Analysis of The Effect of The Selling Prices Gold LM on Sales with Distribution Costs and Promotion Costs as Mediation Variables at PT. Antam Tbk UBPP LM

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Abstract:- The trend of the gold sales of PT Antam Tbk UBPP LM from 2011 to 2016 tend to decrease even though the selling price, distribution costs and promotion costs trend tend to increase. It is necessary to do research to find out the extent of the effect of these variables to influence sales. The research was carried out by using the gold sales, distribution cost and promotion costs data based on marketing and financial reports. In this research, distribution costs and promotion costs are used as mediating variables. The results of this research provide information that the selling price contributes significantly to influence the direct sales without going through distribution costs or promotion costs.

Keywords:- Sales, Selling Price, Distribution Cost, Promotion Cost, And Mediation Variable.

I. INTRODUCTION

This research took the object of the problem in the sale of gold PT. Antam Tbk UBPP LM, hereinafter referred to as UBPP LM. One of the businesses run by UBPP LM is the sale and purchase of pure gold bars with 1 - 500 gr fractions. Every day UBPP LM issues the gold sale price which refers to the world gold price which has been converted into rupiah and the stock of gold stock at UBPP LM. The movement of world gold prices which tends to be difficult to predict makes it difficult to determine the prices of buying and selling at UBPP LM which also consider the available stock of gold stocks, and promotion activities, as well as the distribution of gold products to boutiques scattered in several regions in Indonesia.

There are factors that difficult to control by the company. Gold is known as an attractive investment tool. Many people buy gold with the aim of maintaining the value of their money, so that if there is upheaval in the domestic and foreign economies, gold is sought. The following are Sales, selling prices [2], [10] and [6], distribution costs [7], [1] and [6] and promotion costs [9], [4] and [12] trend at UBPP LM. Sales data used during the period of 2011 to 2016 per month can be seen in the following Fig 1.
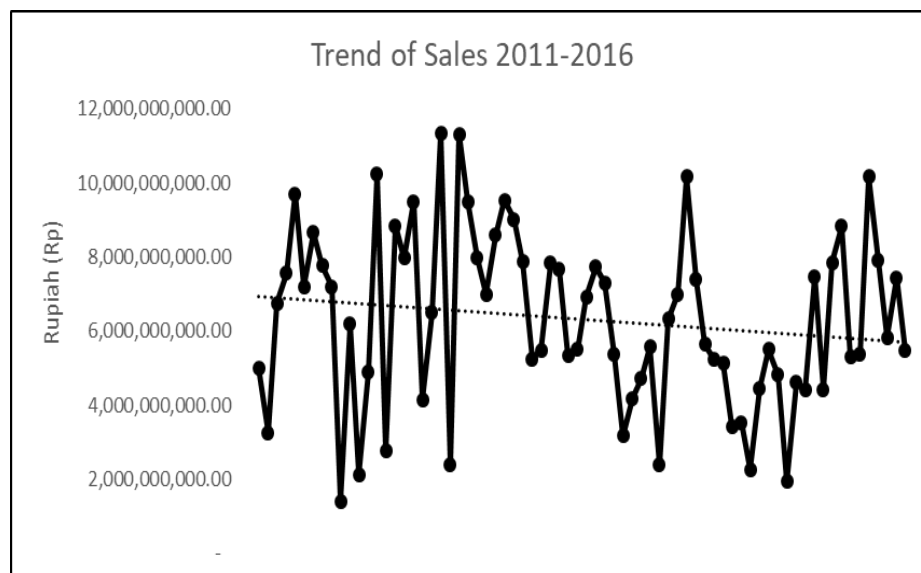

Fig 1:- Trend of Sales 2011-2016.

Based on Fig. 1, it can be seen that during the period of 2011 to 2016 the movement of the sales trend decreased.
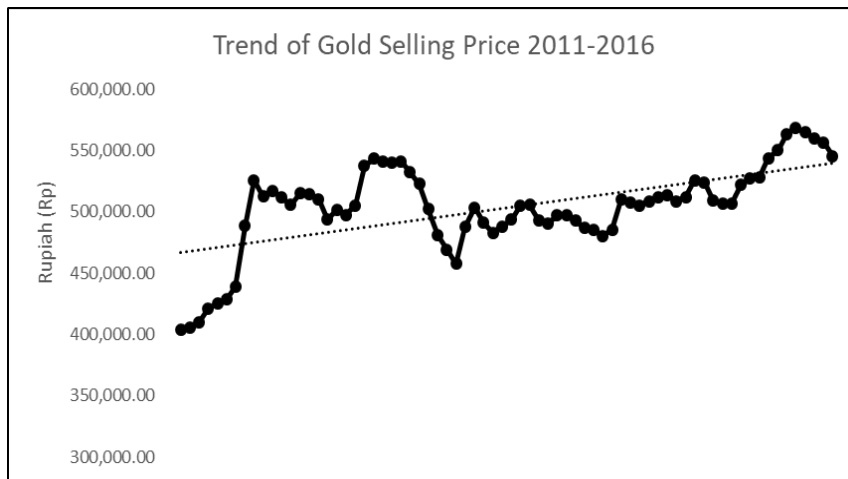
Fig 2:- Trend of Gold Selling Price 2011-2016.

Based on Fig 2, it can be seen that during the period of 2011 to 2016 the price trend movement continued to increase.

On the other hand, the company distributes gold to boutiques to increase sales of UBPP LM gold bars. Distribution cost data during the period of 2011 to 2016 per month can be seen in the following Fig 3.
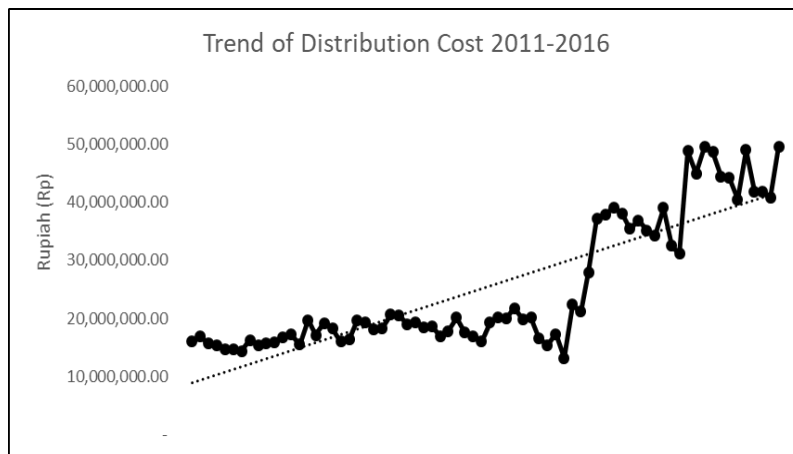

Fig 3:- Trend of Distribution Costs 2011-2016

Based on Fig. 3, it can be seen that during the period of 2011 to 2016 the trend tends to increase. While the amount of company promotion costs can be seen in the following Fig. 4.
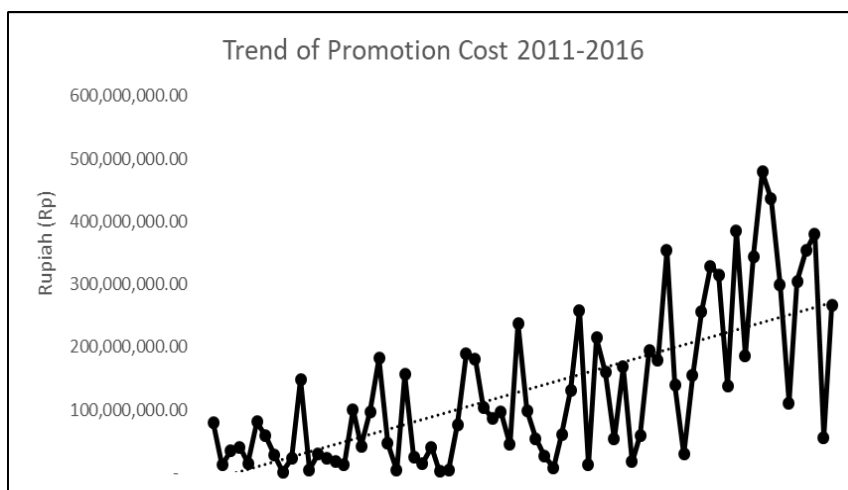

Fig 4:- Trend of Promotion Costs 2011-2016

Based on Fig. 4, it can be seen that during the period of 2011 to 2016 the trend continued to increase significantly.

II. METHODOLOGY

The design of this study will explore [11] four variables, namely selling prices (X_1), distribution costs (X_2) and promotion costs (X_3) as exogenous (independent) variables, while distribution costs and promotion costs are also mediating variables. The main problem in sales (Y) as an endogenous (dependent) variable that will find a causal relationship between these variables [1]. As well as looking at the causal relationship between selling prices, distribution costs and promotion costs as independent variables and sales as the dependent variable, through a path analysis statistically using SPSS 16 [13] and [8].

III. RESULTS AND DISCUSSION

Testing assumptions that must be fulfilled so that the conclusions of the path analysis are not biased. The assumption test is such as: normality test, multicollinearity test, autocorrelation test. In this study the three assumptions mentioned above were tested because the independent variables used in this study were more than one (multiple).

A. Normality test

The following are the results of the normality test [3] using SPSS in table 1.

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	*df*	*Sig.*	*Statistic*	*df*	*Sig.*
Unstandardized Residual	0.87	72	0.200	0.975	72	0.166

[a]*Lilliefors Significance Correction*

Table 1:- One-Sample Kolmogorov-Smirnov Test

In this data output it can be seen that the results of the normality test show a significance level greater than α (α = 0.05) that is 0.200> 0.05, which means that the data is normally distributed. So that the regression model is suitable for use in this study because it meets the assumption of normality.

B. Multicollinearity Test

The following are the results of multicollinearity tests [5].

Model		Collinearity Statistic	
		Tolerance	*VIF*
1	Selling Price	0.77	1.477
	Distribution	0.386	2.589
	Promotion	0.500	2.002

[a]*Dependent Variable Sales*

Table 2:- Multicollinearity Test Coefficients

Based on the output it is known that: VIF value (Variance Inflation Factor) all independent variables are smaller than 10.00. So that it can be concluded that there is no multicolinearity.

C. Autocorrelation Test

The provisions of Durbin Watson (DW) are as follows [5]:
➢ Positive autocorrelation occurs, if DW is below -2 (DW <-2)
➢ No autocorrelation occurs, if DW is between -2 and +2 (-2 ≤ DW ≤ +2)
➢ Negative autocorrelation occurs, if DW is above +2 (DW> +2)

			Model Summary [b]		
Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*	*Durbin-Watson*
1	0.488[a]	0.238	0.204	2,52796E9	0.877

[a]*Predictors: (Constant), Promotion, Selling Price, Distribution*
[b]*Dependent Variable: Sales*

Table 3:- Durbin-Watson Value

Based on the table 3 above the value of Durbin Watson is at the reception, namely: -2 ≤ 0.877 ≤ +2, so there is no data autocorrelation.

D. Path Model Analysis

Testing substructure 1 (selling price of distribution costs) with the structural equation:

$$X_2 = \rho_{x2x1} X_1 + \varepsilon_1 \qquad (1)$$

The result of the calculation (output) results as follows:

Coefficients [a]					
	Unstandardized Coefficients		**Standardized Coefficients**		
Model	**B**	**Std. Error**	**Beta**	**T**	**Sig.**
1 (Constant)	-6.376E7	1.567E7		-4.070	0.000
Selling Price	176.915	31.036	0.563	5.700	0.000

[a.]*Dependent Variable: Distribution*

Table 4:- Coefficients Influence of Substructure 1

Based on the results of the SPSS calculation, the significance value t is 0.000 <0.05, so Ho is rejected and Ha is accepted. This means that selling prices contribute to distribution costs. The magnitude of the effect of the selling price on the distribution cost seen from the Beta value in Table 4 is 0.563 or 56.3%.

Substructure 2 testing (selling price of promotional costs) with the structural equation:

$$X_3 = \rho_{x3x1} X_1 + \varepsilon_2 \qquad (2)$$

The result of the calculation (output) results as follows:

Coefficients [a]					
	Unstandardized Coefficients		**Standardized Coefficients**		
Model	**B**	**Std. Error**	**Beta**	**t**	**Sig.**
1 (Constant)	-4.528E8	1.920E8		-2.359	0.21
Selling Price	1157.970	380.356	0.342	3.044	0.003

[b.]*Dependent Variable: Promotion*

Table 5:- Coefficients Influence of Substructure 2

Based on the results of the SPSS calculation, the significance value of t is 0.003 <0.05, so Ho is rejected and Ha is accepted. This means that the selling price contributes to the promotion costs. The magnitude of the effect of the selling price on the promotion cost seen from the Beta value in Table 5 is 0.342 or 34.2%.

Substructure 3 testing (Selling price, distribution costs and promotion costs to sales) with the following equation:

$$Y = \rho_{yx1} X_1 + \rho_{yx2} X_2 + \rho_{yx3} X_3 + \varepsilon_3 \qquad (3)$$

The result of the calculation (output) results as follows:
➢ *Regression Analysis*

In this section the analysis is divided into two. First, see the effect in combination and secondly see the effect partially.

• Looking at the effect of selling prices, distribution costs and promotion costs on combined sales, we will see the results of calculations in the summary model, specifically the R square number below:

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.488[a]	0.238	0.204	2,52796E9

[a.]*Predictors: (Constant), Promotion, Selling Price, Distribution*

Table 6:- Summary Effect Simultaneously

The size of the R square (r^2) is 0.238. This number is used to see the magnitude of the effect of selling prices, distribution costs and promotion costs on sales by calculating the determination coefficient (KD) by using the following formula:

KD = r^2 x 100%
KD = 0.238 x 100%
KD = 23.8%

This number has the intention that the effect of selling prices, distribution costs and promotional costs in combination is 23.8%, while the remaining 76.2% is influenced by other factors. In other words, sales variability that can be explained by using the variable selling price, distribution costs and promotion costs is 23.8%, while the influence of 76.2% is caused by other variables outside this model. To find out the feasibility of the regression model, the figures from ANOVA table are shown below:

ANOVA[b]					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1.356E20	3	4.519E19	7.071	0.000[a]
Residual	4.346E20	68	6.391E18		
Total	5.701E20	71			

[a.]Predictors: (Constant), Promotion, Selling Price, Distribution
[b.]Dependent Variable: Sales

Table 7:- ANOVA Substructure 3

Based on the calculation of the value (Sig) F of 0,000 <0,05, Ho is rejected and Ha is accepted. That is, selling prices, distribution costs and promotional costs contribute simultaneously to sales.

- Seeing the effect of selling prices, distribution costs and promotional costs partially on sales. To see the magnitude of the effect of variable selling prices, distribution costs and promotion costs on sales partially, Test T. is used. Meanwhile, to see the magnitude of the influence, use the Beta or Standardized Coefficient numbers below:

Coefficients [a]					
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
1 (Constant)	-6.423E9	4.644E9		-1.383	0.171
Selling Price	32314.582	10043.944	0.414	3.217	0.002
Distribution	-20.084	42.318	-0.081	-0.475	0.637
Promotion	-9.410	3.453	-0.408	-2.725	0.008

[a.] Dependent Variable: Sales

Table 8:- Influence Coefficients Partially Substructure 3

✓ *Correlation between selling prices and sales*
Individual tests are shown in Table VIII (Coefficients). Based on the results of the SPSS calculation, the significance value of t is 0.002 <0.05, so Ho is rejected and Ha is accepted. This means that selling prices contribute partially to sales. The magnitude of the effect of the selling price on sales seen from the Beta value in the Table is 0.414 or 41.4%.

✓ *Correlation between distribution costs and sales*
Individual tests are shown in Table VIII (Coefficients). Based on the results of the SPSS calculation, the significance value of t is 0.657> 0.05, so Ho is accepted and Ha is rejected. This means that distribution costs do not contribute partially to sales. The magnitude of the effect of distribution costs on promotions was -0.081 or 8.1% considered insignificant.

✓ *Correlation between promotional costs and sales*
Individual tests are shown in table 8 (Coefficients). Based on the results of SPSS calculations obtained the significance value of t is 0.008 <0.05, so Ho is rejected and Ha is accepted. This means that promotional costs contribute partially to sales. The magnitude of the effect of promotional costs on sales seen from the Beta value in the Table is -0.408 or 40.8%.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

Based on the data used from PT. Antam Tbk UBPP LM to do research in the contribution of the variable selling price, distribution costs, and promotion costs to sales with distribution costs and promotion costs as mediation variables obtained the following conclusions:

➢ The selling price has a positive influence that significantly contributes to sales, meaning that through the determination of the right gold selling price can increase gold sales at PT. ANTAM, Tbk UBPP LM.

➢ Distribution costs have a negative influence that does not significantly contribute to sales, it is meaning that each distribution costs incurred by PT. ANTAM Tbk UBPP LM has no effect or does not contribute to increase of the gold sales.

➢ Promotional costs have a negative influence that significantly contributes to sales, it is meaning that if the promotional costs incurred at PT. Antam Tbk UBPP LM increases, it will reduce sales and vice versa.

➢ Distribution costs and Promotion Costs do not contribute an important role in linking selling prices with sales.

➢ The selling price has a positive influence that significantly contributes to distribution costs, it is meaning that the selling price set by PT. Antam Tbk UBPP LM is very instrumental in determining the distribution costs to be incurred.

➢ The selling price has a positive influence that significantly contributes to the promotion cost, which means the selling price set by PT. Antam Tbk UBPP LM has a very important role in determining the implementation of promotional activities.

B. Recommendations

Based on the conclusions above, the authors suggest the following:

➢ Companies need to pay more attention to the determination of the gold selling price both internal factors (e.g., maintaining COG values, Production Cost) and externally (e.g., exchange rate movement analysis, silver price movement) because it is one of the important factors in influencing to increase of the gold sales.

➢ We recommend that the company reconsider the distribution costs incurred in adding distribution channels in gold sales because it does not affect sales, it is necessary to look at alternatives in adding distribution channels without spending distribution costs such as cooperating with other gold sellers to become distributors.

➢ Companies should be more selective in implementing promotions that really can increase the gold sales.

➢ Because of the selling price of gold is an important factor in the distribution of distribution costs, the gap between the determination of the price of gold and the cost of distribution is minimized in other words, reducing the cost of distribution such as from the comparison of the increase in the price of gold from (3: 1) to (6: 1.5).

➢ Because of the selling price of gold is also an important factor in spending promotional costs, companies should be more selective in implementing promotions related to providing information and education in the event of a drastic increase or decrease in gold prices.

➢ Looking at the results of research that has many limitations, the next researcher is expected to be able to use other factors such as location of sale, quantity of golds and quality of golds that might affect sales other than prices, distribution costs and promotion costs with more references.

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