ISSN 2776-110X

The Potential of The Hotel Industry In Pandemic Era Based On Finance Performance Point Of View, Case Study: Indonesia

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Abstract

This article aims to investigate and analyze the potential of the hospitality industry by comparing the potential occupancy rates and hotel revenues of foreign and domestic tourists. This investigation uses an investigation of company data obtained from reports from hotel companies throughout Indonesia which are listed on the Indonesia Stock Exchange and secondary data obtained from world banks and other reliable data. This study uses behavioral data analysis using Threshold Autoregressive from 2000 to 2019. It was found that domestic tourists are a new hope that needs to be considered in surviving and restoring the hospitality industry after being exposed to the COVID-19 pandemic which has led hotel companies. temporarily closed operations and part of the hotel went bankrupt. Optimization of domestic tourists allowed the hotel industry to develop rapidly after the Covid-19 pandemic ended.

Keywords: Hotel; Tourism; COVID-19
JEL Classification: M1,L8,E3

Introduction

The hotel industry is a service industry that includes the hotel sector and other fields in the tourism industry (Park, 2015). The hotel industry is one of the fastest growing economic sectors before the Covid-19 virus pandemic.

Graph 1

Source: World Bank 2020 data, processed

In the last ten years, hotel occupancy rates in Indonesia have continued to increase. This is a trend that has the potential to repeat itself after the coronavirus pandemic ends.

In the hospitality industry, it is very important to determine a set of financial ratios that can be used to analyze companies across industries, regardless of their operation. Financial performance is an indicator to understand the performance of the hotel industry, including hotels (Mariani, et al, 2016). The hotel's financial performance can be used as a reference to see business prospects in the future. However, when the hotel industry is hit by the Covid-19 pandemic, another indicator is needed to see business expectations in the hotel industry.

The unstoppable information technology has shown its fangs in breaking into the financial performance of the hotel business since the 2000s. Customer satisfaction is very important, in the hotel business. In the end, it encourages hotel financial performance from two sides, namely efficiency and increase in hotel occupancy (Oltean, et, al, 2014).

To understand what might happen to the hotel industry, of course, not only look at the financial performance of hotels but the potential of technology in supporting the financial performance of hotels after the pandemic is over namely information technology. The increase in internet users during a pandemic is good news and new hope in the recovery of the hotel industry.

Literatur Review

Cobb Douglas function

Capital is a factor of production, along with labor. Where, Q = f (l, k) and Q is the production output, L the labor input and k the capital input. Capital consists of infrastructure and equipment used to produce goods and services. Capital can be in the form of factory buildings, vehicles, factory machines, and tools used in the production process (Sooncharoen, et, al, 2020; Bosc et al, 2018).

Technological Factors in the Cobb Douglas Function (Solow Model)

Technology has a share in production(Mankiw, 2020; Bhatia, et, al, 2020). Technology determines the effectiveness of capital and labor production inputs (Battisti, et, al, 2020; Jain & Ohri, 2020).

As knowledge of new and more efficient production methods became available, technology changed. The new invention can increase the efficiency of all production methods. At the same time some technologies may become inefficient in the production function when compared to the new technology being discovered. Technological change is a technological progress (Perotti, et, al, 2020; Kaiserfeld, 2015).

The increase in total factor productivity reflects a more efficient use of inputs. Total production factor productivity is used as a measure of long-term technological change or dynamism caused by factors such as innovation (Huang, et, al, 2019; Widarni, et, al, 2020).

In the Cobb-Douglas production function, total factor productivity is influenced by variable A:

$Y = A K^{\alpha} L^{\beta}$

In the above equation, Y is the production output, K is the capital input, L is the labor input, and alpha and beta are the parts of the output for each of the two inputs (Andaregie, et, al, 2020; Uskov, et, al, 2020).

An increase in K or L will cause an increase in output. However, due to the law of diminishing returns, the increased use of inputs will fail to result in an increase in output in the long run (Besanko & Braeutigam, 2020). The effectiveness of the production factors (capital and labor) is influenced by the technological factors used in the production process (Zou, et, al, 2019; Meciar, 2019).

For the production of services or services, the production process occurs when a user uses the service or service (Cardoso, et al., 2014; Kardaras & Karakostas, 2012) Because hotels are a service business, Y is equal to the arrival rate of guests or tourists who consume the service of hotel rooms(Tongwei, et, al, 2020).

Technology serves to make the factors of production work more effectively (Mayer, 2020).Technological progress is the result of innovation (Hu, 2020; Ratten, 2019).Changes in technology change the combination of inputs or the types of inputs required in the production process. Technological upgrades usually mean fewer costs are required (Lin, 2020; Xiao, 2020). An industrial revolution is a form of technological advancement where companies can produce more output by using the same amount of raw materials, capital, and labor (Nayyar & Kumar, 2020; Wang, et, al, 2020).

Production efficiency can increase the company's competitiveness where the company can improve product quality at a lower cost. This enables the company to sell products of better quality at lower prices. Competitive prices have an impact on increasing sales and company revenue (Yarmukhamedov, et, al, 2020; Kadam, 2020).

Method

The method of analysis in research uses quantitative methods.

The scope of research

In writing this research will discuss the scope of research, namely analyzing the behavior of tourist consumption variables (Y1), internet user variables (X1), tourist arrival variables (X2) in Indonesia.

The basis for determining variables is the theory of production where in the hotel business, the output of production is a room equal to the occupancy rate. Where the occupancy rate will occur when there is the arrival of tourism and the technological factor is represented by the use of the internet. Because hotels are a service business, the production process occurs when service users are present.

Data and Data Sources

The type of data used in this study is quantitative data, while the source of data in this study is secondary data. Secondary data is data that already exists, and has been collected, for purposes other than answering existing questions (Jain & Ohri, 2020).

Population and Sample

Population

The data population can be defined as the set of all possible observations (Ofungwu, 2019). The population in this study were all tourists, both foreign and domestic, who traveled in Indonesia, either registered or registered with the world bank and the ministry of transportation or those not recorded by the world bank and the ministry of transportation. And all Internet users who are in Indonesia, either registered or registered with the world bank and the ministry of transportation or not registered by the world bank and the ministry of transportation.

Sample

The sample is data that has essential characteristics of the population where the sample is taken (Andreasen & McDonald, 2019). The sample in this study was represented by all tourists in Indonesia who were recorded by the world bank and the ministry of transportation and internet users in Indonesia who were recorded by the world bank.

Method of collecting data

To obtain representative data (sample), as a basis for determining this sample, the authors do several ways, including:

- Library research, namely by studying the literature related to the title.
- Documentation is a method of collecting data by examining and reviewing documents published by the company. The documentation study was carried out by collecting all secondary data from the website www.ojk.go.id. The author studies the consumption behavior of tourists in the annual reports of all tourism companies registered with the OJK from 2000 to 2019.
- Collecting secondary data from the Ministry of Transportation of the Republic of Indonesia and secondary data from the World Bank.

Research Variables and Operational Definitions

This sub-chapter describes in detail the variables in the study as well as the operational definitions of each research variable. The research variable description and operational definition describe the research variables so that these variables are specific and measurable.

Research variable

Research variables are the qualities, traits, or characteristics identified in the objectives and objectives of the study or the identifiers of characteristics in the research objectives and objectives or questions that are observed or measured in a study (Grove, 2014). In this study, there are two types of variables, namely dependent and independent variables. The dependent variable in this study is tourism consumption or tourist consumption, while the independent variables in this study are Internet users or internet users and Tourism Arrival or tourist arrivals.

Operational Definition of Variables

The operational definition is a precise description of how variables in a study will be manipulated and measured (Kreiger, 2020).

Dependent Variable

The dependent variable is considered to be dependent on the independent variable (McGrath, et, al, 2019). In this study, the dependent variable is tourism consumption.

Independent Variable

Independent variables are variables that are believed to be predictors that cause fluctuations in the dependent variable (Vallabhaneni, 2019). The independent variables in this study are Internet users and Tourism Arrival

Nonlinear Time Series Forecasting Statistical Analysis

Nonlinear time series forecasting is the activity of predicting the future using past conditions or data (Weigend, 2019). In this study, analysis of future forecasting was carried out based on past data from 2000 to 2019.

Data analysis method

This research is a hotel industry business research where the data analysis used is business analysis. Data analysis in business research is a method for determining what the business is doing now (its activities) and what data is needed to support these activities (Evans, 2019).

Research Model

In analyzing nonlinear time series forcasting statistical data, this study adopts research from Bawono, et, al (2019) which focuses on behavior data or behavior data analysis. In analyzing the behavior data (behavior data analysis), this study uses a non-linear (dynamic) time series Threshold Autoregressive (TAR) model. By using the Cobb-Douglas function to analyze the prospects for the hotel industry in Indonesia as follows:

$$Y = A K^{\alpha} L^{\beta}$$

Where Y is the output of production, K is capital and L is labor. A is a technology adoption. Alpha and beta are the output portions of each of the two inputs. The theoretical basis used in analyzing the prospects for the hotel industry in Indonesia uses the theory of the firm with the following equation:

$TR = P \times Q$

Where $Y = Q$

TR is total revenue, P is price and Q is production output.

Based on the equation Cobb Douglas and Theory of the firm and applied to the hotel business or the hotel industry which is a service business. So, Y or Q is represented in tourism arrival where tourism arrival is the arrival of tourists who stay at the hotel, both foreigner tourism arrival and domestic tourists (Domestic touriam arrival). A is a technology inclusion denoted as TIS and TR is represented by tourism consumption where taurism consumption is the total output unit of production (Q) that tourists buy or pay for the price (P) where TR = P x Q.

In Bawono, et, al (2019), the autoregressive threshold model (TAR) is one of the nonlinear autoregressive (AR) time series models with a segmented model so that between different segments it is possible to have a different AR (autoregressive) model.

Discussion

on Loosening Lockdown in Indonesia and New Hopes for the Hospitality Industry

The impact of the Covid 19 pandemic has made many companies bankrupt, especially those engaged in the hotel industry. However, since the implementation of lock down relaxation in Indonesia, there is a new hope (New Hope) in this hotel industry, namely the movement of domestic tourists to go on trips or do business and start filling hotel occupancy.

Statistical Analysis of Nonlinear Time Series Forecasting in the hotel industry in Indonesia

To understand what hotel entrepreneurs or entrepreneurs who are engaged in hospitality should do, this study uses a Nonlinear Time Series Forecasting Statistical Analysis to find out what to do in the current pandemic. The analysis in this study uses an autoregressive threshold model that calculates potential performance. hotel business which is based on financial performance derived from the large consumption of foreign and domestic tourists which becomes hotel revenue and the amount of potential hotel room occupancy throughout Indonesia. This study estimates and compares forecasting financial potentials obtained from foreign tourists and domestic tourists with the following estimation results:

Prospects and estimated hotel revenue from foreign tourists are as follows:

TOURISM_CONSUMPTIONS = (1127.49613517*TOURISM_ARRIVALS - 1050700981.92) + (-597.666928781*TOURISM_ARRIVALS + 5798090449.38)*@LOGIT(3.1918582397e-08*(TOURISM_CONSUMPTIONS(-3)-7438381066.8)) + 8.99961052952*TIS

With the summary as follows:

Dependent Variable: TOURISM_CONSUMPTIONS
Threshold variable: TOURISM_CONSUMPTIONS(-3)

Threshold Variables (linear part)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOURISM_ARRIVALS	1127.496	259.1470	4.350798	0.0014
C	-1.05E+09	1.22E+09	-0.862811	0.4085

Threshold Variables (nonlinear part)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOURISM_ARRIVALS	-597.6669	170.3084	-3.509322	0.0056
C	5.80E+09	1.43E+09	4.057013	0.0023

Non-Threshold Variables

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TIS	8.999611	25.24670	0.356467	0.7289

Slopes

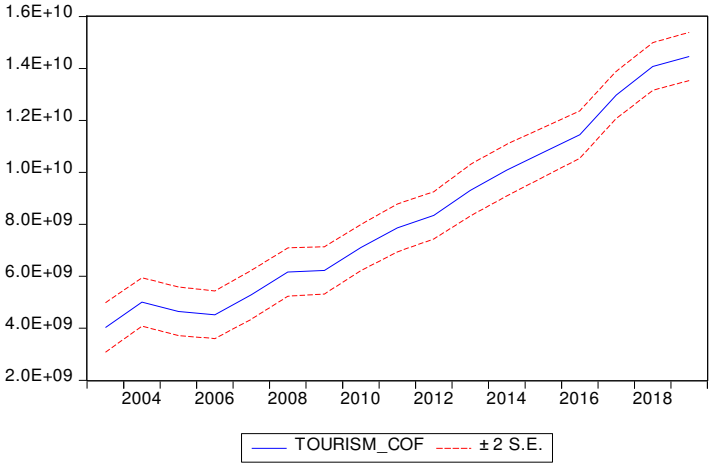
Variable	Coefficient	Std. Error	t-Statistic	Prob.
SLOPE	3.19E-08	0.013082	2.44E-06	1.0000

Thresholds

Variable	Coefficient	Std. Error	t-Statistic	Prob.
THRESHOLD	7.44E+09	2.52E+13	0.000296	0.9998

R-squared	0.988894	Mean dependent var	8.37E+09
Adjusted R-squared	0.982230	S.D. dependent var	3.46E+09
S.E. of regression	4.61E+08	Akaike info criterion	43.02829
Sum squared resid	2.12E+18	Schwarz criterion	43.37138
Log likelihood	-358.7404	Hannan-Quinn criter.	43.06239
F-statistic	148.3986	Durbin-Watson stat	2.589699

Based on the estimation results above, the behavior data from tourism consumption can be forcasted as follows:

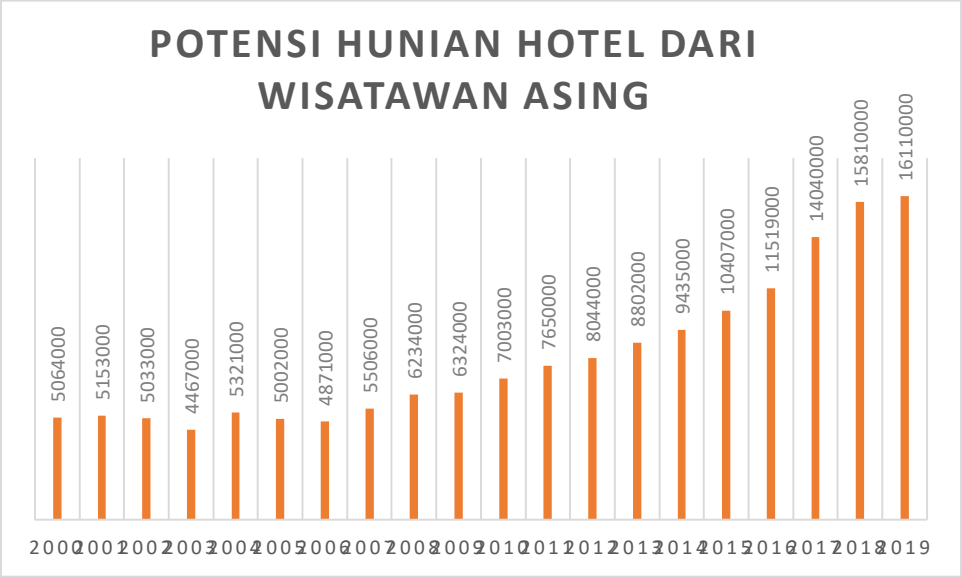


Forecast: TOURISM_COF	
Actual: TOURISM_CONSUMPTIONS	
Forecast sample: 2000 2019	
Adjusted sample: 2003 2019	
Included observations: 17	
Root Mean Squared Error	3.55E+08
Mean Absolute Error	2.08E+08
Mean Abs. Percent Error	2.942529
Theil Inequality Coefficient	0.019685
Bias Proportion	0.000073
Variance Proportion	0.001636
Covariance Proportion	0.998291
Theil U2 Coefficient	0.390258
Symmetric MAPE	2.984129

Source: Author's Computation Results

Estimates of potential hotel occupancy for foreign tourists in Indonesia are as follows:

Graph 2



Source: Author's Computation Results

Prospects and estimates of hotel revenue from domestic tourists are as follows:

DOMESTIC__TOURISM_CONSUMPTIONS = (75.8107335421*DOMESTIC__TOURISM_ARRIVAL - 338401888.406) + (-4.20955776558*DOMESTIC__TOURISM_ARRIVAL + 309860681.166)*@LOGIT(4.30456645021e-07*(DOMESTIC__TOURISM_CONSUMPTIONS(-3)-1274647762.46)) - 0.549109077941*TIS

With the summary as follows:

Dependent Variable: DOMESTIC__TOURISM_CONSUMPTIONS
Threshold variable: DOMESTIC__TOURISM_CONSUMPTIONS(-3)

Threshold Variables (linear part)

Variable	Coefficient	Std. Error	t-Statistic	Pro
DOMESTIC__TOURISM_ARRIVAL	75.81073	10.35148	7.323664	0.0000
C	-3.38E+08	1.80E+08	-1.877800	0.0898

Threshold Variables (nonlinear part)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DOMESTIC__TOURISM_ARRIVAL	-4.209558	8.251061	-0.510184	0.6210
C	3.10E+08	2.04E+08	1.516550	0.1603

Non-Threshold Variables

Variable	Coefficient	Std. Error	t-Statistic	Prob

TIS	-0.549109	3.308135	-0.165987	0.8715

Slopes

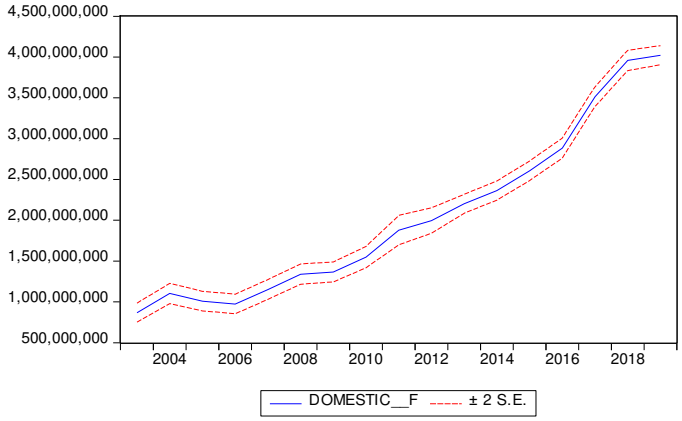
Variable	Coefficient	Std. Error	t-Statistic	Prob.
SLOPE	4.30E-07	23765405	1.81E-14	1.0000

Thresholds

THRESHOLD	1.27E+09	3.38E+21	3.77E-13	1.0000

R-squared	0.997935	Mean dependent var	2.05E+09
Adjusted R-squared	0.996697	S.D. dependent var	1.04E+09
S.E. of regression	59963121	Akaike info criterion	38.94926
Sum squared resid	3.60E+16	Schwarz criterion	39.29235
Log likelihood	-324.0687	Hannan-Quinn criter.	38.98336
F-statistic	805.6194	Durbin-Watson stat	1.193750

Based on the estimation results above, the behavior data from tourism consumption can be forcasted as follows:

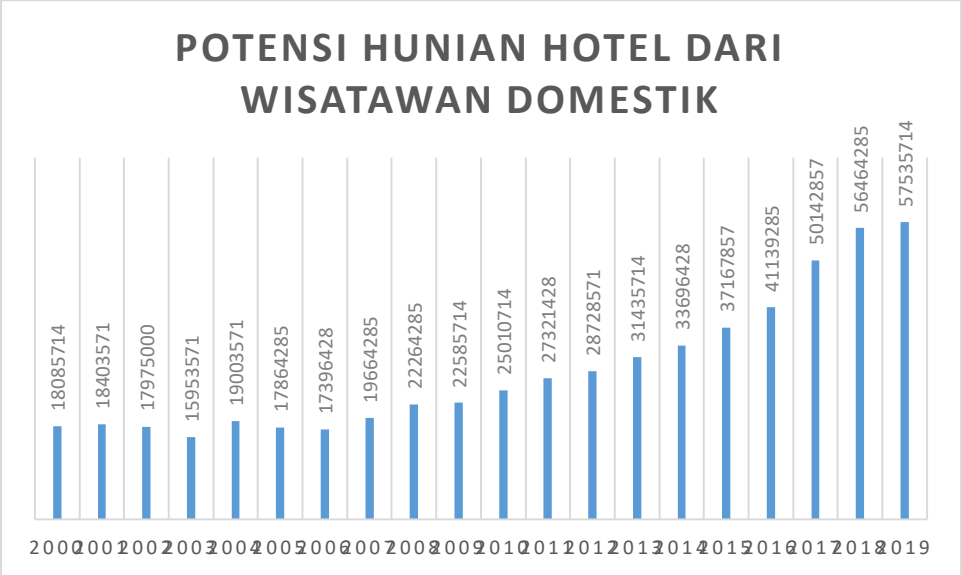


Forecast: DOMESTIC__F	
Actual: DOMESTIC__TOURISM_CONSUMPT...	
Forecast sample: 2000 2019	
Adjusted sample: 2003 2019	
Included observations: 17	
Root Mean Squared Error	46818630
Mean Absolute Error	28674264
Mean Abs. Percent Error	2.748307
Theil Inequality Coefficient	0.010254
Bias Proportion	0.000704
Variance Proportion	0.000097
Covariance Proportion	0.999199
Theil U2 Coefficient	0.148493
Symmetric MAPE	2.660624

Source: Author's Computation

Estimates of the potential hotel occupancy for domestic tourists in Indonesia are as follows:

Graph 3



Source: Author's Computation Results

Based on the analysis of data behavior based on Threshold Autoregressive, from 2000 to 2019, the prospects for the hotel industry continue to improve and increase. However, the COVID-19 pandemic in 2020 has hit the hotel industry hard.

It turns out that based on the Autoregressive Threshold estimation from 2000 to 2019, there is a growth in the hotel industry's income from domestic tourist occupancy which is seen in the movement of the TAR forecasting curve of domestic tourists which continues to increase from year to year and surprisingly it turns out that domestic tourists contribute to a higher occupancy rate. from foreign tourists as well as contributing to higher income from foreign tourists.

Based on the estimation and forecasting results, it is known that the potential for domestic tourists is greater than that of foreign tourists. Thus, domestic tourists become a new hope (new hope) for the hotel industry to recover during the pandemic and post-COVID-19 pandemic. Improved services that suit domestic tourists both in terms of culture and beliefs are an important concern to optimize hotel occupancy rates from domestic tourist visits.

Conclusions

Domestic tourists are a new hope for the recovery of the financial performance of the hospitality industry and based on the estimation of the Autoregressive Threshold from 2000 to 2019, it can be concluded that domestic tourists in Indonesia contribute higher revenue and hotel occupancy rates than foreign tourists. So that it has the potential to boom after the Covid-19 pandemic ends.

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