Proceeding Book

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THEME : *" Unlocking New Marketing Strategies on ASEAN After Covid-19 Pandemic "*

COLLABORATION WITH

Magister Manajemen Sekolah Tinggi Ilmu Ekonomi Perbanas Surabaya
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"Unlocking New Marketing Strategies on ASEAN After Covid-19 Pandemic"

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FOREWORD

Alhamdulillah, praise be to Allah Subhanahu Wa Ta'ala for granting us the opportunity to organize and publish the proceedings of the 3nd International Conference on Business and Banking Innovations (ICOBBI) with the topic "*Unlocking New Marketing Strategies on ASEAN After Covid-19 Pandemic*". This proceeding contains several researches articles from many fields in Business & Marketing, Banking & Sharia Banking, Accounting & Financial Management, Human Resources Management, Operations Management, Investasi, Insurance & Capital Market, Strategic Management, Technology Management, and Information System.

The 3nd International Conference on Business and Banking Innovations was held on 6th – 7th March 2021 by virtual (online) meeting and organized by the Master Management Study Program of STIE PERBANAS Surabaya in Collaboration with three Higher Education Institutions in Indonesia and two Universities from Asia countries. Keynote speakers in this conference were: Prof. Jessa Frida T Festijo (Lyceum of the Philippines University), Prof. Krisda Tanchaisak, Ph.D (Ramkhamhaeng University Thailand) and Burhanudin, Ph.D (Head of Undergraduate Program In Management of STIE Perbanas Surabaya, Indonesia).

I would like to give high appreciation to the Rector of STIE Perbanas Surabaya for his support at this event. Acknowledgments and thank you to all the steering and organizing committees of the ICOBBI for the extra ordinary effort during the conference until this proceeding published. Thank you very much to all presenter and delegates from various Universities. Beside it, I would like to express our gratitude to the three universities, namely Universitas 17 Agustus Surabaya, STIE 66 Kendari, Institut Institut Bisnis dan Keuangan Nitro Makassar which has been the co-host of this event.

Hopefully, the proceeding will become a reference for academics and practitioners, especially the business and banking industry to get benefit from the various results of the research field of Business and Banking associated with Information Technology. Proceedings also can be accessed online on the website https://pascasarjana.perbanas.ac.id.

Chair of the Master Management Study Program
STIE Perbanas Surabaya

Prof. Dr. Tatik Suryani, M.M.

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Operating Management

Performance of Pertamina-Indonesia among Oil and Gas Companies in the Fortune Global 500 of Southeast Asia

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ABSTRACT

Pertamina as a State Owned Enterprise (BUMN) in oil and gas energy sector which represents Indonesia - a country that has the largest oil and gas reserves in Southeast Asia. Pertamina which has been listed in Global Fortune 500 as one of the three oil and gas companies in the ASEAN regional and the only representative from Indonesia. Indonesia's huge energy consumption with a densely populated population of 267 million people which is four times bigger than Thailand and eight times bigger than Malaysia. But these facts haven't been in line with Pertamina's financial performance compared to the two companies which also represent their countries in Southeast Asia, namely Petronas - Malaysia and PTT Thailand - Thailand. Although in terms of revenue per employee which PTT Thailand is the best and Pertamina outperforms Petronas, still it's not in line with Pertamina's profit which is lower among the companies. This paper will propose what Pertamina needs to do to optimize its performance in order to become the leader in the oil and gas energy industries in the ASEAN region by using financial ratio analysis, data envelopment analysis and DuPont analysis on the past five years financial reports of these three companies.

Keywords**:** *Pertamina, Performance, Indonesia, DuPont, DEA.*

1. INTRODUCTION

Since 2013 Pertamina has been included in the fortune global 500 ranks as one of companies that have the largest revenue in the world with revenue at that time of 70.9 billion USD and Pertamina was in the 122nd position. Over time, with the condition of fluctuating oil prices and the discovery of technology to produce the shale oil, oil price tends to fall and resulted in disrupting the revenue and profit of Pertamina and other oil companies. Based on fortune 500 global data in Southeast Asia, there are 3 oil companies from this region that are included in the fortune 500, these companies are like representing their country: Indonesia represented by Pertamina which was founded in 1957, Malaysia represented by Petronas which was founded in 1974 and Thailand represented by PTT, which was founded in 1978. These companies are the oil companies associated with the largest ownership of each their states. Based on data from the central statistics agency, Indonesia's population in 2019 amounted to 267 million, which was much larger than Malaysia's population of 32.5 million and Thailand, which amounted to 66.6 million. This was in line to the level of oil equivalent consumption where Indonesia is in the top rank as shown in the chart Figure 1.

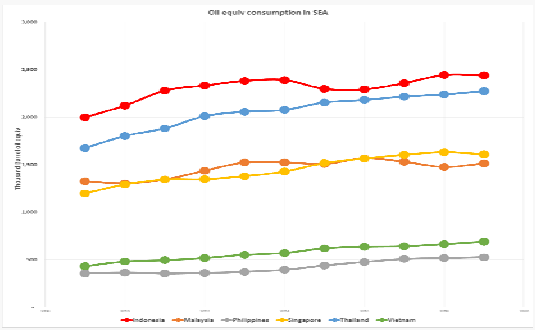

Figure 1. Comparison of the equivalent oil consumption of countries in Southeast Asia
Source: (https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy)

2. BUSINESS ISSUES

The Association of Southeast Asian Nations (ASEAN) is one of the most dynamic parts of the global energy market. The International Energy Agency (IEA) notes that energy demand in Southeast Asia grew by around 70% between 2000 and 2018: from 273 to around 464 million tonnes of oil equivalent (Mtoe): while gross domestic product (GDP) increased 82.9% from 2010 to 2019. Oil and gas dominate the primary energy mix: accounting for around 57% of the 2018 total as shown in Figure 2.

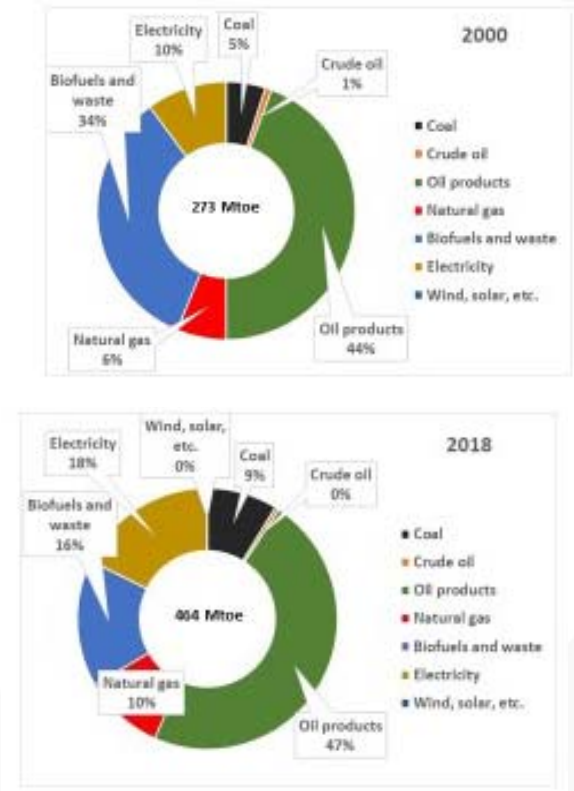

Figure 2. Primary Energy Demand in Southeast Asia
Source: Southeast Asia Energy Outlook, 2018

Proven fossil energy reserves are proven reserves based on the results of drilling and tests on these wells and providing evidence of oil and gas in them. Based on energy data from the British Petroleum company web, the reserves and ranked of the three countries are as follows: Indonesia (10.9 billion barrel oil equivalent ranked 24), Malaysia (8.4 billion barrel oil equivalent ranked 26) and Thailand (1.4 billion barrel oil equivalent ranked 51). And the oil equivalent reserves position of the three countries based on one to each other can be seen as shown figure 3. Looking at the data on oil and gas consumption in Indonesia, Malaysia and Thailand as shown in Figure 4, 5 and 6, based on the same data as above, it can be seen that there is an increase from 2015 to 2019 with an average increase ranging from 1.5% to 2.66%. The largest increase in oil consumption occurred in Malaysia, while the smallest was in Indonesia. Meanwhile, gas consumption tends to fall in the three countries with the largest decline occurring in Malaysia with an average decline in the last 5 years of around -2,391% and the smallest decline in Thailand with an average of -0.93%.

Pertamina's oil and gas production increased quite significantly from 2015 to 2019 which Pertamina's average growth rate was 10.5% for oil production and 12.4% for gas production, while Petronas increased around 0.8% for oil production and 1.7% for gas and PTT production. Thailand's average growth rate is 2.8% of oil production, but Thailand's PTT gas production has decreased by -0.2%.

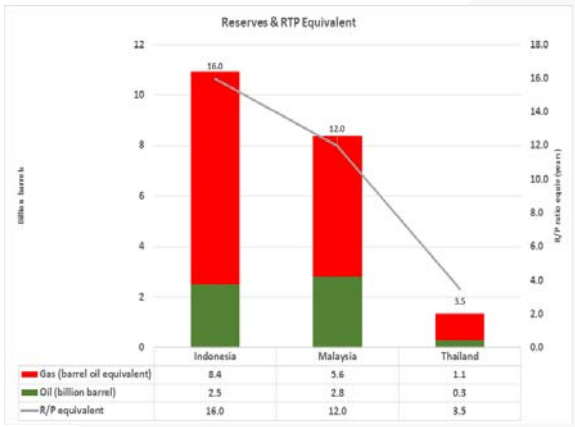

Figure 3. Comparison of Indonesia's, Malaysia and Thailand's

Oil and Gas Reserves and RTP

Source: (https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy)

In terms of oil and gas production per country, all countries faced a decline in oil production with the largest decline in oil was Indonesia by -1.7% on average in the last 5 years, while Malaysia at -1.6% and Thailand's smallest decline was -0.2%.

In terms of gas production, the decline were faced by Indonesia and Thailand, with the largest decline being was Indonesia with an average decline of -2.9%, followed by Thailand by -1.1% and Malaysia on the contrary, the gas production had increased by 0.7%. Based from the production data, Indonesia is still above Malaysia and Thailand, even though the production from the company representing the country in this case Pertamina is not as big as the country's production, such as the production of Petronas and PTT Thailand for their own country.

A summary of data on consumption, the company production and the state production can be seen in figure 4, figure 5 and figure 6 below.

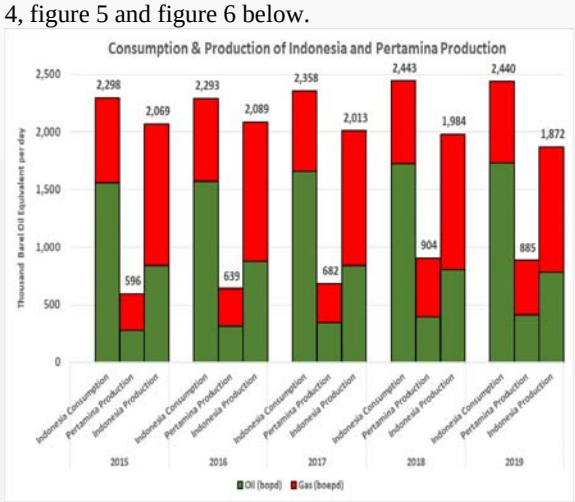

Figure 4. History of Production and Consumption of Indonesian - Pertamina Oil and Gas 2015-2019
Source: (https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy)

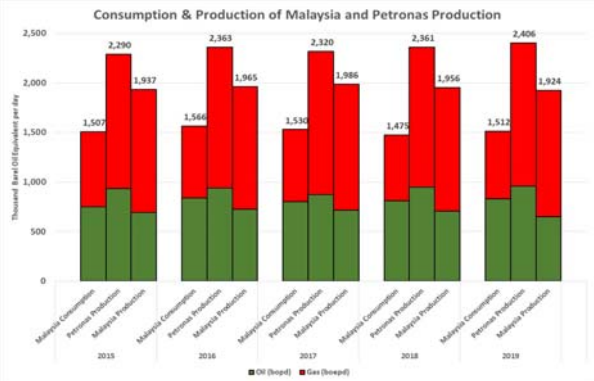

Figure 5. History of Production and Consumption of Malaysian - Petronas Oil and Gas 2015-2019
Source: (https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy)

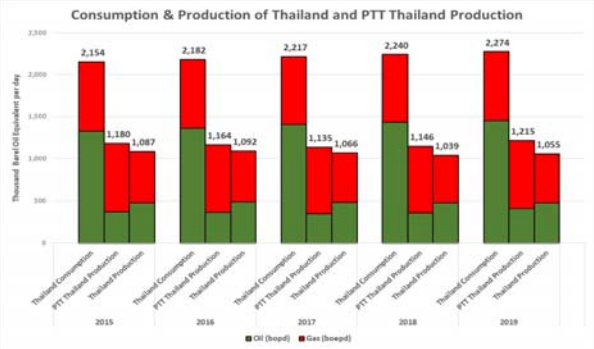

Figure 6. History of Production and Consumption of Thailand - PTT Thailand Oil and Gas 2015-2019
Source: (https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy)

Based from the comparison of data in Figure 7 below, the sales of crude oil and its products Pertamina and PTT Thailand have better revenue compared to Petronas. In terms of sales of gas and its products, Petronas is the leader in this sector, followed by PTT Thailand and Pertamina which still have a small portion in sales compared to these two companies. In the petrochemical sector, Pertamina and PTT Thailand showed a better trend compared to Petronas. For other sectors this figure is quite give a good income eventhough it is not the main sector for these three companies.

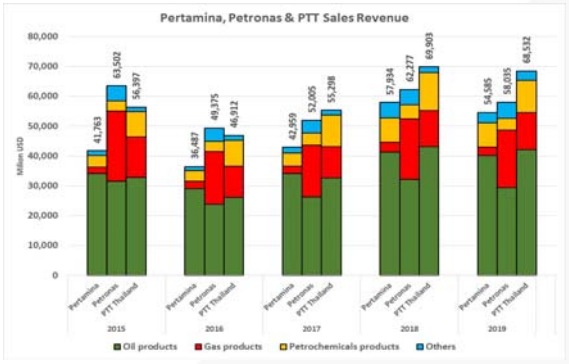

Figure 7. Comparison of Sales Revenue 2015-2019 Pertamina, Petronas and PTT Thailand

With the largest consumption and number of Pertamina's pump stations which are more than 5,000 and also the largest in the Southeast Asia region compared to Petronas and PTT Thailand, can Pertamina be the leader in the global fortune 500 list in Southeast Asia in the future?

3. RESEARCH OBJECTIVE

The purpose of this research is to determine an effective strategy that Pertamina can do to increase its efficiency in order to become a company that represents Indonesia in order to provide greater profits to its shareholders and become the leader as the best oil and gas company in Southeast Asia.

4. EXTERNAL ANALYSIS

4.1. PESTEL

From the results of a study on the political stability of Indonesia and other Southeast countries, in this case Malaysia and Thailand are very good. However, the policies of the governments of a country in controlling the prices of refined oil and gas are a challenge in developing their business. The country's free trade agreement is also a positive value and a challenge for the development of the oil and gas industry. From an economic point of view, it significantly affects how a company conducts its business and also on how beneficial they are for the economic growth of a country. The influencing factors cannot be separated from the following such as economic growth, exchange rates, interest rates, inflation, population, etc. Socio-cultural factors are areas that involve beliefs and communal attitudes of the population. The socio-cultural factors that can be seen clearly at this time are the high enthusiasm of the community towards new and renewable energy, which are increasingly liked by the community and in line with the number of users. Technology is something that greatly affects prices and affects supply and demand factors. As we know, initially when doing exploration and drilling to get oil and gas to do the exploration and production required high and expensive technology. However, the

technology that was originally up to date, now is far behind and has to be transformed so that the companies still could obtained to get a lot of oil reserves which is mostly deposit on offshore which requires high technology in terms of exploration, drilling, processing and also refining the oil and gas to distribute. This is also a challenge with the existence of technology in renewable energy such as CPO which has been able to be converted into B30, B40 and soon will become B100 as well as wind, solar and other energy which causes energy demand that was previously only dominated by fossil energy shift the alternative energies. The environment becomes important because of increasing scarcity of raw materials, pollution reduction targets, doing business as an ethical and sustainable company, carbon footprint targets set by the government. Become more and more consumers are demanding that the products that they buy be sourced ethically and from sustainable resources. Legal matters which include - health and safety, equal opportunity, advertising standards, laws and consumer rights, licensing, product labeling and product safety. It is clear that companies need to know what is legal and what is not in order for trading to be successful. If an organization trades globally, this is a very difficult area to do because in each country has its own rules and regulations. Regulations related to CO2 emissions have also increasingly spurred companies that it has legal consequences to them. The summarize of the PESTEL analysis can be seen in table 1 below.

Table 1. PESTEL Analysis of Oil & Gas Companies

Indicator	Intensity	Measures
Political	Low	Politics Stability is mostly good in ASEAN region
	Low	ASEAN free trade agreement make company easy to run a business
	High	Government intervency in determining industrial gas prices
Economic	High	The need for fossil energy, new and renewable increasesn the next 10 years
	High	The population of Southeast Asia is estimated to reach 721 million.
	High	GDP and per capita income are in an upward trend
	High	Global economic stabilization make economy grow
Social	Medium	The higher the public's enthusiasm for renewable energy compared to fossil energy
Technology	Medium	Offshore drilling technology as well as floating LNG which makes gas production more economical
	Medium	The ability to convert CPO to B100 as diesel fuel
Environment	Medium	The tendency of society to change from fossil energy to new and renewable energies
Legal	Medium	The existence of policies related to reducing CO2 emissions by 1986 Mt CO2, an increase of 29% compared to 2020

4.2. PORTER'S FIVE FORCES

From the Porter's Five Forces analysis as seen in figure 8, it can be seen from the **threat of new entrants** is low because it requires a large investment and requires trade licensing to do exploration, exploitation and sell both the crude oil, gas and its derivative products include high investment on the infrastructure.

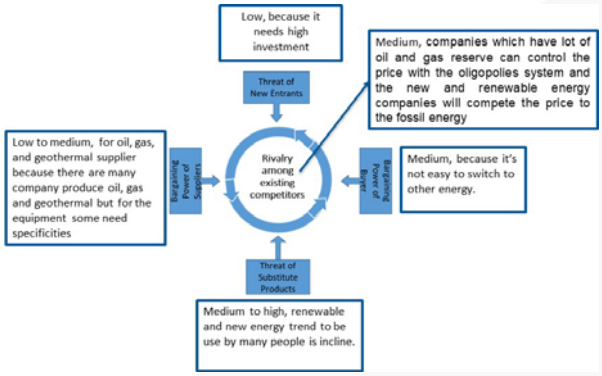

Figure 8. Pertamina Porter's Five Forces

As we see on the **bargaining power of suppliers** of oil and gas companies have many suppliers quite many and also the dominant price control by OPEC (Organization of the Petroleum Exporting Countries) is getting smaller with the emergence of new countries that produce large amounts of oil and gas and the emergence of renewable and alternative energies that compete with fossil energy. However, due to the economic growth of a country that affects huge energy demand causes prices fluctuate and the geopolitical conditions that occur in the Middle East and certain oil-producing countries such as Venezuela also gave impacts for this price. So it can be said that in this case the supplier power is in a low to medium position.

From **bargaining power of buyer** it can be said that the power of buyers is medium because the possibility of buyers to convert the energy used into alternative energy still takes time, this can be seen in the users of vehicles in Indonesia. For companies that need oil and gas exclude the transportation, in this case for example PLN and other companies that need gas to convert to other energy such as coal or renewable energy and alternatives also require investment in changing their facilities.

In **threat of substitute products** oil, gas and geothermal have challenges in substitute products such as coal, new and renewable energy. Based on the fact that there are still large coal reserves in Indonesia, the technological capabilities that can convert CPO to B100 and new energy that is increasingly developing in terms of technology it can be said that the threat from this replacement is in a medium to high position.

We can conclude **rivalry among existing competitors** is medium because the existing companies which have lot of oil and gas reserve can control the price with the oligopolies system and the new and renewable energy companies will compete the price to the conventional energy.

4.3. SWOT

SWOT analysis can help a company with a strategy that works well to determine whether the company is in a position to pursue new market opportunities and to defend against threats to its future welfare. From the

analysis of the previous method, the following are some of the factors that can be included in the SWOT summary for Pertamina as in figure 9.

Figure 9. SWOT Analysis for Pertamina

5. INTERNAL ANALYSIS

Internal analysis is useful for examining the organization in assessing its resources, competencies, and its competitive advantages. Carrying out an internal analysis makes it possible to identify the strengths and weaknesses of an organization. This knowledge then assists in management's strategic decision making during the strategy formulation and execution process. This paper will use audited financial reports issued by Pertamina, Petronas and PTT Thailand to assess the companies' financial statement through financial analysis ratio, Dupont analysis, assessment of SOE and DEA analysis. These Analyses are used to get know the efficiency of Pertamina compare to Petronas and PTT Thailand.

5.1. FINANCIAL RATIO ANALYSIS

Pertamina is not a public company, so in this financial ratio analysis will not compared related to the market value ratio. Based on the analysis carried out on the financial statements of Pertamina, Petronas and PTT Thailand, there are several things that are concerns for Pertamina whose conditions are not yet optimal, which are:

1. Debt Equity Ratio (DER) in figure 10, based on the financial analysis calculation results, Pertamina's DER is more than 1 compared to Petronas and PTT Thailand which were lower than 1 in the last 5 years. By having high DER, it will affect Pertamina to get high risk because it seem that Pertamina financing its growth with debt.

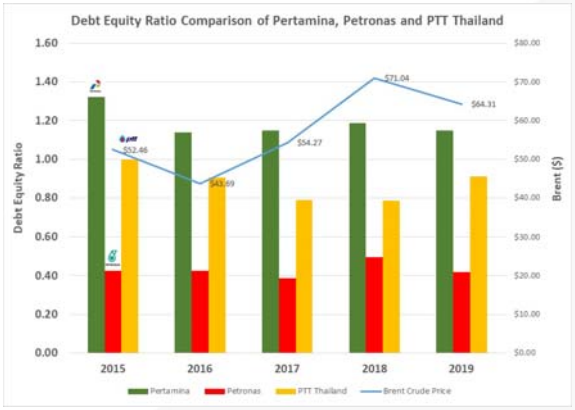

Figure 10. Comparison of Debt Equity Ratio of Pertamina, Petronas and PTT Thailand
(Source: Pertamina Balance Sheet 2015-2019 and Calculations)

2. Inventory Turnover, as shown in figure 11, Pertamina's inventory turnover ratio is very low mean much stock of oil in this case and cannot be refined because of its lack of refinery capacity process.

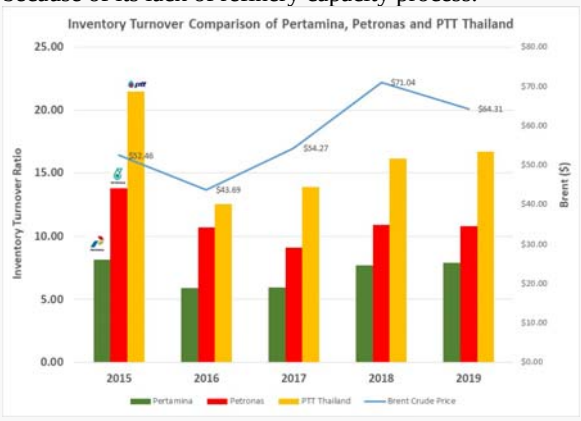

Figure 11. Comparison of Inventory Turnover of Pertamina, Petronas and PTT Thailand
(Source: Pertamina Balance Sheet 2015-2019 and Calculations)

3. Pertamina's profit per employee when compared to the two companies is also lower in the last 3 years, even though in revenue per employee Pertamina is in the second position and is superior to Petronas as seen in figure 12. Pertamina employee number is the second in term of quantity after Petronas.

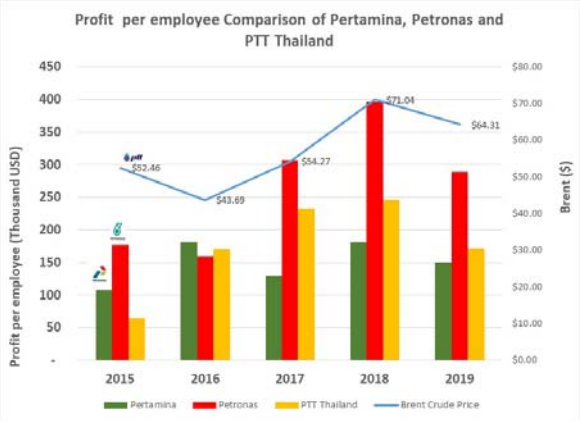

Figure 12. Comparison of Profits per employee of Pertamina, Petronas and PTT Thailand (Source: Pertamina Balance Sheet 2015-2019 and Calculations

5.2. ASSESSMENT OF STATE OF OWNED ENTERPISE (BUMN) FINANCIAL HEALTH

The assessment of State Of Owned Enterprise (BUMN) financial health level engaged in non-financial services is distinguished between SOE that are engaged in infrastructure, hereinafter referred to as SOE for infrastructure, and SOE which are engaged in non-infrastructure sector, hereinafter referred to as SOE non-infrastructure.

The assessment of the health level of SOE is still referring to the "Decree of the Minister of BUMN Number KEP-100 / MBU / 2002 dated June 4, 2002 regarding the Assessment of the Health Level of BUMN". The aim is to conduct an assessment of the performance of SOE in a certain period. The relationship between the assessment of the level of health and the performance of SOE as a benchmark for assessing the performance of SOE is to determine the success of the company in carrying out its operational activities, so that by analyzing financial ratios based on the decree. From the parameters presented, it can be seen that the total score (TS) for the financial aspects of Pertamina, Petronas and PTT Thailand is shown in table 2, table 3 and table 4 below this.

Table 2. Pertamina Financial Aspects Indicator and Weights

Pertamina Financial Aspect Indicators and Weights

No	Indicator	Weight		Pertamina					Score				
		Infra	Non Infra	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
1.	Return on Equity (ROE)	15	20	15.4%	22.4%	15.0%	19.4%	15.6%	20	20	20	20	20
2.	Return on Investment (ROI)	10	15	13.3%	20.0%	15.7%	16.6%	13.6%	12	15	13.5	13.5	12
3.	Cash Ratio	3	5	36%	65%	55%	65%	56%	5	5	5	5	5
4.	Current Ratio	4	5	168%	200%	184%	166%	190%	5	5	5	5	5
5.	Collection Periods	4	5	47.3	49.8	38.6	49.0	53.2	5	5	5	5	5
6.	Inventory Turn Over	4	5	44.8	61.8	61.5	47.4	46.3	5	4.5	4.5	5	5
7.	Total Asset Turn Over	4	5	113.0%	93.3%	102.8%	114.2%	99.4%	4.5	4	4	4.5	4
8.	Shareholder Equity Ratio	6	10	42.8%	46.7%	46.5%	45.8%	46.5%	9	9	9	9	9
	Total Weight	50	70						65.5	67.5	66	67	65

Table 3. Petronas Financial Aspects Indicator and Weights

Petronas Financial Aspect Indicators and Weights

No	Indikator	Weight		Petronas					Score				
		Infra	Non Infra	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
1.	Return on Equity (ROE)	15	20	8.8%	7.9%	14.9%	18.0%	13.0%	12	12	18	20	16
2.	Return on Investment (ROI)	10	15	7.3%	6.0%	12.5%	14.1%	11.6%	6	5	10.5	12	9
3.	Cash Ratio	3	5	166%	163%	189%	155%	194%	5	5	5	5	5
4.	Current Ratio	4	5	258%	256%	293%	216%	283%	5	5	5	5	5
5.	Collection Periods	4	5	66.3	81.9	71.9	67.2	62.7	4.5	4.5	4.5	4.5	4.5
6.	Inventory Turn Over	4	5	26.5	34.1	40.0	33.5	33.8	5	5	5	5	5
7.	Total Asset Turn Over	4	5	47.7%	38.8%	42.0%	47.9%	43.7%	2.5	2	2.5	2.5	2.5
8.	Shareholder Equity Ratio	6	10	70.2%	70.2%	72.2%	66.8%	70.5%	7.5	7.5	7.5	8	7.5
	Total Weight	50	70						47.5	46	58	62	54.5

Table 4. PTT Thailand Financial Aspects Indicator and Weights

PTT Thailand Financial Aspect Indicators and Weights

No	Indikator	Weight		PTT Thailand					Score				
		Infra	Non Infra	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
1.	Return on Equity (ROE)	15	20	5.2%	13.3%	17.1%	16.6%	11.9%	7	18	20	20	16
2.	Return on Investment (ROI)	10	15	9.5%	10.2%	13.2%	13.1%	9.3%	7.5	7.5	12	12	7.5
3.	Cash Ratio	3	5	126%	63%	47%	72%	77%	5	5	5	5	5
4.	Current Ratio	4	5	144%	218%	221%	210%	189%	5	5	5	5	5
5.	Collection Periods	4	5	35.2	40.8	41.2	39.6	35.7	5	5	5	5	5
6.	Inventory Turn Over	4	5	17.0	29.1	26.3	22.6	21.8	5	5	5	5	5
7.	Total Asset Turn Over	4	5	109.1%	90.8%	106.3%	120.1%	105.5%	4.5	4	4.5	5	4.5
8.	Shareholder Equity Ratio	6	10	50.0%	52.5%	55.9%	56.0%	52.4%	8.5	8.5	8.5	8.5	8.5
	Total Weight	50	70						47.5	58	65	65.5	56.5

Based on the tables above, they shows that the health level of Pertamina, Petronas and PTT Thailand are classified as healthy companies. It also can be seen that in 2016 and 2018 Pertamina got a very good total score compared to Petronas in table 6 and PTT Thailand in table 7, Pertamina got AAA score on the two years as seen in table 5.

Table 5. Pertamina Total Score and Rating

Pertamina Total Score and Rating					
Year	2015	2016	2017	2018	2019
Total Score	93.6	96.4	94.3	95.7	92.9
Rating	AA	AAA	AA	AAA	AA

Table 6. Petronas Total Score and Rating

Petronas Total Score and Rating					
Year	2015	2016	2017	2018	2019
Total Score	67.9	65.7	82.9	88.6	77.9
Rating	A	A	AA	AA	A

Table 7. PTT Thailand Total Score and Rating

PTT Thailand Total Score and Rating					
Year	2015	2016	2017	2018	2019
Total Score	67.9	82.9	92.9	93.6	80.7
Rating	A	AA	AA	AA	AA

5.3. DUPONT ANALYSIS

Pertamina's ROE which is superior as seen in table 8 does not reflect the company's condition more optimal than Petronas in table 9 and PTT Thailand in table 10, because from the DuPont Analysis it can be seen that in fact, in running its business, debt is more dominant than Pertamina's own internal capital.

Table 8. Pertamina Three Components of ROE

Company	No	Description	Year				
			2015	2016	2017	2018	2019
Pertamina	1	Profit Margin	7.20%	13.55%	8.32%	9.89%	8.94%
	2	Total Asset Turn Over	0.92	0.77	0.84	0.90	0.81
	3	Equity Multiplier	2.34	2.14	2.15	2.19	2.15
	4	**Return on Equity (ROE)**	**15.4%**	**22.4%**	**15.0%**	**19.4%**	**15.6%**

Table 9. Petronas Three Components of ROE

Company	No	Description	Year				
			2015	2016	2017	2018	2019
Petronas	1	Profit Margin	14.81%	16.42%	28.91%	30.53%	23.71%
	2	Total Asset Turn Over	0.42	0.34	0.37	0.39	0.39
	3	Equity Multiplier	1.42	1.42	1.39	1.50	1.42
	4	**Return on Equity (ROE)**	**8.8%**	**7.9%**	**14.9%**	**18.0%**	**13.0%**

Table 10. PTT Thailand Three Components of ROE

Company	No	Description	Year				
			2015	2016	2017	2018	2019
PTT Thailand	1	Profit Margin	2.81%	9.03%	10.67%	9.38%	6.99%
	2	Total Asset Turn Over	0.93	0.77	0.89	0.99	0.89
	3	Equity Multiplier	2.00	1.91	1.79	1.79	1.91
	4	**Return on Equity (ROE)**	**5.2%**	**13.3%**	**17.1%**	**16.6%**	**11.9%**

5.4. DATA ENVELOPMENT ANALYSIS

Data Envelopment Analysis (DEA) is a nonparametric approach to assessing the relative efficiency of the decision making unit (DMU). This paper uses the DEA-solver-LV8 software (2014-12-05) which can be downloaded for free. In this paper, 15 dmu (decision making unit) is used, where each DMU represents one year of company activity to be compared with the other 14. Pertamina has 5 DMUs, consisting of Pertamina DMU 2015 to Pertamina DMU 2019, as well as Petronas and PTT Thailand. At the beginning, to ensure the dominant factor affecting the efficiency of the company for each DMU, one input and 2 outputs are used to determine how much this input factor is to the output in order to obtain the dominant factor.

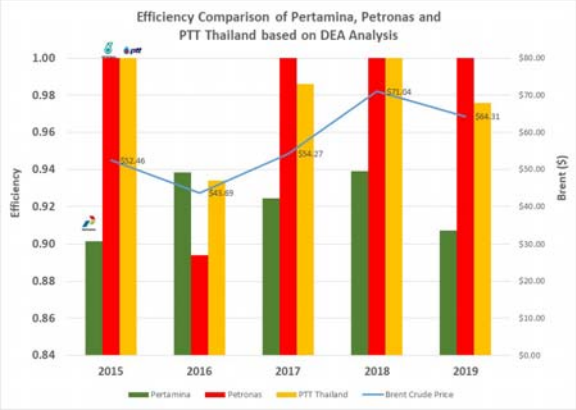

Figure 13. Efficiency Comparison of Pertamina, Petronas and PTT Thailand bases on DEA Analysis

(Source: Pertamina Balance Sheet 2015-2019 and Calculations)

These inputs are things that can be controlled by the company such as: Assets, Equity, Liabilities, Costs, Employees and inventory, while output is something that is controlled by the market such as sales which generate profit. From the analysis of one input and 2 output, it can be seen that there are 4 factors that become dominant factors that influence the efficiency of Pertamina, Petronas and PTT Thailand, namely: Liabilities, Costs, Employees and Inventory. From this Data Envelopment Analysis analysis, it can be seen that Pertamina's position is not efficient when compared to Petronas and PTT Thailand as in figure 13, which the best position for efficiency was won by Petronas in 2015 followed by PTT Thailand in 2015 and back in 2017 by Petronas. The bottom line was originally the Petronas DMU in 2016 but it appears that Pertamina's position is dominating in a positions that were not as good in terms of efficiency as the attached data.

CONCLUSIONS

Based on the results of analysis based on external, internal conditions and analysis of financial statements and also using the Dupont System and DEA Analysis, there are several suggestions that can be done such as:

Pertamina focuses on selling oil rather than gas and it can be seen in figure 14.which Pertamina's revenue is dominated by oil, which has portion of 71 - 82% of Pertamina's total revenue in the last five years. Gas portion has only ranged from 5% - 7% in the same period and for petrochemicals, it has a significant increase in the portion of the increase to around 14% - 15% in 2018 and 2019 from the previous 10% in the previous 3 years.

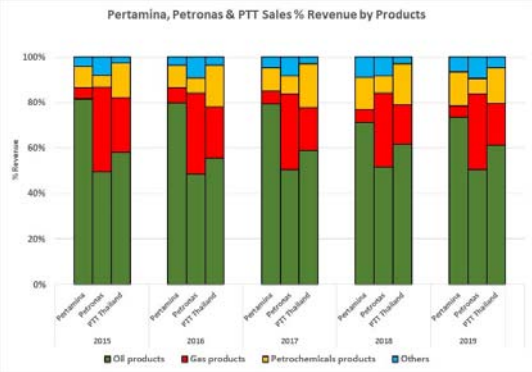

Figure 14. Comparison of Sales Revenue 2015-2019 Pertamina, Petronas and PTT Thailand

Sales of refined oil production are generally carried out on a B2C (business to customers) basis while gas production is generally carried out on a B2B (business to business) basis. B2C will be more attractive because the market segementation will be much wider. However because Pertamina's production has not increased significantly to meet Indonesia's consumption needs, Pertamina has to import crude oil to be processed at Pertamina's oil refineries. Pertamina's refinery capacity which is only around 1,031 million barrels processed capacity per day, is still below the need of Indonesia demand. Pertamina's oil production, which is much smaller than the national demand, has resulted in Pertamina having to import crude oil. It made Pertamina's profit as shown in figure 15. is very much influenced by the price of oil. When the price of oil goes lower Pertamina get advantages because Pertamina can get cheap crude oil. However when the price of oil is high, Pertamina's profit will decrease.

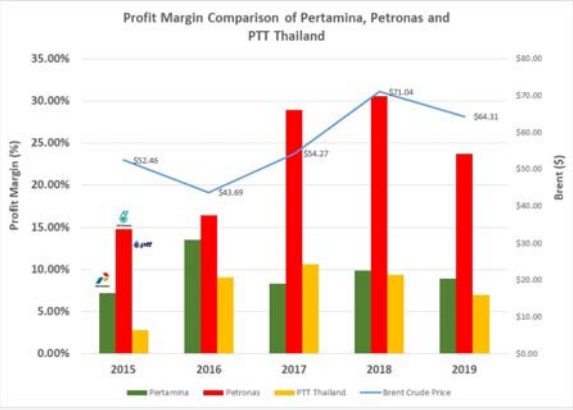

Figure 15. Comparison of the Profit Margin of Pertamina, Petronas and PTT Thailand

(Source: Pertamina Balance Sheet 2015-2019 and Calculations)

Based on this data, Pertamina needs to increase its refinery capacity so that Pertamina can meet Indonesia's oil demand which are estimated to reach 1.55 million barrels per day in 2030 and become 1.98 million barrels per day in 2040 as data from https://www.idxchannel.com/ economics. The steps taken by Pertamina through the RDMP (Refinery Development Master Plan) program include building a new refinery in Tuban, which has a processing capacity of 300 thousand barrels per day. And also the Balikpapan refinery upgrading plan is the best choice and also Pertamina acquisitions in oil and gas fields that have already been terminated as well as acquired oil fields outside Indonesia. Another thing that the government has done through Pertamina by reducing the sales of non-subsidized fuel is also a very helpful strategy to increase Pertamina's profit.

Based on the fact of large gas reserves in Indonesia, Pertamina also needs to increase gas sales in Indonesia. The sales of gas in will strengthen Pertamina's position to be able to increase the revenue and profit in the medium and long term, considering that the demand for gas will increase based on IEA (International Energy Agency) data as shown in Figure 16.

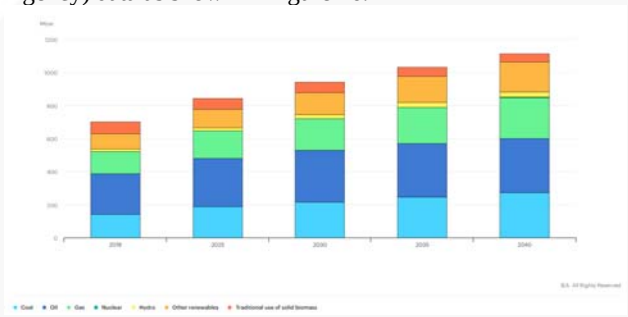

Figure 16. Primary energy demand in Southeast Asia in the Stated Policies Scenario, 2018-2040
Source Southeast Asia Energy Outlook, 2019

Higher Pertamina inventory to its sales data as shown in figure 17 below when compared to Petronas in figure 18 and PTT Thailand in figure 19, it can be seen if Pertamina's inventory is positioned the same as Petronas and PTT Thailand, Pertamina can reduce 1-1.5 billion USD. Besided to do the addition of refineries, Pertamina's plan that was conveyed in 2016 by renting refineries in India could be a solution so that this inventory can be maximized into finished products so revenue can be maximized.

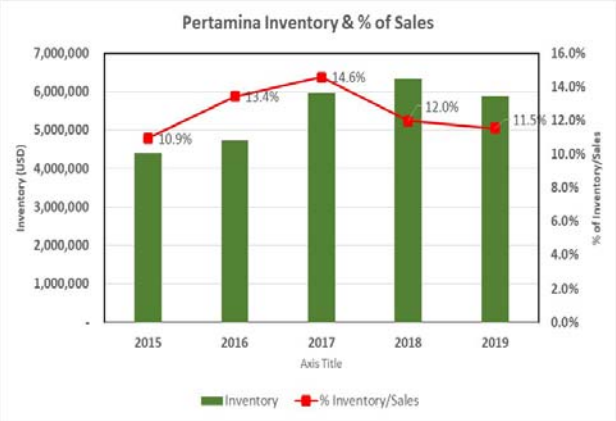

Figure 17. Pertamina Inventory & % of Sales

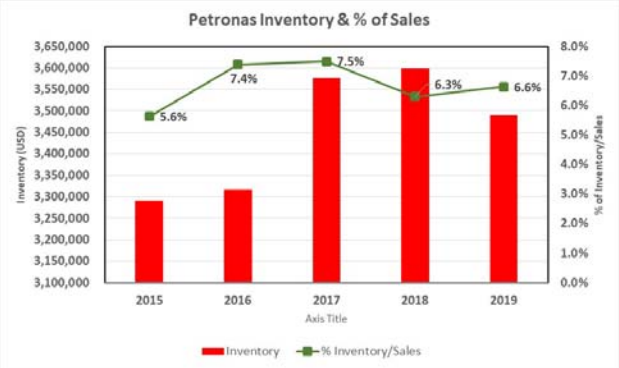

Figure 18. Petronas Inventory &% of Sales

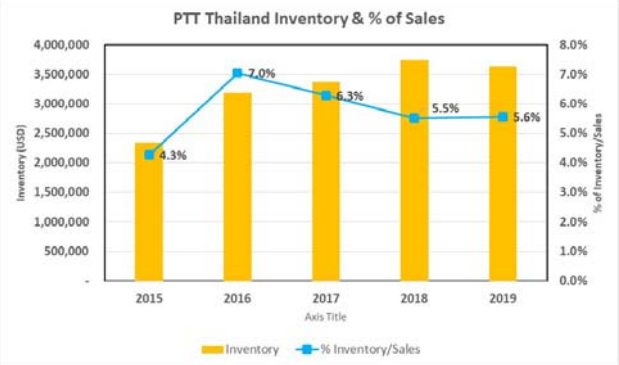

Figure 19. PTT Thailand Inventory & % of Sales

The number of Pertamina employees totaling 32,449 in 2019 is the second highest after Petronas which is 47,669. Employees are related to fixed costs, so the higher the number of employees, the more fixed costs Pertamina must bear. Pertamina's oil and gas production barrel equivalent per employee as seen in figure 20 when compared to Petronas in figure 21 and PTT Thailand in figure 22 which has the employee 27,987 is the smallest. So Pertamina need to to optimize the employees in order to increase its production capability.

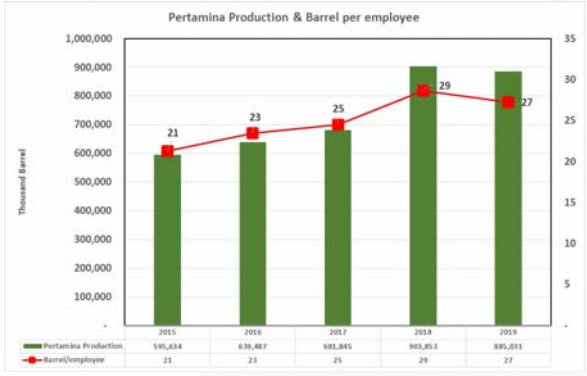

Figure 20. Pertamina Production & Barrel per Employee

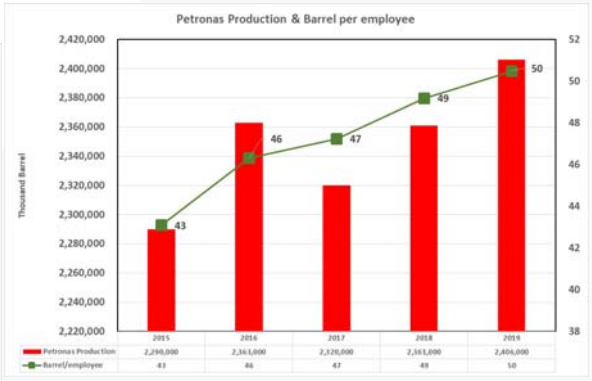

Figure 21. Petronas Production & Barrel per Employee

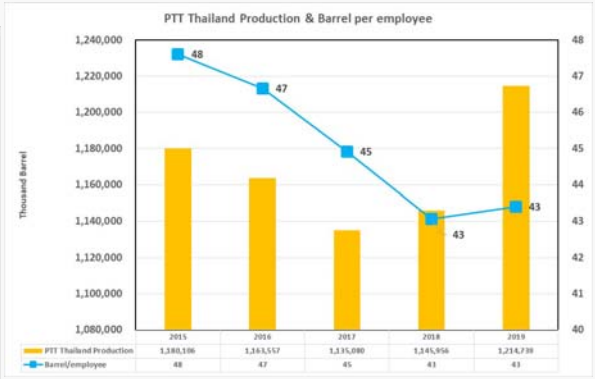

Figure 22. PTT Thailand Production & Barrel per Employee

It's better for Pertamina to do an IPO for raising capital for its business.

AUTHORS' CONTRIBUTIONS

Raam Krisna, earned his BS in Petroleum Engineering and MBA degrees from Bandung Institute of Technology, currently work in Pertamina exploration production Upstream Department.

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His research interests include but are not limited to : Corporate Finance, Established Company and Start Up Company Valuation, Mergers & Acquisition, Entrepreuneurship, Capital Market and Portfolio Management.

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REFERENCES

[1] Robert N. Anthony, David F. Hawkins, Kenneth A. Merchant S, (2012) "Accounting Text and Cases", Mcgraw-Hill, Thirteenth Edition

[2] Stephen A.Ross, Randolph W. Westerfield, Jeffrey Jaffe, Bradford D. Jordan, (2016) "Fundamental of Corporate Finance", McgrawHill Education, Eleventh Edition

[3] Arthur A. Thompson, Margaret A.Peteraf, John E. Gambel, A.J. Strickland III, (2020) *" Crafting and Executing Strategy"*, McgrawHill Education, Twenty Second Edition.

[4] Emrouznejad A. and G. Yang (2018) A survey and analysis of the first 40 years of scholarly literature in DEA: 1978–2016, Socio-Economic Planning Sciences, 61(1): 1-5.

[5] https://www.bp.com/en/global/corporate/energy-economics/energy-outlook.html

[6] https://www.pertamina.com/

[7] https://www.petronas.com/

[8] https://www.pttplc.com

[9] https://www.iea.org/reports/southeast-asia-energy-outlook-2019

[10] Keputusan Menteri BUMN KEP-100/MBU/2002 tanggal 04 Juni 2002, tentang Penilaian Tingkat Kesehatan Badan Usaha Milik Negara. -Jakarta, 2002.