2 2020 period by (-20.81%). With average return by 4.12% and standard deviation by 23.94%. Similar with 12 month

holding period when the market was in uptrend (all time high early 2018) the performance of NCAV portfolio worse than IDX Composite. But during market downtrend (early 2020) NCAV portfolio Q4 2018 – Q2 2020 period better than IDX Composite

Performance of Average Return NCAV Portfolio and IDX Composite

Table 6

Average Return NCAV Portfolio & IDX Composite

Holding Period	6 Month	12 Month	18 Month
Average IDX composite	3.34%	5.88%	4.12%
Average NCAV Portfolio	7.34%	10.57%	19.84%
Difference Performance	-4.00%	-4.69%	-15.72%

Source: Processed Data

There is difference performance among average return of NCAV portfolio and Average return of IDX composite. The highest average return in NCAV portfolio in 18 holding period by 19.84% is higher than average return IDX composite by 4.12%. Overall average return NCAV portfolio higher than average return IDX composite.

Portfolio Growth

To show this study more meaningful to the investor, Rp. 100,000,000.00 invested in the NCAV portfolio and then reinvested in accordance with the research holding period. Figure 2 shows that 6 month holding period has the highest growth with final value by Rp. 190,891,925.84 and 18 month holding period has the lowest growth with final value by Rp. 150,556,220.93. In the three holding period shows that NCAV portfolio has greater growth than IDX Composite

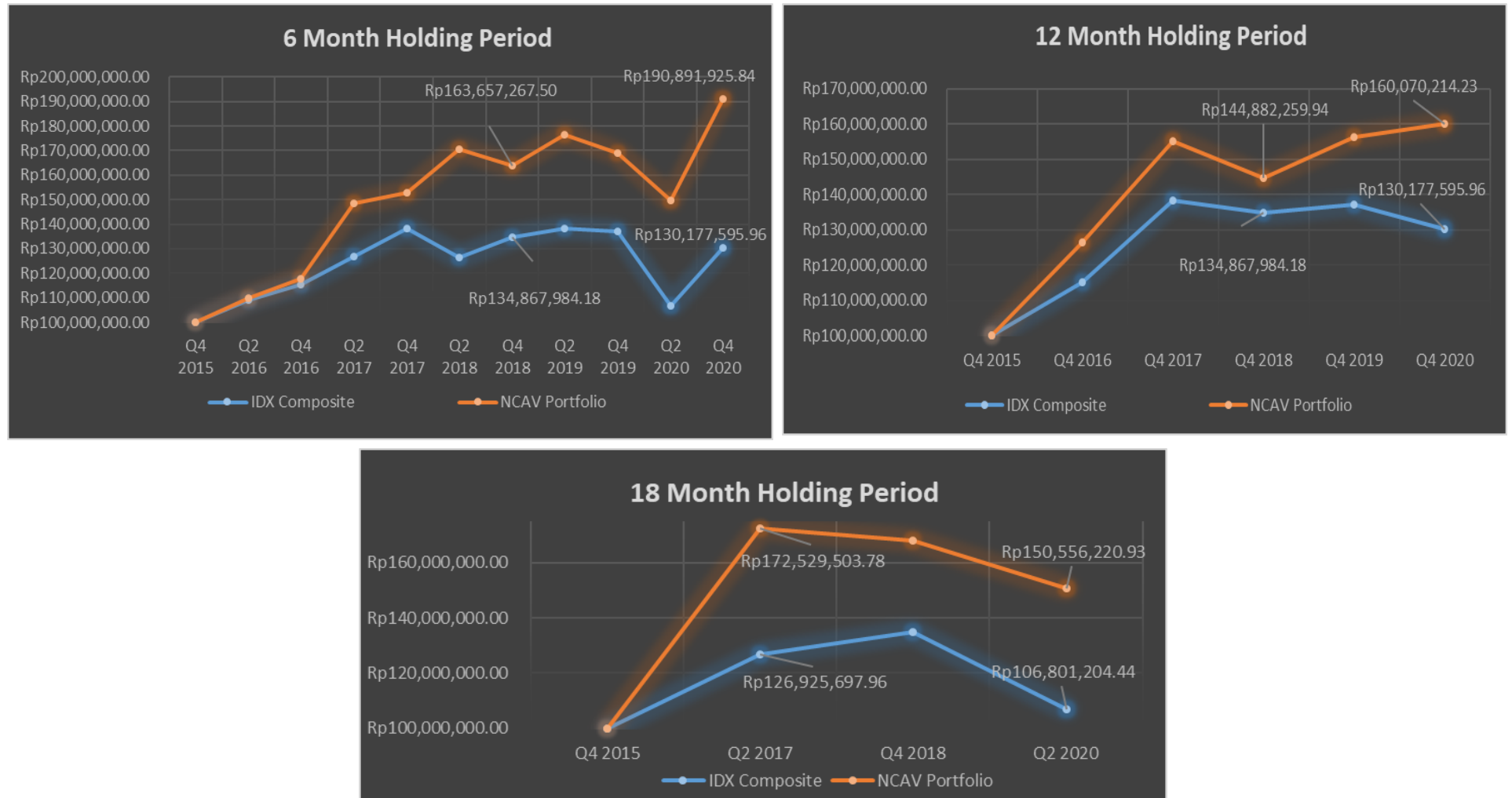


Figure 2

Portfolio Growth

(Source: Processed Data)

Table 6
Growth Return per year Portfolio

NCAV Portofolio	CAGR %	Std. dev
6 Month Holding Period	13.80%	12.61%
12 Month Holding Period	9.87%	13.89%
18 Month Holding Period	8.53%	45.79%

Source: Processed Data

6 month holding period has the average growth per year by 13.80% and standard deviation by 12.61%, can be concluded that 6 month holding period has the most optimal growth and the less fluctuating risk compare with 12 month and 18 month holding period NCAV portfolio.

Paired Sample t-test (Significance Test)

Table 7
Normality Data Test

Variable	KS Sig.	SW Sig.	Status
IDX Composite Return 6 Month	0.200	0.377	Normally Distributed
NCAV Portfolio Return 6 Month	0.200	0.589	Normally Distributed
IDX Composite Return 12 Month	0.200	0.336	Normally Distributed
NCAV Portfolio Return 12 Month	0.200	0.676	Normally Distributed
IDX Composite Return 18 Month	—	0.852	Normally Distributed
NCAV Portfolio Return 18 Month	—	0.162	Normally Distributed

Source: Output SPSS 26, Processed Data

Table 8
Paired Sample t-test

IDX Composite – NCAV Portfolio	6 Month Holding Period	12 Month Holding Period	18 Month Holding Period
Sig. (2 tailed)	0.229	0.145	0.428
Status	Not Significant Difference	Not Significant Difference	Not Significant Difference

Source: Output SPSS 26, Processed Data

Table 8 shows the result of average return among NCAV portfolio and the IDX Composite in a holding period of 6 month, 12 month, and 18 month. The result of paired sample t-test for the NCAV portfolio against IDX Composite was 0.229 for 6 month holding period, 0.145 for 12 month holding period, and 0.428 for 18 month holding period. There is not significant difference among average return of NCAV portfolio and IDX composite in 3 research holding period therefore H1 rejected

Almost similar with pervious study (Singh & Kaur, 2014) in India stock market that found portfolio with NCAV criteria didn't generate the significant excess return and (Sonya, 2020) found that there is no significant difference performance among value portfolio and growth portfolio using multiple indicators (P/E, P/B, dan P/CF) in Indonesia stock exchange. Majority of stocks that meet criteria of NCAV portfolio classified as small market cap, which is under 1 trillion Rupiah. This allows big fund managers not to choose these stocks due to lack of liquidity in trading, also makes the criteria for NCAV stock difficult to achieve their intrinsic value if there is no certain momentum.

4. CONCLUSIONS & RECOMMENDATIONS

Statistically the performance of NCAV portfolio and IDX Composite didn't significant difference, although NCAV portfolio has the bigger return than IDX Composite in all holding periods. In growth portfolio, 6 month holding period has optimal return than 12 month holding period and 18 month holding period. The investor can consider to use NCAV method especially in the down market to boost the portfolio performance when the market get recovery.

Further study can improve this research with adding or replace the variables studied. For example; using the other method to measure performance of NCAV portfolio, change benchmark portfolio, and consider the market condition. Adding the time range in the study can be done to get more accurate and relevant result of the performance NCAV portfolio

REFERENCES

- Chen, J. (2021, April). Investopedia/Risk Free Rate of Return. Retrieved from Investopedia.com: <https://www.investopedia.com/terms/r/risk-freerate.asp>
- Chongsoo An, J. J.-w. (2015). Testing Benjamin Graham's net current asset value model. *Journal of Economic & Financial Studies*, 63-73.
- Damodaran, A. (2012). Value Investing: Investing for Grown Ups ? SSRN.
- Dodd, B. G. (2019). *The Intelligent Investor*. Jakarta: akademika.
- Doeswijk, R. (1997). Contrarian Investment In The Dutch Stock Market. *De Economist*, 573-598.
- Hashim, N. Z. (2017). Emerging Markets: Evaluating Graham's Stock Selection Criteria on Portfolio Return in Saudi Arabia Stock Market. *International Joournal of Economics and Financial Issues*, 453-459.
- Indonesia, B. (2021, January). https://www.bi.go.id/id/publikasi/laporan/Pages/LPI_2020.aspx. Retrieved from bi.go.id: https://www.bi.go.id/id/publikasi/laporan/Pages/LPI_2020.aspx
- Karikasari, D. (2016). Test of Graham's and Lynch's Stock Screening Criteria on Shares Traded on The Indonesian Stock Exchange (IDX). *Journal of Indonesian Economy and Business*, 23-34.
- Kaur, J. S. (2014). Testing Ben Graham's Stock Selection Criteria in Indian Stock Market. *Management and Labour Studies*, 43-62.
- Oppenheimer, H. R. (1986). Ben Graham's Net Current Asset Values: A Performance Update. *Financial Analysts Journal*, 40-47.
- Prof. Dr. Eduardus Tandelilin, M. C. (2017). *Pasar Modal Manajemen Portofolio & Investasi*. Yogyakarta: PT KANISIUS.
- Saranga, J. C. (2019). Analisa Strategi Value Investing Pada Pasar Saham Indonesia.
- Simon, V. R. (2000). What is Behavioral Finance. *Business, Education and Technology Journal*.
- Sonya, L. (2020). Analisis Strategi Value Investing dan Growth Investing pada Pasar Saham Indonesia.
- Sugiyono, P. D. (2017). *Metode Penelitian Bisnis*. Bandung: Alfabeta.
- Tobias Carlisle, S. M. (2010). ben Graham's Net Nets: Seventy-Five Years Old and Outperforming. *Journal of Economic Literature*.
- Tri Kartika Pratiwi, Y. a. (2019). The Biased Factors of Investor's Behavior in Stock Exchange Trading. *Management Science Letters*.
- Vu, J. D. (1988). AN EMPIRICAL ANALYSIS OF BEN GRAHAM'S NET CURRENT ASSET VALUE. *The Financial Review*.
- Yesica, E. (2014). Value vs Growth Stocks Returns on the Indonesia Stock Exchange.