Part 2 Case Study: Budget Variance Analysis

Project Summary

An FP&A professional working for Copper Mines Co is given the task of developing a model to study budget variances for a new copper smelting division in Panama. The Panama mine was operating in a captive market with only one viable copper smelter close enough to the mine. Knowing this, the smelting operation was charging fees well in excess of market prices. Since negotiations were going nowhere, the organization instead purchased the smelting operation.

The organization sets modest budget goals for the smelting operation. If the smelting operation generates operating income of at least $5 million per year, the investment will break even when the impact of the savings to the mining operation are included in the considerations.

After the first year of operations, the FP&A professional needs to build a financial model to calculate the smelting division's budget variances. The FP&A professional starts with the budget variance analysis model developed for the Panama copper mine. However, the professional needs to modify the model to include direct materials (DM) costs since the mine has no direct materials but the ore sent from the mine to the smelter is a direct material. The smelter extracts both copper and gold from the same ore. The gold is highly valuable and in sufficient quantities to generate significant revenue, so it is considered a joint product. Joint products are two or more products of significant value that are produced by the same operation. Normally the total cost of the ore would be allocated to each product using a percentage of sales revenues or a percentage of production volume. However, to keep things simple, only the total direct materials costs will be calculated in the financial model.

According to the survey, the ore in the region has about 2% copper and trace amounts of gold. The copper estimates are fairly reliable, but as an unusual surprise, actual results were 2.25% this year. However, gold amounts cannot be reliably predicted. While the budget included an estimate that there should be 0.00041% gold in the ore, actual results were 0.00031% and this amount of variance is considered difficult to correct due to the sporadic nature of gold deposits in the region.

# Financial Model

The Excel worksheet financial model provided at the bottom on this page (filename: **Part II Case Study Budget Variance Analysis**) needs to be downloaded to complete this case study. Click on the button to download the file.

**Please note:**

* The information included in the sample model were created for purposes of an exercise and may not reflect performances of comparable real-world businesses.
* It is recommended that you rename the file before modifying it. That way you can re-open the original in case of errors. You will also be comparing these original projections with your revised forecast, so you will need to be able to access the original file.

**Your Assignment**

Note that the FP&A professional already got started on adapting the model:

* He renamed the model for the Panama Smelting Division.
* Added a new row on the Budget tab for "Direct Materials" (row 8).
* Added some additional budget inputs on the BudgetInputs tab.
* Added "Direct Materials/ MT" calculation fields and added these variable costs per unit to the "Total Variable Costs" fields on the BudgetInputs tab.
* Added DMPriceVariance and DMEfficiencyVariance tabs (you may have to scroll over to see these tabs).

Your task is to complete the BudgetInputs, Budget, DMPriceVariance, and DMEfficiencyVariance tabs. The fields on the BudgetInputs tab that need to be completed are already formatted and labeled. The DMPriceVariance and DMEfficiencyVariance tabs require entering some header labels.

Your Tasks

The following information is needed to complete the **BudgetInputs** tab:

* The budgeted price per metric ton (MT) of ore is $240 per MT and actual price is $245 per MT. The flexible-budget price/MT can be copied by reference from the appropriate price cell.
* The ore per unit needs to be calculated for the Total columns for actual, flexible-budget, and budget. The necessary data is found in the same columns.
* The MTs of ore purchased and used needs to be calculated for the flexible budget. This should be the actual quantity of the output times the budgeted variable input per unit (ore per unit).
* Finally, the direct materials cost can be calculated for each Total column in row 12. This is simply the MTs of ore purchased and used times the price/MT of ore for each column.

The following information needs to be completed on the **Budget** tab:

* Complete the Total columns for actual results, flexible budget, and static budget for row 8 by referencing the correct cost information on the BudgetInputs tab.
* Complete the variance areas for the Total columns, including the F or U variance formulae columns. (Hint: the Direct Labor row is already formatted correctly for all of these calculations.)

The following information needs to be completed on the **DMPriceVariance** tab:

* In row 1, complete the column headers to indicate the necessary information for the DM price variance calculation. Refer to your text as needed.
* In row 3, point by reference to the relevant inputs on the BudgetInputs tab.
* The remaining calculations already exist.

The following information needs to be completed on the **DMEfficiencyVariance** tab:

* In row 1, complete the column headers to indicate the necessary information for the DM efficiency variance calculation. Refer to your text as needed.
* In row 3, point by reference to the relevant inputs on the BudgetInputs tab.
* The remaining calculations already exist.

Once you have finished the financial model, you can read a walkthrough of the necessary changes and download a completed version of the model so you can check your work.