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Edited by

Dr. Komang Aryasa
Chairman of ICSME 2018

Conference organized by
Background

The need for sharing the new conception of strategic management in innovation, entrepreneurship, value creation

The technology drivers to sustain competitive advantage in disruptive era

The important roles of value creation in renewable energy for future energy efficient

The introduction of ISMS as a professional association

Objective

Broadening and developing the field of strategic management

Presenting both young and senior scholars to present their researches

Exploring a unique and current theme in the field of strategic management, platform technology, and renewable energy

Developing the area of academia as well as careers

Theme

THE FUTURE IS NOW

How Strategy and Technology Determine the Winners of Tomorrow

Tracks:

TECHNOLOGY, STRATEGIC MARKETING, FINANCE

ENERGY, ENVIRONMENT

STRATEGIC, LOGISTICS, LEADERSHIP, OB
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The Impact of Decline In Oil Production on Company Performance: The Case of Oil And Gas Industry in Indonesia

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Abstract

- This research aimed at analysing the impact of decline in oil production and price volatility on the company performance in oil and gas industry. The data were collected from two top private companies’s audited financial report 2010-2016. Financial ratio analysis and Paired sample t-test statistics is applied on accounting ratios with the help of statistical software SPSS. The results show that decline in oil production really affect the performance of private companies. The value of cash ratio, inventory turnover, and collection period significantly different before and after the decline in oil and gas production.

Keywords: Financial performance, Oil and gas company, Profitability, Solvency.

1. INTRODUCTION

Oil and gas industry play an important role in many ways. It produce energy as key material in all sectors of modern economies, including commercial, households, environments, and medicine. This industry provide many job opportunities which can reduce the number of unemployment, while its product can be used for cooking, fuel, electricity generation, plastics, road oil, and etc.

Domestic oil and gas production is required for energy independence. Without the insufficient number of production, a country will become dependent on foreign supply. The number of production and consumption of crude oil worldwide increased significantly over the past five years and the supply of crude oil exceed 0.6 million barrel per day of its demand in 2014, and it continued to increase until 2016. The peak of this supply happened in 2015 which exceed 1.8 million barrel per day of its demand. The oversupply of crude oil during those period created a phenomenon called as 2010s Oil Glut.

Tarver (2015) stated that the reasons of 2010s Oil Glut were the North American shale output induced double oil production from 2008 levels and led a full supply of crude oil in the storage, the slowed growth economy of China caused falling demand for oil and other industrial commodities, and the emergence of geopolitical rivalries between Gulf Cooperation Council (GCC) versus Iran and Venezuela which both countries have different principles in 2014. Iran and Venezuela who represented the emerging markets oil producer want to cut the output, but Saudi Arabia encouraged higher oil production and lower price levels to gain the profit.
The occurrence of 2010s Oil Glut led to the falling back of world’s crude oil prices. Figure 2 show the falling of world’s crude oil prices in the past ten years. It shows that the falling had happened twice, specifically in 2009 after the greatest recession happened in the year of 2008 and also the oil glut in 2014. After September 2014, the oil prices were never floating above US$100. The peak of the declining price happened in 2016 with US$44.48 and the lowest daily price also happened in February 2016 which below US$30 (Macrotrends, 2017). The falling of world’s crude oil prices directly affects the growth of oil companies around the world. Price is the main driver in oil industry because it will determine the revenue for all oil and gas companies in the world. Moreover, price is an uncontrollable factor which cannot be regulated by the companies. Thus, the companies have to be ready to face the ups and downs of oil prices.

The occurrence of 2010s oil glut caused the falling oil prices that make oil and gas companies around the world are in the critical position, including Indonesia. Even though Indonesia is a net oil importer country since 2009, it is also affected by the phenomenon. The economic value of oil business is determined based on the profit sharing which has been set on certain oil prices. If the oil prices are continues to fall, it leads oil contractors to postpone many exploration projects and affect the government’s efforts to increase oil reserves and domestic oil
production.
As can be seen in table 1, the amount of oil and gas production fluctuated. The highest amount of oil and gas production was in 1977 and 2011 respectively. The lowest amount of oil and gas production is from 2013 to 2014. In crude oil production, there was a sharp increase from just over 400 MBOEPD in 1966 to approximately 1677 MBOEPD in 1977, and then it declined dramatically to 825 MBOEPD in 2013. It is predicted to increase to just less than 1000 MBOEPD in 2017. In gas production, it increased dramatically from approximately 70 MBOEPD in 1966 to just under 800 MBOEPD in 2011, however, it decreased to 1225 MMSCFD in 2013 and it is expected to increase to 1375 MMSCFD in 2017.

**Table 1. Total of Indonesian Crude Oil and Gas Productions**

<table>
<thead>
<tr>
<th>Year</th>
<th>Crude Oil Production (MBOEPD)</th>
<th>Gas Production (MMSCFD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966</td>
<td>400</td>
<td>70</td>
</tr>
<tr>
<td>1977</td>
<td>1677</td>
<td>800</td>
</tr>
<tr>
<td>2013</td>
<td>825</td>
<td>1225</td>
</tr>
<tr>
<td>2017</td>
<td>994</td>
<td>1375</td>
</tr>
</tbody>
</table>

According to Daryanto and Nurfadilah (2018), the decline of oil production and the volatility of oil price affect the financial performance and business strategy of many oil and gas companies. Daryanto and Samidi (2018) added that many investors will make decision based on the company’s financial history and performance. Therefore, financial
performance is an indicator of success for many companies. The objective of this study is to investigate the financial performance of companies in oil and gas industry and compare it into two periods, namely before the decline of oil production and price, and after the decline in oil production and price.

There has been many researchers who use financial ratio to evaluate the financial performance, however the previous researcher who discuss about this issues from oil and gas company in Indonesia and link it with the financial performance is very limited, while majority of previous study analysed the financial performance of oil and gas company and merger and acquisition (Ahmed and Ahmed, 2014; Jallow et al., 2017).

The rest of this paper is organized as follows: section 2 covers the literature review, section 3 explain research methodology, section 4 present finding and discussion, and section 5 present conclusion.

2. LITERATURE REVIEW

2.1 Financial Performance

- Profitability Ratio
  Profitability ratio is used to measure how efficiently a firm uses its assets and manages its operations (Ross, et.al., 2010: 61). In this study, the profitability ratios used is represented by Return on Assets (ROA). Return On Asset (ROA) describes how well management uses its assets to generate more profits. In income statement, profit is related to the sales revenue. Since sales revenue is strongly influenced by price, so if the oil price tends to increase, it will also increase the sales revenue of the company and help increase its profit (Odel, 2014). Moreover, assets are the most important things to produce some outputs to be sold in the market. However, if the assets cannot help company to gain more revenues and profits anymore, then it will be sold to cover the losses. The research conducted by Putra, et.al (2014) denotes that ROA has significance difference on mean of Indonesia oil and gas companies between before and after global crisis.

  \textbf{H1: Using Return on Asset ratio, there is a significance difference in financial performance during before and after the decline in oil production}

- Solvency Ratio
  Total Debt Ratio describes the percentages of company financing its assets from the creditors’ money. Since the falling of oil price in 2010s Oil Glut, company will tend to borrow more money to finance its assets due the less money that shareholders invested in the company. According to Domanski, et.al (2015) the total debt of oil and gas sector globally increased significantly to $2.5 trillion which more two and half times than the end of 2006. They stated that the falling of oil prices represents a significant decline in the value of assets backing this debt (Domanski, et.al, 2015).

  \textbf{H2: Using Total Debt Ratio, there is a significance difference in financial performance during before and after the decline in oil production}

- Activity Ratio
  Total Assets Turnover Ratio describes how efficient firm uses its assets to generate more sales. The oil and gas companies’ sales revenue will tend to be lower when the 2010s Oil Glut appears. Moreover, the assets cannot help the company to gain more revenues and will be sold to cover the expenditures. Therefore, the ATO ratio will be lower during the Oil Glut situation. According on Hazarika (2015),
fluctuating oil prices significantly affects the assets turnover ratio of British Petroleum, Royal Dutch Shell, and Petro China.

**H3: Using Total Assets Turnover Ratio, there is a significance difference in financial performance during before and after the decline in oil production.**

### 2.2 Previous Research

There has been many researchers conducted study about oil and gas industry and financial performance. However, majority of them relate to the merger and acquisition and global financial crisis, while the previous study that relate to the production of oil and gas industry is very limited. Therefore, there is a huge need to conduct a deep research in this issue. The finding of this study is intended to fill the gap between the practical issues in oil and gas company and theoretical framework. It also has managerial implication where the finding of this study can be used as a references to amend the regulation about the business in oil and gas industry and set-up as a guideline to create a more innovative business strategy.

Putra et al., (2014) analysed the financial performance of indonesian oil and gas company related to global financial crisis. The study used three type of ratio, namely profitability, liquidity, and market ratio. It found that ROE, ROA, current ratio, and quick ratio had significance different, while price-earning ratio showed negative relationship. Daryanto and Nurfadilah (2018) conducted a study about the financial performance of public oil and gas company in Indonesia and the study found that current ratio and return on equity had significance different before and after the decline in oil production. Iskakov and Yilmaz (2015) found that ROA, ROE, current ratio and quick ratio had significance different in the period of before and after global financial crisis.

### 2.3 Research Framework

This study adapted a research framework from previous researcher (Daryanto and Nurfadilah, 2018; Purwanegara et al., 2014). It explain the process of measuring the financial performance of oil and gas industry and compare the different performance in two periods, namely before and after the decline in oil production.

![Figure 4. Research Framework](source: Daryanto and Nurfadilah (2018))

### 3. RESEARCH METHODOLOGY

The data used in this study were collected from secondary sources, namely published annual reports from Indonesian stock exchange, company website, investor’s guide, and other related
information. The study covers a period from 2011 to 2016 for three companies, namely PT Medco Energi Internasional and PT. Energi Mega Persa. Descriptive analysis and paired t-test were used to analyse the data. According to Shier (2004), paired t-test is used to compare two population means where observation in one sample can be paired with observation in other samples.

**Tabel 2. Variable Definition**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profitability</td>
<td>Ability of companies to generate profit</td>
<td>Return on Asset (ROA) = (Net income + Interest expense)/Average total assets.</td>
</tr>
<tr>
<td>Solvency</td>
<td>Ability of companies to meet its debt and other obligations</td>
<td>Total Debt Ratio (TDR) = Total liabilities/Total assets.</td>
</tr>
<tr>
<td>Activity</td>
<td>Ability of companies to convert its balance sheet accounts into revenue</td>
<td>Total Assets Turnover (TATO) = Net sales/Average total assets.</td>
</tr>
</tbody>
</table>

4. RESULT AND DISCUSSION

4.1 Financial Ratio Analysis

- **Profitability**
  
  According to figure 5, the return on asset of PT Medco Energi Internasional experienced a downward trend. There was a dramatic decrease in the percentage of ROA from 8.30% in 2010 to -4.92% in 2016. It shows that its assets value could not generate more net income for this company, while the expenses incurred increased and reduced the profit for the year. Thus, the net incomes of PT Medco Energi Internasional declined and experienced losses during the decline in oil production and volatility of oil crude price. On the other hand, figure 6 shows that the percentage of ROA of PT Energi Mega Persada increased slightly from 1.13% in 2010 to 5.10% in 2013. Then, it decreased significantly to -37.79% in 2016.

![Figure 5. Return on Asset of PT Medco Energi Internasional](image)

![Figure 6. Return on Asset of PT. Energi Mega Persada](image)

- **Solvency**
According to figure 7, total debt ratios of PT Medco Energi Internasional experienced an upward trend. The value of TDR in the past five years were above 50 percent. When there was a decrease in the price of oil crude in 2015, the percentage of TDR were above 100 percent. It shows that the decline of oil price lead to more debt than its assets and also tend to have negative equity. On the other hand, the total debt ratios of PT Energi Mega Persada were above 50 percent, although the percentage were lower than PT. Medco Energi Internasional. It means that PT. Energi Mega Persada financed all its assets by debt due to negative equity and loss.

![Figure 7. Total Debt Ratio of PT. Medco Energi Internasional](image)

![Figure 8. Total Debt Ratio of PT. Energi Mega Persada](image)

### Activity

PT Medco Energi Internasional had fluctuate percentage of total asset turnover, while PT. Energi Mega Persada experienced an upward trend over the past five years. On average, the total assets turnover of PT. Medco Energi Internasional was less efficient, while PT Energi Mega Persada had a good total asset turnover because the values increased from 0.11 in 2010 to 0.49 in 2016. It shows that the total assets were efficiently generating more revenues for PT Energi Mega Persada.

![Figure 10. Total Asset Turnover of PT. Medco Energi Internasional](image)

![Figure 11. Total Asset Turnover of PT. Energi Mega Persada](image)

### 4.2 Paired T-Test

Overall, the result of paired sample t-test of PT. Medco Energi Internasional has two hypotheses accepted. The result found that the first hypothesis is accepted. Return on assets (ROA) has statistically significance difference between the mean before and after
the decline in oil production with the P-value ≤ α (0.018 ≤ 0.05) and t-value (7.399). This company could not defend its ability to create profit after external dreadful factor occurred. Moreover, the second hypothesis is also accepted. Total Debt ratio has statistically significance difference between the mean before and after the decline in oil production with the P-value ≤ α (0.042 ≤ 0.05) and t-value (-4.726). It means that this company used higher liabilities to finance its assets during the decline in oil production than in the period of before decline in oil production. Thus, it has strong evidence this issue affect the difference in financial performance of PT. Medco Energi Internasional.

Table 3. Paired T-Test Result of PT Medco Energi Internasional

<table>
<thead>
<tr>
<th>Description</th>
<th>Period</th>
<th>Means</th>
<th>Std. Deviation</th>
<th>Paired Sample T-Test</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>Before</td>
<td>5.88928240</td>
<td>2.101306185</td>
<td>0.018</td>
<td>Accept the first hypothesis</td>
</tr>
<tr>
<td></td>
<td>After</td>
<td>-2.39313725</td>
<td>4.035330842</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TDR</td>
<td>Before</td>
<td>72.64274712</td>
<td>3.629871559</td>
<td>0.042</td>
<td>Accept the second hypothesis</td>
</tr>
<tr>
<td></td>
<td>After</td>
<td>98.59374061</td>
<td>10.49880923</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TATO</td>
<td>Before</td>
<td>0.25978057</td>
<td>0.057766172</td>
<td>0.261</td>
<td>Reject the third hypothesis</td>
</tr>
<tr>
<td></td>
<td>After</td>
<td>0.22512283</td>
<td>0.035496902</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On the other hand, table 4 shows the finding of paired sample t-test in PT. Energi Mega Persada. Overall, the result found that the third hypothesis is accepted. Total assets turnover ratio (TATO) had statistically significance difference between the mean before and after the decline in oil production with the P-value ≤ α (0.017 ≤ 0.05) and t-value (-7.488). The decline in oil production could not maximize their sales revenue by using the assets. This result is in line with the research conducted by Hazarika (2015). However, this study reject the first and second hypotheses, namely return on assets (ROA) and total debt ratio (TDR) because P-value > α (0.260) and P-value > α (0.194) respectively.

Table 4. Paired T-Test Result of PT Energi Mega Persada

<table>
<thead>
<tr>
<th>Description</th>
<th>Period</th>
<th>Means</th>
<th>Std. Deviation</th>
<th>Paired Sample T-Test</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>Before</td>
<td>2.88058683</td>
<td>1.739597932</td>
<td>0.260</td>
<td>Reject the first hypothesis</td>
</tr>
<tr>
<td></td>
<td>After</td>
<td>-17.05608728</td>
<td>20.45336592</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TDR</td>
<td>Before</td>
<td>60.770515152</td>
<td>8.889202239</td>
<td>0.194</td>
<td>Reject the second hypothesis</td>
</tr>
<tr>
<td></td>
<td>After</td>
<td>80.45003498</td>
<td>24.28030477</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TATO</td>
<td>Before</td>
<td>0.18355584</td>
<td>0.115010954</td>
<td>0.017</td>
<td>Accept the third hypothesis</td>
</tr>
<tr>
<td></td>
<td>After</td>
<td>0.42462831</td>
<td>0.063777801</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. CONCLUSION

The objective of this study is to investigate the impact of decline in oil production and price volatility on financial performance of private oil and gas company in the period of before and after the events. The study found that PT. Energi Mega Persada had the lowest or the most solvent of total debt ratio (TDR) and the highest total assets turnover or the most efficient among other companies from 2010 until 2016, while PT. Medco Energi Internasional was on the second rank because it has the highest return on assets (ROA) among other companies but the performance of other ratios were lower than PT. Energi Mega Persada. Lastly, PT. Benakat Integra was on the third rank because all the value ratios were lower among others.

Based on the finding of paired t-test, PT. Medco Energi Internasional had significance differences in its return on assets (ROA) and total debt ratio (TDR) during the period of before and after decline in oil production, while PT. Energi Mega Persada had a significance difference in its total assets turnover (TATO) during the period of before and after decline in oil production. Lastly, PT. Benakat Integra had significance differences in its total debt ratio (TDR) and total assets turnover ratio (TATO) during the period of before and after decline in oil production.

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Annual Report of PT Medco Energi Internasional, Tbk., 2010-2016


