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OPERATING LEVERAGE FLAG CARRIER AIRLINE OF ASIA-PACIFIC ECONOMIC COOPERATION (APEC) MEMBERS

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Passenger load factor, operating leverage, profitability / ROA.

ABSTRACT

The purpose of this study is to examine the direct effect between passenger load factor (PLF) on operating leverage (OL) and profitability using return on assets (ROA) and examine the indirect effect between passenger load factor (PLF) on return on assets (ROA) through operating leverage (OL). The research design uses quantitative research conducted on the flag carrier airline industry member countries of the Asia-Pacific Economic Cooperation (APEC) with 10 sample airlines. The data analysis technique used is path analysis by collecting data from the annual reports of each airline for the last 10 years between 2009 - 2018. The results showed that the passenger load factor (PLF) had a positive and significant effect on return on assets (ROA). The interesting thing from this research is that the passenger load factor (PLF) has a negative and significant effect on operating leverage (OL) as well as operating leverage (OL) has a negative and significant effect on return on assets (ROA). No indirect effect is obtained between passenger load factor (PLF) on return on assets (ROA) through operating leverage (OL).

INTRODUCTION

The aviation industry is a service industry. Most airlines have their main business activities are passenger flight services. The role of the aviation industry is considered effective in reducing the distance between regions and able to streamline the time used. This is considered to provide convenience and benefits for passengers in traveling activities. To carry out passenger service business activities, the airline depends on the use of its assets, especially the aircraft fleet. This asset is the most frequently used in airline operational activities. To keep the airline in business competition, the airline must be able to generate profits from its business activities, one of which is maximizing the use of the aircraft fleet.

Utilizing the use of aircraft fleets can be done by maximizing passenger load factor (PLF) (Wensveen, 2007). The large number of passengers shows high income (Iatrou & Alamdari, 2005). Besides increasing the passenger load factor (PLF) does not cause the cost of seats per kilometer to change so that the airline is able to encourage the productivity of the fleet used (Thompson & Craven, 2017). Maximizing passenger load factor (PLF) also shows the efficiency of using operational costs and generating profits. Costs used by airlines can be covered from revenue that can be generated based on passenger load factor (PLF). The high fixed costs used in the aviation industry move airlines to reach the passenger load factor (PLF) level to cover these costs. Therefore, airlines target a high passenger load factor (PLF).

Fixed costs are closely related to operating leverage (OL). The size of operating leverage (OL) is a measure of the sensitivity of airline profits affected by sales. The high size of operating leverage (OL) causes the break even point (BEP) to be high, so the operational risk is high. On one hand, airlines are faced with seasonal passenger demand. At certain times passenger demand is high, but at other times demand is less. This will be a challenge for the aviation industry, because operating leverage (OL) is only able to have a positive effect on profit growth only if sales growth occurs (Lowry, 2014).

The operational advantages of airlines to generate profits have been done a lot. But only a few studies link with operating leverage (OL). The size of operating leverage (OL) is considered important because it has an influence on airline profits. In addition, some of these studies did not focus on flag carrier airlines belonging to member countries of the Asia-Pacific Economic Cooperation (APEC). Only a few researchers are interested in discussing flag carrier airlines belonging to member countries of the Asia-Pacific Economic Cooperation (APEC). The flag carrier airline belonging to member countries of the Asia-Pacific Economic Cooperation (APEC) is a large-scale airline that operates on domestic and international flights. The airline's main activity is passenger flight services.

Finally, this study focuses on profitability measured by return on assets (ROA) influenced by passenger load factor (PLF) and also operating leverage (OL) on flag carrier airlines belonging to member countries of the Asia-Pacific Economic Cooperation (APEC).

LITERATURE REVIEW

Profitability

Profitability ratio is a measure of a company's ability to generate profits from the company's business activities. This measurement can also be used to see the level of effectiveness of management in carrying out company operational activities related to the ability to use resources owned to generate profits, these resources consist of selling activities, selling assets or using capital (Henry, 2018). The challenge for companies to generate profits lies in the effectiveness of management in using total assets or net assets, effectiveness is focused on the relationship of net income to the assets used in generating profits (Sunyoto, 2013). In accordance with the context of this study, measuring profitability using the utilization of aviation industry assets. The operational activities of the industry in the form of services to consumers, the company should rely heavily on the use of its assets to generate profits. The use of assets to generate profits is called return on assets (ROA). This ratio measures the rate of return on business from the company conducted for all assets owned (Sugiono, 2016). The profit referred to in this study is earnings before interest and tax (EBIT) as profit from the aviation industry's operational activities. Measurement of return on assets (ROA) is carried out as follows:

$$ROA=(\text{Earning Before Interest and Tax (EBIT)})/(\text{Total Assets}) \quad (1)$$

Operating Leverage

The size of operating leverage (OL) is a measure of earnings sensitivity to changes in sales, large operating leverage (OL) shows that profits are more sensitive to changes in sales (Husnan, 2013). Operating leverage (OL) arises due to the use of fixed assets such as depreciation costs (Sudana, 2011). Other literature states, operating leverage (OL) arises due to fixed costs, these costs do not change based on changes in production volume. In the condition of fixed costs that do not change, companies can increase the effect of changes in sales volume on earnings before interest and tax (EBIT) (Syamsuddin, 2016). If operating leverage (OL) is associated with managerial investment decisions, then operating leverage (OL) is defined as the contribution of fixed costs to the total costs used (Harmono, 2018). To calculate operating leverage (OL) is done by calculating the degree operating leverage (DOL) with the following formula:

$$DOL=(\%\Delta\text{Earning Before Interest and Tax (EBIT)})/(\%\Delta\text{Sales}) \quad (2)$$

The measure of operating leverage (OL) is defined as the degree of sensitivity of airline profits due to changes in sales. Large operating leverage (OL) can work both ways, which can increase profits and also increase losses (Syamsuddin, 2016). High operating leverage results in fluctuating profits (Gritta, 2006).

H_1 : Operating leverage (OL) has a positive and significant effect on earnings

Passenger Load Factor

One important measure in the aviation industry is passenger load factor (PLF). This measure is a measure of the use of airline assets. Based on the passenger load factor (PLF) it can be seen that available seat kilometers (ASK) and revenue passenger kilometers (RPK). Costs and services can also be known through the passenger load factor (PLF). A high percentage of passenger load factor (PLF) allows the average fixed cost per passenger per kilometer to be lower and rates to be lower (Wensveen, 2007). Some literature states that the size of the passenger load factor (PLF) shows the relationship between the output provided and the output sold (Shaw, 2007 and Belobaba, 2007). Therefore, this measure is interpreted as the level of airline sales. calculating the passenger load factor (PLF) can be done with the following formula:

PLF= (Revenue Passenger Kilometers (RPK))/(Available Seat Kilometers (ASK)) (3)

Unsold available seat kilometers (ASK) are a loss for the airline. Therefore, airlines target a high passenger load factor (PLF) to generate sufficient revenue and minimize losses (Schmitt, 2016). Much literature explains that increasing passenger load factor (PLF) can increase return on assets (ROA) (Martin 2012, Thompson 2017, Tsikriktsis 2007, Schefczyk 1993).

H_2 : Passenger load factor (PLF) has a positive and significant effect on earnings

The increase in passenger load factor (PLF) will always be positive, because the increase is operational efficiency without increasing fixed costs (Cederholm, 2014). Berdasarkan passenger load factor (PLF) dapat diketahui cara maskapai menutup biaya yang telah digunakan dan menghasilkan laba (Beers, 2018). The amount of fixed costs determines the amount of operating leverage (OL), large fixed costs are defined as operating leverage (OL) which is also large (Husnan, 2013).

H_3 : Passenger load factor (PLF) has a positive and significant effect on operating leverage (OL)

An increase in sales with high operating leverage (OL) can increase the increase in earnings before interest and tax (EBIT), while a decrease in sales can increase the decrease in earnings before interest and tax (EBIT) (Syamsuddin, 2016). High operating leverage (OL) requires a high level of sales to reach a break even point (BEP). Sales that are able to cover the fixed costs generate greater profits, while sales that cannot cover the fixed costs will increase losses (Sudana, 2011).

H_4 : Passenger load factor (PLF) has a positive and significant effect on earnings through operating leverage (OL)

METHODOLOGY

This research is a quantitative study using path analysis. The variable used is the passenger load factor (RLF) as an independent variable while return on assets (ROA) as the dependent variable, besides that OL (Z) is also used as an intervening variable. For the detection of the direct effect of the relationship between the independent variables on the dependent variable used a significant value of variables with a significance level of 0.05, while the detection of indirect effects used the sobel test. The calculation of the coefficient of direct influence is done by looking at the standard coefficient values of each relationship. While the coefficient of indirect effect is done by multiplying the coefficient of direct influence on the path traversed. In the path analysis also can be calculated the total effect by adding up the coefficient of direct influence and the coefficient of indirect effect (Sarwono, 2006).

The sample of this study is flag carrier airlines belonging to member countries of Asia-Pacific Economic Cooperation (APEC) including Qantas (Australia), Air New Zealand (New Zealand), Singapore Airlines (Singapore), Thai Airways International (Thailand), Air China (China) , Cathay Pacific (Hongkong), and Aeroflot (Russia). The data used are secondary data obtained from annual reports of sample airlines with an observation period of the last 10 years starting from 2009 - 2018. The equation of the path analysis model of this research is:

$$Z=\rho_{ZX}X + \varepsilon_1 \quad (4)$$

$$Y=\rho_{YX}X + \rho_{YZ}Z + \varepsilon_2 \quad (5)$$

Where Z is the operating leverage (OL), X is the passenger load factor (PLF), and Y is the return on assets (ROA), while ε is the error terms.

RESULTS

This study uses a sample of 10 flag carrier airlines of Asia-Pacific Economic Cooperation (APEC) member countries over the past 10 years starting from 2009 - 2018. The sample description of this study was obtained, ROA (Y) has a standard deviation value of 0.0351 and an average value of 0.0522, a minimum value of 0.00 and a maximum value of 0.21. For OL (Z) has a standard deviation value of 46.09432, and an average value of 24.6154, a minimum value of 0.12, and a maximum value of 385.67. For PLF (X) has a standard

deviation value of 4.89099 with an average value of 78.0971, a minimum value of 66.45, and a maximum value of 85.70. The following are descriptive statistical data:

TABLE 1

DESCRIPTIVE STATISTIC

	N	Minimum	Maximum	Mean	Std. Deviation
ROA (Y)	87	0	0.21	0.0522	0.03519
OL (Z)	100	0.12	385.67	24.6154	46.09432
PLF (X)	100	66.45	85.7	78.0971	4.89099
Valid N (list-wise)	87				

Source: Sample Airlines Annual Report from 2009-2018.

The results of statistical analysis obtained variable coefficient values of each model, for PLF (X) were identified as having a negative and significant effect on OL (Z) with a coefficient value of -0.222 and a significant value of 0.011. This means that by increasing the PLF (X) by 1 unit (percent), then OL (Z) decreases by 22.2% assuming the other variables do not change. For PLF (X) has a positive and significant effect on ROA (Y). The coefficient value is 0.244 with a significant value of 0.033. That is, if PLF (X) increases by 1 unit (percent) then ROA (Y) increases by 24.4%, assuming other variables remain. For OL (Z), it has a negative and significant effect on ROA (Y) with a coefficient value of -0.210 and a significant value of 0.48. The meaning of this relationship is that an increase in OL (Z) 1 unit (percent) can reduce ROA (Y) by 21.0% assuming the other variables do not change. The following is a summary of the direct effect of the results of the standard path coefficients:

TABLE 2

SUMMARY OF DIRECT EFFECT RESULTS OF PATH STANDARD COEFFICIENT

	Coeff	St.Error	t	Sig.
X - Z	-,222	,336	-2,583	,011**
X - Y	,244	,001	2,169	,033**
Z - Y	-,210	,000	-2,013	,048**

** signifikan p < ,05

Source: Processed Data

The coefficient value of the indirect effect of PLF (X) on ROA (Y) through OL (Z) is obtained from the multiplication of the direct effect of the independent variable on the intervening variable and the intervening variable on the dependent variable ((ρ_{ZX}X)(ρ_{YZ}X)). Then the coefficient of indirect effect is obtained ((-0.222) (0.210)) = 0.047.

The calculation of the total effect is obtained by adding up the coefficient of the direct effect of the independent variable on the dependent variable with the indirect effect of the independent variable on the dependent variable through the intervening variable (-0.244 + -0.047) = 0.291.

Detection of indirect effects is done by sobel test. The results of this calculation obtained the t-statistic value 0.666 < t-table 1.9863 at a significance level of 0.05. This means that there is no mediating effect between PLF (X) on ROA (Y) through OL (Z). Operating leverage (OL) is not able to change the return on assets (ROA) that is influenced by passenger load factor (PLF).

DISCUSSION

This study examines the direct effect of passenger load factor (PLF) on operating leverage (OL) and return on assets (ROA), and tests the indirect effect of passenger load factor (PLF) on return on assets (ROA) through operating leverage (OL) . The interesting thing in this study is the passenger load factor (PLF) has a negative effect on operating leverage (OL). The low passenger's load factor (PLF) flag carrier airline of APEC member countries is caused by available seat kilometers (ASK) to continue to grow even though revenue passenger kilometers (RPK) is also experiencing growth, but revenue passenger kilometer (RPK) growth is relatively small. Every increase in available seat kilometers (ASK) is defined as an increase in airline capacity. This increase drives an increase in the fixed costs used. Operating leverage (OL) arises due to the use of airline operational fixed costs. Large fixed costs encourage an increase in operating leverage (OL), meaning that profits are very sensitive to changes in sales. The condition of revenue passenger kilome-

ters (RPK) which experienced relatively small growth was unable to cover the use of fixed costs for airline operations. The result is that operating leverage (OL) increases and is able to cause profits to decrease drastically. In the results of other studies it was found that innovations that encourage the use of fixed costs increase operating leverage (OL) (Nicolaus, 2012).

Meanwhile, the high passenger load factor (PLF) on flag carrier airlines of APEC member countries as a relatively large increase in passenger passenger kilometers (RPK), although the increase in available seat kilometers has also increased. The increase in available seat kilometers (ASK) results in an increase in fixed costs and operating leverage (OL) also increases. However, the resulting passenger kilometer (RPK) revenue is able to offset the use of fixed costs used and in the end the ability of operating leverage (OL) to influence earnings decreases.

The next interesting thing in this study is the negative relationship between operating leverage (OL) and return on assets (ROA). This shows that the flag carrier airlines of APEC member countries that use high fixed costs cannot be covered well and make a profit. Increased operating leverage (OL) directs airlines to experience losses based on return on assets (ROA). High operating leverage (OL) is caused by an increase in airline capacity in the form of available seat kilometers (ASK). This increase also increases the use of fixed costs, but the revenue generated is not able to cover fixed costs properly and causes operating leverage (OL) to reduce the acquisition of return on assets (ROA) of the airline.

The low operating leverage (OL) resulted from the decrease in available seat kilometers (ASK) flag carrier airlines of APEC member countries. This reduction reduces the fixed costs used. While the income obtained is able to cover the use of fixed costs that have been reduced. Thus the ability of operating leverage (OL) to influence return on assets (ROA) is weak because income can cover well the use of fixed costs.

On the indirect effect of interesting results obtained, passenger load factor (PLF) is not able to influence return on assets (ROA) through operating leverage (OL). The ability of a high passenger load factor (PLF) can reduce the ability of operating leverage (OL) to influence earnings. This means that operating leverage (OL) is not able to increase profit or loss. On the one hand, a high passenger load factor (PLF) can increase the return on assets (ROA). The ability of the passenger load factor (PLF) shows that the flag carrier airline APEC is able to generate profits and increase return on assets (ROA) without having to go through increased operating leverage (OL). This is different from the results of previous research which states that operating leverage (OL) affects the return on assets (ROA), increased income can increase return on assets (ROA), while worsening income causes losses suffered very large (Gritta, 2006).

Conclusion

This study measures the direct effect between passenger load factor (PLF) on operating leverage (OL) and return on assets (ROA). This study also measures the indirect effect of passenger load factor (PLF) on return on assets (ROA) through operating leverage (OL). The interesting thing in this study is the passenger load factor (PLF) has a negative effect on operating leverage (OL). Likewise, operating leverage (OL) has a negative effect on return on assets (ROA), while the ability of a high passenger load factor (PLF) is capable of producing high return on assets (ROA). Therefore, operating leverage (OL) is not able to provide a large influence on return on assets (ROA) based on an increase in passenger load factor (PLF).

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