Ebitda Gain Optimization Using Strategy Allowcation Of Market Share Distribution In Xyz Company: A Case Study In Indonesia

Fredy Agung Prabowo[1], Ahmad Rusdiansyah[2]

[1](Department of Magister Management Technology, Institute Teknologi Sepuluh Nopember, Indonesia)
[2](Department of Magister Management Technology, Institute Teknologi Sepuluh Nopember, Indonesia)
Corresponding Author: Fredy Agung Prabowo

Abstract :. *2016 became a turning point for the last 15 years of cement industry in Indonesia. Demands declining based on limitation of the economic growth and also increasing of the cement supply related the new entrance that already began to start their full production capacity, making selling price become harder because of its intense competition. Although PT. XYZ as one of the dominant player for this business and still dominate their market share entire Indonesia, this condition made decreasing its market share that of course certain declining profit. Earning before interest, taxes, depreciation and amortization (EBITDA), as a benchmark of the company profit compared to other companies in similar industries also show us that PT. XYZ got its decreasing significantly. Highest rate of achievement that reached by 2012 for 35% EBITDA margin, decrease significantly to 19.4% in 2017. Its condition affected by an external factor and internal factor. For the external factor, decreasing selling price as well as decreasing market share were the dominant factors. While internal factor is more dominated by higher cost for raw material and fuel. This research focuses on the problem that affected by an external factor that is decreasing of market share. This research has aim to maksimizing EBITDA using linear programming model. As the decision variable used is total volume that sold by each production unit in a certain sales area wich means know its market share position. And for constraints there are production capacity for each production unit and also range of the minimum and maximum target of market share for each sales area. Simulation of the over capacity and shortage market condition will also tested using this model to gain insight. This model can achieved higher EBITDA than real condition in Desember 2017, that is Rp 462.954.808.834,- or increase significantly 10.54% than normal condition. This model also tested with normal, shortage and over capacity condition and can be concluded that this model gave higher EBITDA with such condition. Basically by this research we expected to provide additional concept according to optimization. And also provide consideration to PT. XYZ management as the decision makers for knowing best market shares allocation to get an optimum EBITDA.*
Keywords - *Market share, Earning Before Interest, Taxes, Depreciation and Amortization (EBITDA), Linear Programming.*

I.   Introduction

Cement industry business in Indonesia experienced its golden peak in 2010 until 2013 when economic growth rates were able to touch the figure of 6% to 7%. The design of the cement plant capacity can be boosted to the maximum even some manufacturers carry out programs upgrading to increase their production capacity while at the same time reducing the tempo of the shutdown factories it manages. The total installed design capacity of PT XYZ's cement production by the end of 2017 was 35.5 million tons. With details of Tuban-Gresik capacity of 17.3 million tons, Padang 8.5 million tons, Makassar 7.4 million tons and Vietnam of 2.3 million tons. Of all the production facilities there are 5 integrated plants in 4 locations, 2 points for locations grinding plant and 24 points for locations packing plant.

With the presence of many new players in the national cement industry, market competition is increasingly competitive. Although the market share is still dominated by three big players (Semen Indonesia group, Indocement and Holcim Indonesia), new players have captured about 5% of their market share main after their production capacity has been fulfilled in 2014-2015. In the first 4 months of 2016, three major players experienced a 3% decrease from the total 85% at the end of 2015, to 82% in April. Although recorded an increase in revenue compared to 2016, the tendency is seen that PT. XYZ experienced a significant decrease in EBITDA and EBITDA margins . The highest margin EBITDA was recorded in 2012 of more than 35%. The downward trend was seen until the end of the 3rd quarter of 2017 decreased by 22.9% compared to the same period of the previous year.

This decrease in EBITDA is influenced by several factors. From the external it is seen that in the last two years the price of cement has fallen by an average of 8-10% (Investasi.kontan, 2017). This was also influenced by the achievement of market share which experienced a significant decline. From the internal itself, the effect of the increase in costs arising is contributed by the increase in the price of raw materials and mainly coal. The cement plant uses coal as the main fuel in its production process, in this case coal has a significant price increase to reach 16%. The factor that is not less impactful is the increase in electricity rates.

With conditions market share competitive for each sales area, a method is needed to obtain the optimum EBITDA value. This means that with the resources and production capabilities that are owned, it is hoped that the optimum value can be obtained by determining the market share of the product. For this reason, it is necessary to obtain a PT EBITDA optimization model. XYZ is based on allocation market share product in a linear programming model.

Production and sales conditions that have been experienced in the cement industry, especially PT. XYZ had experienced conditions shortage and also over supply, for that it was necessary also to find out how the impact caused when market conditions occur over capacity and conditions shortage for EBITDA obtained by PT. XYZ.

II. Literature Review
2.1. Marketing strategies related to Market share
In its role related to achieving the target market, the company can be divided into 4 types. That is a market leader who holds 40% of the target market, a market challenger who has 30% of the market, a market follower who holds 20% of the market and a market nicher who takes a small segment with a market of 10%.
1. Strategy Market leader: Market leaders have the market share largest and usually lead in terms of price changes, new product expenditures, distribution range and even spending on marketing promotions. There are 3 strategies that can be used by market leaders to maintain their position in market control, namely (Expanding demand total, Maintaining market share and expanding market share)
2. Strategy Market challenger: Market challenger can apply one or two competition strategies. They can fight market leaders aggressively to get market share or they can play strategies as followers. There are 2 strategies that can be used by market challengers, namely (Full frontal attack and Indirect attack)
3. Strategy Market follower: There are 2 strategies that can be used by the market followers are (Follow closely and Follow at a distance)
4. Strategy Market nicher: Usually companies in this group are small companies with limited resources. There are 2 strategies that can be used by the market nicher namely (By customer, market, quality-price, service and Multiple niching)

2.2. EBITDA
EBITDA is an acronym for earning before interest, taxes, depreciation and amortization. It is a basic measurement of a company's ability to generate cash from operations carried out and often used to measure cash flow the available for the needs of a company's financial obligations.

In the financial statements, EBITDA shows the company's profit before deducting interest payable and tax payable that must be paid to the government. EBITDA is also used to compare the level of profit of a company with other companies in similar industries that may have different levels of debt or tax liabilities.

2.3. Linear programming
Linear programming can be interpreted as planning activities to obtain an optimum result, namely the best results of all alternatives feasible.

III. Methodology
To be interpreted properly, it is necessary to have valid and data reliable that will be able to obtain results that contain the truth. Data is obtained from company data and data from the Indonesian Cement Association. As for the limitation of the production capacity of each production unit and limitation of allocation market share for each particular sales area by each particular production unit. The purpose of this research is to maximize the EBITDA achieved by the company by optimizing the distribution of distribution market share.

Data processing when normal is done by processing data using December 2017 data where the market conditions at that time. Data testing when shortage is carried out by simulating changes in consumer demand experienced experiencing problems compared to the condition of the December 2017 real data of 10% and 20%. While conditions are over capacity simulated with changes in sales in the form of decreasing demand to 80% and 90% of real data conditions in December 2017. After analyzing the modeling results, a conclusion can be drawn as well as useful suggestions for the company in planning sales in fulfilling the sales allocation related to market share so that the final results obtained in the form of achieving optimum EBITDA. Also known is the

change in optimization results during normal conditions as well as over capacity and shortage so that it can be used as a basis for consideration for management in determining the allocation market share to be achieved.

IV. Analysis Result

Collection of required data is done before the data processing process. The required data comes from several work units in the ranks of PT. XYZ includes the Marketing Department in line with sales performance, the Production Department deals with production data, the Department Business Performance deals with financial performance data and data from the Indonesian Cement Association related to achieving market share sales. The data taken is data for December 2017.

2.4. Sales Area Data, Selling Prices and Transportation Costs

Data on the sales area covers 34 provinces throughout Indonesia for each production unit. Each production unit has a sales area even though there are certain sales areas there are combined sales of more than one production unit. In general, the sales area of PT. XYZ. Divided into 3 regions covering the region 1 island of Sumatra, region 2 island of Java, Bali, Nusa Tenggara and part of Kalimantan, and region 3 includes Sulawesi, part of Kalimantan, Maluku and Papua.

2.5. Production Capacity

Data this data is taken from the production capacity of each production unit which will be used as a limiting variable.
Data Table of production capacity of each production unit

No	Unit Produksi	Penulisan	Kapasitas Produksi (Ton)
1	Tuban-Gresik	C_{p1}	1,320,000
2	Padang	C_{p2}	836,000
3	Makasar	C_{p3}	665,500
4	Rembang	C_{p4}	264,000
		Total	3,085,500.00

2.6. Sensitivity Analysis Sensitivity

Analysis is carried out to see how much changes have occurred to the results of the allocation of modeling if there is a parameter whose value is changed. Sensitivity analysis for this allocation model market share is done by simulating changes in sales capacity of each work unit to find out changes that occur in the objective function when conditions are over capacity, normal conditions and in conditions shortage.

December 2017 data is the normal data used as a reference. Condition Shortage simulated market conditions increased to 110% and 120% of normal conditions. While conditions are over capacity simulated with market conditions experiencing a decline in sales to 80% and 90% from normal conditions. By doing running the modeling data on the data obtained in accordance 4:22 the following table:

Table Achieving EBITDA normal conditions, shortage and overcapacity.

Perubahan kapasitas (%)	Kapasitas penjualan (ton)	Total solusi EBITDA optimal (Rp)	Perubahan EBITDA (Rp)	Persentase perubahan (%)
+20%	3,125,858	535,315,709,240	32,424,034,184	**6.45%**
+10%	2,873,797	503,137,447,307	37,937,752,918	**8.16%**
0%	2,623,037	462,954,808,834	44,137,571,515	**10.54%**
-10%	2,368,992	422,984,179,126	34,179,005,680	**8.79%**
-20%	2,105,771	379,037,109,144	33,432,510,525	**9.67%**

From the data, it can be seen that in conditions shortage where the production capacity for sales is only 80%, the allocation optimization is still getting an EBITDA increase of 9.67%. Whereas when the production capability is only 90% of sales, the optimization results still obtained an increase in EBITDA achievement of 8.79%. There was a change in allocation where the Tuban-Gresik production unit experienced an increase in the allocation of sales volume, but the Makasar and Rembang production units experienced a significant decline. This shows that the production units of Tuban-Gresik and Padang have the potential to increase the achievement of EBITDA from their sales allocation compared to the Makasar and Rembang production units.

When conditions are over capacity, it is indicated by a sales capability of 110% of normal conditions, after optimization is obtained, changes in EBITDA achievement increase by 8.16%. Whereas when the sales capability increases up to 120%, after optimization is obtained the change in EBITDA achievement is 6.45%. Changes in the allocation market share show a similar pattern where the optimization results show an increase in allocations for sales from the Tuban-Gresik and Padang production units, while the Makasar and Rembang production units experience a decrease in allocations. From the sensitivity data above, it is concluded that optimization of market share allocation when market conditions experience shortage, normal or over capacity still provides significant gains in EBITDA achievement of 6.45% to 10.54% compared to achievement without optimization.

V. Conclusion

After analyzing the results in the previous paragraph, the following conclusions will be written related to the optimization results of the modeling using amathematical linear programmingprogram to allocate market share at PT. XYZ. The completion of the modeling has resulted in a plan forallocation market share that generates profits with the following conclusions:

1. The optimization modeling results made show that with this new allocation the company has the potential to increase EBITDA achievement by Rp. amounting to Rp.448,817,237,318, -
2. The optimization model shows an increase in the allocation market share for the sales area which is the strength of PT. XYZ, namely the area market leader and market challenger, while the market follower and nicher areas experience a decrease in allocation on average market share.
3. There are some significant changes in the allocation decline, especially in some sales areas that are far from the production plant unit.

The simulation results show that the use of optimization modeling in this study resulted in an increase in EBITDA achievement both during normal market conditions, shortage and over capacity.

References

[1]. Hertz, A., Uldry, M., dan Widmer, M., (2012), Integer Linear Programming Models for a Cement Delivery Problem. European Journal of Operational Research, vol 222, pages 623-631.
[2]. Riyadi, D., Sahala S., dan Tirtawidjaya, R., (2016). Staying competitive in an oversupplied market. Jakarta: Ernst & Young Indonesia.
[3]. Tanuwijaya, E.A., dan Chong, T.S., (2016). Indonesia Cement Sector, Jakarta: DBS Group Research.
[4]. Hiller, Frederick S. dan Lieberman, Gerald J. (1990). Introduction to Operation Research. New York. McGraw-Hill.
[5]. Kotler, Philip. dan Armstrong, Gary., (2014), Principle of Marketing, 15th edition, New Jersey : Pearson Prentice Hall.
[6]. Vespucci, M.T., Innorta, M., dan Cervigni, Guido., (2013), A Mixed Integer Linear Programming model of a zonal electricity market with adiminant producer, Energy Economics, vol. 35, issue C, 35-41.
[7]. Sutanto, N. Rolandy., (2012). Supplier order allocation using fuzzy-analityc network process method and goal programming (case study in PT. SA), Surabaya.
[8]. Ozkan, N. Firat, dan Ulutas, B. Haktanirlar., (2017), Efficiency analysis of cement manufacturing facilities in Turkey considering undesirable outputs, Journal of Cleaner Production, vol 156, pages 932–938.
[9]. Ross, S.A., Westerfield, R. W., dan Jaffe, J., (2010). Corporate Finance, 9th edition. New York: McGraw-Hill/Irwin.
[10]. Russel, Roberta S. dan Taylor, Bernard. W. III., (2005), Operation Management, New Jersey: Prentice-Hall International Inc.
[11]. Semen Indonesia. (2017). PT Semen Indonesia (Persero) Tbk. and the prospect of Indonesia cement industry. Diakses pada website http://semenindonesia.com/wpcontent/uploads/2017/12/CorpPresent_SMG R_Nov17.pdf
[12]. Suhandik, (2007). Optimasi Penugasan Kapal Semen Curah dari Pabrik Pengantongan di Lingkungan Semen Gresik Group, Surabaya.
[13]. Stevenson, William J.. (2009), Management Operation, 1th edition, UK: Prentice Hall.