

STOCK VALUATION OF AVIATION SUBSECTOR PRE AND
POST-PANDEMIC COVID-19

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Abstract

The study aims to assess the company's shares before, during, and after the COVID-19 pandemic by comparing the market price and the company's intrinsic value. The focus of the research is the intrinsic value of the company using the Price Earning Ratio (PER) and Price to Book Value (PBV) approaches, then compared to the market price so that it can find out the stock valuation to make investment decisions. The study analyzed the shares of the airline sector listed on the IDX from 2018 to 2022. The research sample is made up of three companies selected using the purposive sampling technique. The three companies implement environmentally friendly aviation fuel (SAF) and have developed the intelligent airport concept for AP II since 2016. Data processing shows that before the pandemic (2018 - 2019), the condition of aviation sub-sector stocks was worth buying because the market price was smaller than the intrinsic value. However, under the COVID-19 pandemic (2020 - 2021), aviation sub-sector stocks are not recommended to be purchased because the market price is greater than the intrinsic value. After Covid 19 (2022), several aviation sub-sector stocks are worth buying, and one is less; therefore, the COVID-19 pandemic gave rise to a recommendation that aviation sub-sector stocks are worth buying because the operations of aviation companies are back to normal.

Keywords: Covid 19; Intrinsic Value; Price Earning Ratio (PER); Price to Book Value (PBV)

1. INTRODUCTION

Investment is a promise to invest financial or other resources to gain future profits (Tandellilin, 2017). Investment in the capital market is a high-risk investment but also produces high returns. The investment currently rife and popular with the public is a stock investment, as evidenced by the existence of a Single Investor Identification (SID). The number of shareholders is increasing with each passing year, as seen by the total SID of 1.62 million at the end of 2018 and 2.48 million in 2019. In addition, in 2021, the total SID increased by 93.04% compared to 2020, from 3.88 million shareholders to 7.49 million shareholders. The number will further grow until it reaches 10.31 million shareholders on December 30, 2022 (OJK, 2023). Risk and ratio are the most important references and considerations in stock investing. The profit gained by investing money in stocks comes with capital gains and dividends. Capital gain is when a stock is sold at a higher price than when it was bought, and dividends are splitting and distributing

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company profits to shareholders by considering the total shares held (Wikipedia, 2023). Investors need good analytical skills and investment knowledge to achieve maximum returns as expected, not just relying on intuition. Therefore, analysis is needed to assess whether a stock is a good investment. Based on the assessments mentioned, shareholders can conclude that such shares are worth owning (Rito & Azzahra, 2018). Calculating these shares produces an intrinsic value, which is then compared to the final price at market closing to decide whether to release or buy shares from that company (Tandellilin, 2017). Intrinsic value can be theoretical (Lutfiana et al., 2019). A standard investing procedure for investors includes buying, selling, and owning securities. In his famous book, *The Intelligent Investor*, Benjamin Graham argues that the intrinsic value of a stock is the actual value of a company. Graham emphasizes the importance of using a conservative approach when analyzing company fundamentals and assessing its intrinsic value (Graham, 1949).

Technical and fundamental analysis is required to evaluate stock prices (Hartono, 2017). Technical analysis uses indicators such as charts, line charts, bar charts, and candlestick charts to measure a stock's performance and future direction based on past price movement data. Meanwhile, fundamental analysis is needed by investors who aim to invest in stocks over a long period to determine financial performance and health, industry economic conditions, industry conditions, and related sectors, as well as analyze macroeconomic and microeconomic conditions (Hartono, 2014). The stock price in the capital market does not necessarily reflect the stock's intrinsic value. A stock can be considered undervalued if its intrinsic value exceeds its market price. A stock can be considered fair if its intrinsic value follows the market price. A stock can be categorized as overvalued if its intrinsic value is less than the market price.

The PER and PBV approaches can be used to conduct fundamental analysis. PER stock valuation according to (Hartono, 2009). The earnings ratio (PER) is a comparison that displays how thriving investors assess the price of a stock relative to its earnings multiple. Investors often use the PER comparison method to analyze stocks because it is simple (Merilla, 2020). In addition to the PER ratio method, another approach to assessing stock prices is price-to-book value (PBV). PBV is a way to express the correlation between market price and book value per share (Hartono, 2017). This PBV illustrates how much shareholder value a company can generate for its investment capital. If the level of PBV comparison is higher, it can be concluded that the company is more competent in fulfilling value for investors.

The purpose of this study is to analyze the transportation sector, including the aviation subsector at PT Jaya Trisindo Tbk (HELI), PT Air Asia Indonesia Tbk (CMPP), and PT Garuda Indonesia Tbk (GIAA). Then, examine stock price movements before, during, and after the COVID-19 pandemic. The reason for choosing the aviation subsector in this study is because the number of passengers is expected to increase, in addition to the number of domestic and international passengers, accompanied by the recovery of airline business performance and the expansion of the aircraft fleet. Sustainable aviation fuel (SAF) is the best way for aviation fuel to protect the environment. SAF combines ordinary kerosene and sustainable additives and can be used directly in aircraft without further development.

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This blend, called "neat SAF," is an environmentally friendly Jet A and Jet A-1 fuel category. SAF can be used multiple times, considering economic, social, and ecological objectives. SAF must also meet regulatory requirements for aircraft use. In addition, there is also technological development at the airport and on the plane, where the intelligent airport concept was developed and implemented by AP II in 2016 (Pertamina, 2023). The researcher conducted a study titled "Valuation of Company Shares in the Aviation Subsector Pre and Post Covid-19 Pandemic."

2. LITERATURE STUDY

Before conducting research, researchers have reviewed several studies related to the research topic. Here are some research findings that researchers can document:

Analysis of Stock Valuation Models with DDM, PER, and PBV Approaches. *Journal of Accounting and Finance Research*, 11 (1), 15-28. This study aims to determine a company's intrinsic value using the DDM, PER, and PBV approaches, which will be compared with market prices to determine an investment decision. The sample in this study are companies that routinely distribute dividends listed in the IDX annual statistical data for the 2019-2020 period, which resulted in 15 companies obtained from the purposive sampling technique. The results of this study indicate that the DDM approach is the approach that has the most accurate results for determining intrinsic value when compared to the PER and PBV approaches (Rosandy et al., 2023)

(Afriani & Rusdayanti, 2019) shows the results of research on manufacturing companies that use the Price Earning Ratio, four companies are overvalued, one is fairvalued, and seven are undervalued. With Free Cash Flow to Equity, four companies are overvalued, and eight are undervalued. With Free Cash Flow to the Firm, one company is overvalued and 11 undervalued. Fairness Assessment and Investment Decision-Making of Shares of Pt Industri Jamu Dan Farmasi Sido Muncul Tbk. *Actual Journal of Applied Business Finance Accounting*, 3(2), 137-144. The journal explained that SIDO shares were overvalued during 2015 - 2019. Therefore, the right investment decision is to sell PT Industri Jamu dan Farmasi Sido Muncul Tbk shares if you already have them. This research uses a fundamental analysis method, Free Cash Flow to Equity (FCFE), to analyze the fairness of PT Industri Jamu dan Farmasi Sido Muncul Tbk's share price from 2015 to 2019. Therefore, with the research that will be done by the researcher later. This research benefits investors when deciding whether to buy or sell a stock (Martia et al., 2018).

Previous researchers (Gunawan & Hapsari, 2023); (Segoro & Sriludia, 2021); (Alhazami, 2020) have conducted research on stock valuation with relative methods. (Gunawan & Hapsari, 2023) Employed PER, PBV, and PSR methods on average food and beverage company stocks show that the company is in an overvalued condition, including ICBP, MYOR, ROTI, ULTI, SKLT, and DLTA stocks. Hence, an investment decision is to sell. While the shares of CEKA and INDF companies have an average calculation value of undervalued (cheap), the right investment decision is to buy shares. (Segoro & Sriludia, 2021) The price-to-book value (PBV) comparison method shows that over five years produces diverse conditions for stock prices for each company listed on the LQ45. Of the 16 businesses, three are expensive or overvalued, namely BBKA, ICBP, and SMGR, which have a higher market price than their intrinsic value, so investors should sell shares. The other 13 companies, namely AKRA, BBNI, BMRI, INDF, JSMR,

INTP, KLBF, LPPF, PTBA, PTPP, UNVR, WIKA, and WSKT, have lower market prices than fair prices. (Alhazami, 2020) Using companies included in LQ 45 until January 2020. Samples were obtained from as many as 15 companies using the purposive sampling technique. Stock price valuation is measured using the Price Earning Ratio (PER) approach. The results showed that 3 out of 15 companies were undervalued cheap and worth buying, then 7 were stocks with overvalued conditions, and the remaining five were in the right valuation condition. Although several prior research has explored stock valuation by employing relative and absolute methods, a study on the stock valuation is necessary, especially in exploring the investment potential in the aviation sub-sector due to the impact of the COVID-19 pandemic.

3. RESEARCH METHODOLOGY

In the research conducted, quantitative methods are applied to all types of secondary research data. The secondary data selected for this study were obtained using purposive sampling from the financial statements of companies listed on the IDX between 2018-2022. Some considerations for determining samples with criteria, namely companies with the code K111 (airlines) and listed on the Indonesia Stock Exchange (IDX) in the 2018-2022 period. Sustainable Aviation Fuel (SAF) is used as an environmentally friendly fuel and is tied to carbon emissions in 2021 - 2028 at 20 AP II airports run with the utilization of PLTS, Technology development on aircraft and airports with the development of the intelligent airport concept that AP II has done from 2016. Based on these criteria, there are three research objectives: CMPP, GIAA, and HELI.

To value airline stocks pre-and post the pandemic Covid-19, PER (Price-Earnings Ratio) and PBV (Price-to-Book Value) are considered the fit methods due to their resilience to earnings fluctuations where PER and PBV are less sensitive to earnings fluctuations that are common in airlines during the pandemic, since PER and PBV techniques employ historical data. Then, simplicity and ease of use where PER and PBV are easy to calculate and understand, allowing investors to quickly assess the value of airline companies when compared to others. In addition, the availability of easily accessible data to calculate PER and PBV also causes added value. Investors can find the most suitable airline companies within the same industry.

Furthermore, the intrinsic value obtained from the two methods is then compared with the known value or market price obtained from the year-end price before, during, and post-pandemic. The stock is overvalued if the market price exceeds the intrinsic value. If the stock market price is lower than the intrinsic value, then the stock is undervalued, and if the stock market price has the same intrinsic value, then the stock can be fairly valued.

Price Earning Ratio (PER) Formula

Price Earning Ratio (PER) represents the comparative relationship between a company's stock price and earnings per share. The PER ratio helps the market understand the company's ability to generate profits over time. PER is a comparison widely and commonly applied by investors or traders in stock analysis (Merilla, 2020). In addition, PER is a measuring tool for how the market can assess the price of a stock (Afriana, 2017). while according to (Henry, 2000), The price-to-earnings ratio (PER) is commonly

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used to measure the market price per share of common stock and earnings per share ratio. This calculation calculates the stock price by net income per share. Then, this approach will be compared with the market price of each company for the 2018-2022 period.

According to (Eradus, 2010), Systematically the formula for calculating Price Earning Ratio (PER)

$$\text{PER} = \frac{\text{Share Price}}{\text{Earnings Per Share (EPS)}}$$

$$\text{Instrinsik Value} = \text{EPS} \times \text{PER}$$

Description:

PER = Price Earning Ratio

EPS = Earning Per Share

Price Book Value (PBV) Formula

Price to Book Value (PBV) is a technique that is applied to provide an overview of the relationship between market price and book value per sheet (Tandellilin, 2017). PBV is said to be effective when applied to assess the stock valuation of a company with a similar sector, thus giving rise to an accurate view of the comparative relationship of its share price undervalued or overvalued, and PBV is more accessible to apply to determine the actual price of a company because cash flow has no effect in the PBV formula (Yuliawati, 2018).

$$\text{PBV} = \frac{\text{Share Price}}{\text{Book Value per Share}}$$

$$\text{BVPS} = \frac{\text{Total Equity}}{\text{Number of Shares Outstanding}}$$

$$\text{Intrinsic Value} = \text{PBV} \times \text{BVPS}$$

Description:

PBV = Price Book Value

BVPS = Book Value Per Share

4. RESULT AND DISCUSSION

To provide a more specific explanation, we use the period 2018-2022, where 2018 - 2019 is the year before the pandemic, 2020-2021 is the year during the pandemic, and 2022 is the year after the post-pandemic recovery using the Price Earning Ratio and Price Book Value approaches. Below is a table for calculating intrinsic value and comparing it to market value:

Table 1.
Comparison of Intrinsic Value Using PER and PBV Approaches with Market Value in
the Year before the Covid-19 Pandemic (2018 - 2019)

The year 2018

NO	Issuer Code	Market Price as of End of Year 2018 (RP)	Intrinsic Value PER (Rp)	Description	PBV Intrinsic Value (Rp)	Description
1	CMPP	208	256,2417	<i>Undervalued</i>	255,8743	<i>Undervalued</i>
2	GIAA	300	299,999	<i>Overvalued</i>	437,8776	<i>Undervalued</i>
3	HELI	121	120.999	<i>Overvalued</i>	133,6766	<i>Undervalued</i>

The year 2019

NO	Issuer Code	Market Price as of Year-End 2019	Intrinsic Value PER (Rp)	Description	PBV Intrinsic Value (Rp)	Description
1	CMPP	184	184	<i>Fairvalued</i>	184,0632	<i>Undervalued</i>
2	GIAA	498	509,87	<i>Undervalued</i>	508,7556	<i>Undervalued</i>
3	HELI	206	165,0311	<i>Overvalued</i>	165,5418	<i>Overvalued</i>

Table 1 in 2018 shows one undervalued company and two overvalued companies in the PER approach. The undervalued company is CMPP; the two overvalued companies are GIAA and HELI. Meanwhile, if the PBV approach is used, all aviation subsector companies are undervalued.

Using the PER approach in 2019, there is one undervalued company, one company that is overvalued, and one company that is considered fairly valued. The undervalued company is GIAA, the overvalued company is HELI, and the fairvalued company is CMPP. Meanwhile, with the PBV approach, two companies are undervalued, and one is overvalued. The undervalued companies are CMPP and GIAA, and the undervalued company is HELI.

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Based on these data and descriptions, potential investors in undervalued stocks can decide to buy these shares, and investors who already own these shares can increase the number of shares (repurchase). Potential investors are advised not to buy stocks that are overvalued because the price is too high, while investors who already own the shares can sell existing shares. Then, for stocks that are fairly valued, the investment decision that should be made for those who already have shares or those who do not have them is to refrain from selling or buying until there are estimated earnings for investors.

From the results of data analysis before the pandemic (2018-2019), it can be concluded that the aviation sub-sector stocks. On issuers, CMPP and GIAA are undervalued by the PER or PBV approach. Meanwhile, the issuer HELI before the pandemic was in an overvalued state.

Investors with a risk-taker type tend to have a high-risk tolerance and dare to take risks. In an undervalued situation, they will choose to buy stocks because they expect high returns and are ready to face the risks associated with these investments by buying CMPP and GIAA shares. Meanwhile, in an overvalued situation, they can continue to buy if they believe the company has strong growth potential and good performance, so the share price will continue to increase even though it is overvalued.

In investors with a risk-averse type, if the stock is undervalued, it is recommended to buy but still pay careful fundamental and technical analysis, stock risk, and the quality of company management to avoid future losses. Meanwhile, if in an overvalued condition, investors with a risk-averse type can see and wait until the stock is undervalued by paying attention to existing risks and conducting analysis.

Table 2.

Comparison of Intrinsic Value Using PER and PBV Approaches with Market Value
in the year of the Covid 19 pandemic (2020-2021)

The year 2020

NO	Issuer Code	Market Price as of End of Year 2018 (Rp)	Intrinsic Value	Description	PER (Rp)	Description
1	CMPP	184,368	184,368	<i>Fairvalued</i>	183,8133	<i>Overvalued</i>
2	GIAA	404	216,6745	<i>Overvalued</i>	215,2828	<i>Overvalued</i>
3	HELI	216	185,0177	<i>Overvalued</i>	185,1656	<i>Overvalued</i>

Year 2021

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NO	Issuer Code	Market Price as of Year-end 2021 (Rp)	Intrinsic Value PER (Rp)	Description	PBV Intrinsic Value (Rp)	Description
1	CMPP	180	184,692	<i>Undervalued</i>	182,1652	<i>Undervalued</i>
2	GIAA	220,3848	220,3848	<i>Fairvalued</i>	219,1937	<i>Overvalued</i>
3	HELI	326	364,0116	<i>Undervalued</i>	364,1544	<i>Undervalued</i>

Based on Table 1 in 2020, two companies are overvalued, and one is considered fair value using the PER approach. The overvalued companies are GIAA and HELI; the fairly valued company is CMPP. While using the PBV approach, all aviation subsector companies are overvalued. These companies consist of CMPP, GIAA, and HELI.

For 2021, there is one undervalued, one overvalued, and one fairvalued company in the PER approach. The undervalued company is GIAA, the overvalued company is HELI, and the fairvalued company is CMPP. Meanwhile, if using the PBV approach, the overvalued company is GIAA, and the undervalued companies are companies with CMPP and HELI stock codes.

Based on these data and descriptions, potential investors in undervalued stocks can decide to buy the shares of the issuer concerned, and investors who already own these shares can increase the number of their shares. If a stock is overvalued, potential investors can decide not to buy it because the price is too high. However, investors who already own the shares can sell them. Then, for stocks that are fairly valued, the investment decision that should be made for those who already have shares or those who do not have is to refrain from selling or buying until there are estimated earnings for investors.

From the data during the pandemic (2020-2021), it can be concluded that during the pandemic in 2021, the aviation sub-sector using the PER and PBV approaches shows that the aviation sub-sector stocks are in an overvalued condition where the investment value is smaller than the market value. However, in 2021, the HELI company experienced an undervalued condition.

Investors with a risk takers tend to have a high risk tolerance and dare to take risks. In an undervalued situation, risk-taker investors will choose to buy stocks because they expect high returns and are ready to face the risks associated with the investment. Meanwhile, in an overvalued situation, they can continue to buy if they believe the company has strong growth potential and good performance, so the share price will continue to increase even though it is overvalued. However, risk-taker investors should also consider the risks associated with investing in overvalued stocks, such as a falling stock price or lower returns than undervalued stocks.

In investors with a risk-averse type, if the stock is undervalued, it is recommended to buy but still pay careful fundamental and technical analysis, stock risk, and the quality of company management to avoid future losses. Meanwhile, if in an overvalued condition,

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investors with a risk-averse type can see and wait until the stock is undervalued by paying attention to existing risks and conducting analysis.

Table 3.

Comparison of Intrinsic Value Using PER Approach with Market Value on Post-Pandemic Year (2022)

NO	Issuer Code	Market Price as of End of Year 2022 (IDR)	Intrinsic Value PER (Rp)	Description	PBV Intrinsic Value (Rp)	Description
1	CMPP	192	230,1756	<i>Undervalued</i>	231,4942	<i>Undervalued</i>
2	GIAA	204	217,832	<i>Undervalued</i>	227,3296	<i>Overvalued</i>
3	HELI	280	268,005	<i>Overvalued</i>	268,8468	<i>Overvalued</i>

Based on Table 1 in 2022, using the PER approach method, two companies are undervalued and one overvalued. Undervalued companies include CMPP and GIAA. In contrast, the company that is overvalued is HELI. While using the PBV approach, there is one undervalued company and two overvalued companies in 2022 using the PBV approach. The undervalued company is CMPP, and the overvalued companies are GIAA and HELI.

Based on the data and description, potential investors in undervalued stocks can decide to buy them, and investors who already own them can also increase their holdings. If a stock is overvalued, potential investors are advised to perhaps refrain from buying because the current price is high. However, investors who already own the stock can sell their shares.

From these data, after the pandemic (2022) it can be concluded that aviation sub-sector companies are undervalued. However, one company is less recommended, namely the HELI company, where the PER and PBV conditions are overvalued, and the intrinsic value is less than the market value.

Investors with a risk-taker type tend to have a high-risk tolerance and dare to take risks. In an undervalued situation, they will choose to buy stocks because they expect high returns and are ready to face the risks associated with the investment. Meanwhile, in an overvalued situation, they can continue to buy if they believe the company has strong growth potential and good performance, so the share price will continue to increase even though it is overvalued. However, risk-taker investors should also consider the risks associated with investing in overvalued stocks, such as the possibility of a falling stock price or lower returns than undervalued stocks.

In investors with a risk-averse type, if the stock is undervalued, it is recommended to buy but still pay careful fundamental and technical analysis, stock risk, and the quality of company management to avoid future losses. Meanwhile, if in an overvalued condition,

investors with a risk-averse type can see and wait until the stock is undervalued by paying attention to existing risks and conducting analysis.

5. CONCLUSION

Based on the above conclusions, investors with a risk-taker type will benefit from buying aviation subsector stocks either in an undervalued or overvalued condition but still paying attention to their fundamental analysis. Then, for investors with a risk-averse type, buying the stock in an undervalued condition is recommended. In an overvalued condition, investors should be able to see and wait until the stock is undervalued.

The general condition before the pandemic (2018 - 2019) that the condition of aviation subsector stocks is still worth buying because it is experiencing stable growth driven by increased demand for business and leisure travel. Besides that, based on PER and PBV analysis, it shows that the market price is smaller than its intrinsic value, but during the Covid-19 pandemic (2020 - 2021), the condition of aviation subsector stocks is not worth buying because the aviation subsector is experiencing a significant impact due to travel restrictions or lockdowns imposed in various countries including Indonesia so that it results in a decrease in the number of passengers and a drastic decrease in revenue. In addition, PER and PBV analysis shows that the market price is greater than the intrinsic value. After the post-Covid-19 recovery (2022) some stocks are worth buying because the aviation sub-sector is predicted to recover gradually, along with the easing of travel restrictions and global economic recovery marked by passenger demand starting to show an increase.

This research contributes to filling the gap from previous research to add to the literature on stock valuation studies, especially in aviation subsector companies using the PER and PBV methods before and after the pandemic. This research can answer new questions or provide a deeper understanding of stock valuation using the PER and PBV methods in the aviation subsector. It can also provide recommendations for investors in stock purchase decisions, which few previous studies have discussed. In addition, it can also strengthen the knowledge base in this field, which is important in the development of science because it helps ensure that knowledge about it continues to grow and improve over time.

The limitations encountered by researchers when carrying out this research are the methods used are limited on PER (Price Earning Ratio) and PBV (Price to Book Value) since companies in the aviation subsector do not routinely distribute dividends so that stock valuations cannot be carried out with absolute methods that use dividend data such as DDM (Dividend Discount Model) and DPR (Dividend Payout Ratio). For future research agendas, researchers can conduct stock valuations using absolute methods such as (FCFF) Free Cash Flow to the Firm and (FCFE) Free Cash Flow to Equity. Researchers can also conduct valuations with comparative methods such as EPS (Earning Per Share) on aviation subsector companies or other sector valuations that are still attractive to investors focused on sustainability companies listed on the ESG index, LQ45, and others.

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