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Transfer Pricing Equity: An Examination of Reported Revenue versus Expected Revenue

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ABSTRACT

This research examines whether African crude oil and natural gas liquids (NGLs) sales revenue deviates from expected sales revenue based on market prices. The deviation may be the result of International Oil Companies (IOCs) transferring a significant amount of crude oils and NGLs to other regions of the world to be turned into finished goods, due to the lack of refining capacity in Africa. This situation suggests that the African region's governments are placed at a significant disadvantage from profiting off the crude oils and NGLs reserves in their countries because they cannot turn the majority of crude oils and NGLs into finished goods within their country. Thus, IOCs use the accounting concept known as transfer pricing, which allows for goods to be transferred between related enterprises where the integrity of whether the goods were sold at fair market value can be questioned. The use of transfer pricing enables an IOC to shift taxable revenue to different countries where the IOCs operate. IOCs would want to shift revenues from one country to another in an effort to lower their global tax liability. They would accomplish this by shifting revenues from higher tax countries to lower tax countries, and unethical uses of transfer pricing would allow them to achieve this task. This research seeks to determine if revenue is being transferred out of or into Africa during the downstream function of the IOCs' operations.

INTRODUCTION & BACKGROUND

International transfer pricing refers to the ability of two related Multinational Enterprises (MNEs) to make a controlled sale between them that crosses international borders (Raabe, Whittenburg, Sanders, & Sawyers, 2012). Estimates state that the number of control sales now makeup two-thirds of all the transactions involving MNEs (Hogg & McNair, 2009). This is terribly concerning for developing and underdeveloped nations as they could lose out on potential tax revenue if MNEs engage in opportunistic pricing of the assets gained from these nations. If goods are not priced at market value when transferred within a single MNE it allows for revenue and costs to shift between enterprises in jurisdictions that can create substantial tax savings. Most of the previous research in this field deals with domestic transfer pricing, which takes place within the borders of one nation (Lamb, Lymer, Freedman, & James, 2004). However, international transfer pricing has become one of the most pressing issues in international taxation, yet it remains terribly difficult to research (Lamb, Lymer, Freedman, & James, 2004).

This is especially true for developing nations and underdeveloped nations who do not have a diverse pool of MNEs in each business sector, making it difficult to find data on uncontrolled transactions to compare with controlled transactions (European Commission). Also, they lack the human capital that is necessary to understand and regulate the transfer pricing activities of MNEs operating within their nations (European Commission). Not much research exists on how the African region is affected by the global transfer pricing in the oil production sector of their economies. Our research will differentiate itself from any other research on this issue as we will indirectly examine the effects of transfer pricing on barrels of crude oils and natural gas liquids (NGLs) assets leaving the African region to be sold on the global market. The reason for this research is that International Oil Companies (IOCs) have to move significant portions of barrels of crude oils and NGLs to other regions to be refined for finished goods, due to the lack of the refining capacity in Africa (KPMG International,

2013). Thus, we are examining whether revenue is being shifted to or away from Africa as a result of this process.

METHODS

Our data is compiled from the financial reports of Fortune 500 Multinationals Enterprises (MNEs) that operate in the petroleum-refining sector of the global economy. The average production price for a barrel of crude oils and natural gas liquids (NGLs) was compared with an average market price of a barrel of crude oil and NGLs. The data points will include information from the decade between 2002 and 2012. The market price will be taken from the Organization of Petroleum Exporting Countries (OPEC) Basket Prices. The type of crude oils and NGLs that make up its price are the same types of crude oils and NGLs that the IOCs in this study pump out of the ground in Africa. The Kruskal-Wallis test will be used to see if there is a significant difference between the IOCs' average production prices and the OPEC Basket Price.   However, the Wilcoxon signed-rank test will be used to measure whether the expected total revenue based on the OPEC Basket Price has the same median as the reported total revenue that is calculated using each IOCs' average production prices.

RESULTS

The Kruskal-Wallis test was used to see if my three groups of prices were identical. The critical value for the statistical analysis is 5.991, meaning that if our chi-squared value is greater than 5.991, we will reject the null hypothesis. The results of the statistical analysis showed our chi-squared value was .1055: therefore, we failed to reject the null hypothesis. Therefore, there is no significant difference between the price levels of the three groups.

$$ H = \left[\frac{12}{n_{T(n_T+1)}} \sum_{i=1}^{k} \frac{R_i^2}{n_i} \right] - 3(n_T + 1) $$

The Wilcoxon signed-rank test analyzes data in a matched sample experiment. The matched samples calculated revenue in two different ways based on market price and production price to see if there is a difference between the medians of the two groups. In the all the tests, our Z-values landed between our critical value of -1.96 and 1.96. Therefore, we failed to reject the null hypothesis, meaning that the median revenue is equal to zero when the expected total revenue is subtracted by the reported revenue.

$$ \mu_{T+} = \frac{n(n+1)}{4} $$
$$ \sigma_{T+} = \sqrt{\frac{n(n+1)(2n+1)}{24}} $$
$$ P\left(z \geq \frac{T^+ - \mu_{T+}}{\sigma_{T+}} \right) $$

DISCUSSION

Based on the preliminary data used in this research, we have concluded that there is no significant difference between average production prices computed by the International Oil Companies (IOCs) in Africa and the OPEC Basket Price per barrel in the years between 2002 and 2012.   This means that even though over 80% of revenue in this sample was the result of transfers, primarily to captive wholly-owned subsidiaries for further processing into refined products, they still meet the requirements of the arm's length standards. Thus, taxable revenue to African governments, generated from the sale of crude oils and NGLs are not being shifted away from the continent or to the continent by the IOCs involved in this study.

Also, this study examined total revenue based on market prices and average production prices per companies because the smallest differences in price can result in large differences in total revenue when billions of barrels of crude oil and natural gas liquids (NGLs) are transferred over a decade. The results of our statistical analysis once again showed no statistical differences between the median of the expected revenue and the reported revenue. Thus, the value of the distribution of revenue is not greater based on market prices or average production prices. These tests' findings confirm the finding of the first statistical test that the African region's taxable revenue from the sales of crude oil and NGLs are not being shifted to other regions or from other regions to Africa.

This research confirms the notion that commodities traded on a stock exchange are likely to be sold at fair value by MNEs. However, we must note that these findings make logical sense when the domicile of the IOCs used in this study is considered. The United States has the highest corporate tax rate in the world and the IOCs used in this study are all domiciled in the United States. If they were to engage in opportunistic forms of transfer pricing to lower their taxable income in Africa, it is more advantageous for them to shift higher costs to the United States and more revenue to Africa. But, this study indicates that the average production prices and market price have no significant difference, so they are shifting neither higher than market costs to the United States nor higher than market revenue to Africa in the downstream function.

FUTURE RESEARCH

This research will be continued by adding International Oil Companies (IOCs) to the data set that are domiciled in other jurisdictions besides the United States. It will be interesting to see how jurisdictions with lower tax rates affect the statistical analyses. While it is more advantageous to shift revenue to Africa when the IOC is domiciled in the United States, the opposite is true for IOCs that operate in Europe, Asia, and Australia. Also, this research is limited to the downstream function of IOCs, but there are two other major operating segments of IOCs that were not included in this study. These segments are interesting because they do not trade on a commodity exchange like crude oils and NGLs. Therefore, it is much harder to attain a fair value for products as they are transferred within an IOC. Also, future research could include the movement of cost between regions as the shifting of cost can have the same beneficial tax effects for IOCs as the shifting of taxable revenue.

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