

INCOME STATEMENT VARIANCE ANALYSIS CHEAT SHEET



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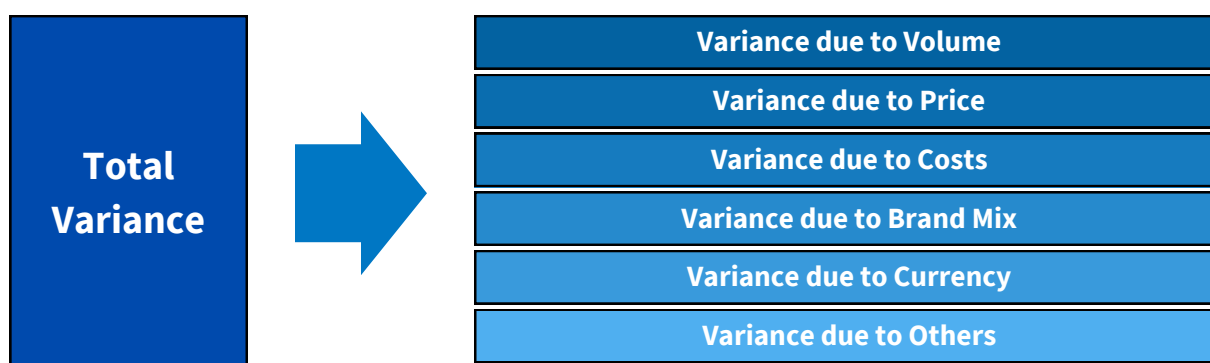
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Variance analysis is a vital tool in financial management, used to compare actual results with historical, budgeted, or forecasted data. This approach helps businesses pinpoint performance gaps and understand their causes. It aids in gauging operational efficiency, guiding informed decisions, fostering accountability, and proactively managing potential risks.

INCOME STATEMENT VARIANCE ANALYSIS

Accurate calculations are crucial to ensure reliable insights, and differentiating between variance drivers allows for a granular understanding, enabling targeted actions and strategies. The final split will depend on the intricacies of your financial statements and the nature of your operations, but here are the major categories that are most often used in the Income Statement Variance Analysis:



Definitions & Formulas:

- **Total Variance** = The difference between the current period and the reference period amounts. It is also the sum of all the other variances.

◦ Formula: $\text{Var_Total} = (\text{Current Amount} - \text{Reference Amount})$

- **Volume Variance** = The impact due to a change in volume between the current period and the reference period.

◦ Formula: $\text{Var_Volume} = [(\text{Current Volume} - \text{Reference Volume}) * (\text{Reference Amount} / \text{Reference Volume})] - \text{Var_Mix}$

- **Price Variance** = The impact due to a change in prices in the revenue line between the current period and the reference period.

◦ Formula: $\text{Var_Price} = [(\text{Current Amount} (@\text{Ref. FX Rate}) / \text{Current Volume}) - (\text{Reference Amount} / \text{Reference Volume})] * \text{Current Volume}$

- **Cost Variance** = The impact due to a change in cost between the current period and the reference period.

◦ Formula: $\text{Var_Cost} = [(\text{Current Amount} (@\text{Ref. FX Rate}) / \text{Current Volume}) - (\text{Reference Amount} / \text{Reference Volume})] * \text{Current Volume}$

- **Brand Mix Variance** = The impact due to a change in Brand Mix between the current period and the reference period.

◦ Formula: $\text{Var_Mix} = [(\text{Ref. Amount} / \text{Ref. Volume}) - (\text{Portfolio Ref. Amount} / \text{Portfolio Ref. Volume})] * (\text{Current Volume} - \text{Reference Volume})$

- **Currency Variance** = The impact due to a change in exchange rates (FX Rate) between the current period and the reference period.

◦ Formula: $\text{Var_Currency} = (\text{Current Amount} - \text{Current Amount} (@\text{Ref. FX Rate}))$

- **Other Variances** = The variance that captures what is left after calculation of the above defined variances.

◦ Formula: $\text{Var_Other} = \text{Var_Total} - \text{Var_Volume} - \text{Var_Price} - \text{Var_Cost} - \text{Var_Mix} - \text{Var_Currency}$

Practical Example: ([link to the Excel file at the bottom of the page](#))

To illustrate what we have seen previously, let's take a very simple example of a US company manufacturing 2 products (A and B) and selling them both abroad in Switzerland. Let's have a look at the income statement and the total variances between 2023 and 2022.

Main Assumptions:	Current Period 2023	Reference Period 2022
Volume Product A	1'500	1'000
Volume Product B	1'800	2'000
Total Volume	3'300	3'000
Selling Price Product A (in CHF)	CHF 12.0	CHF 10.0
Selling Price Product B (in CHF)	CHF 9.0	CHF 8.0
Exchange CHF/USD	0.96	0.98
COGS Product A (in USD)	USD 4.5	USD 5.0
COGS Product B (in USD)	USD 3.8	USD 4.0
Operating Expenses (in USD)	USD 7'700	USD 7'500

Income Statement (in USD)	Current Period 2023	Reference Period 2022	Total Variance 2023 vs 2022
Revenues Product A	\$18'750.00	\$10'204.08	\$8'545.92
Revenues Product B	\$16'875.00	\$16'326.53	\$548.47
Total Revenues	\$35'625.00	\$26'530.61	\$9'094.39
COGS Product A	-\$6'750.00	-\$5'000.00	-\$1'750.00
COGS Product B	-\$6'840.00	-\$8'000.00	\$1'160.00
Total Cost of Goods Sold (COGS)	-\$13'590.00	-\$13'000.00	-\$590.00
Gross Profit	\$22'035.00	\$13'530.61	\$8'504.39
Operating Expenses	-\$7'700.00	-\$7'500.00	-\$200.00
EBITDA	\$14'335.00	\$6'030.61	\$8'304.39

The Total Variance Analysis gives us some indications per account group, but it will not help us understand what is generating the variance to decide on the correct strategy/corrective actions going forward. Therefore, we need to further split the variance analysis to see which drivers are impacting our results (i.e. which portion of the variance is due to Volume / Price / Costs / Mix / Currency).

Here are some further points of attention we could highlight:

- **Volume Variance:** Higher volumes will generate a favorable volume variance on the revenue line, and an unfavorable volume variance on the cost lines that are volume-driven. Respectively, lower volumes will generate an unfavorable volume variance on the revenue lines, and a favorable volume variance on the cost lines that are volume-driven. The Volume variance has no impact on accounts that are not directly linked to changes in volumes such as the operating expenses in our example.
- **Price Variance:** An increase in selling prices will generate a favorable price variance, whereas a decrease in selling prices will generate an unfavorable price variance. Note: Price variance impacts are usually only reflected on the revenue lines.
- **Cost Variance:** An increase in the costs will generate an unfavorable cost variance and a decrease in costs will generate a favorable cost variance. Note: Cost variance impacts are usually reflected on COGS and any other cost/expense line of the Income Statement.
- **Mix Variance:** An increase in the mix of a product with a higher selling price than the weighted average selling prices of our portfolio will generate a favorable mix impact on the revenues (ex: we sell proportionally more of our premium products) and vice versa. An increase in the mix of a product with a higher cost than the weighted average COGS of our portfolio will generate an unfavorable mix impact on the cost lines (ex: we sell proportionally more of our most expensive items) and vice versa.
- **Currency Variance:** The currency impact will isolate the impact on the total variance that is directly related to changes in exchange rates. If we exclude the currency variance from the total variance we get to the **real variance** (i.e. total variance excluding currency).

Let's have a look how our Total Variance is split between the above various drivers:

Income Statement (in USD)	Current Period 2023	Reference Period 2022	Total Variance 2023 vs 2022	Due to Volume	Due to Price	Due to Costs	Due to Mix	Due to Curr.	Due to Others
Revenues Product A	\$18'750.00	\$10'204.08	\$8'545.92	\$4'590.68	\$3'061.22		\$511.36	\$382.65	\$0.00
Revenues Product B	\$16'875.00	\$16'326.53	\$548.47	-\$1'206.52	\$1'836.73		-\$426.14	\$344.39	\$0.00
Total Revenues	\$35'625.00	\$26'530.61	\$9'094.39	\$3'384.16	\$4'897.96	\$0.00	\$85.23	\$727.04	\$0.00
COGS Product A	-\$6'750.00	-\$5'000.00	-\$1'750.00	-\$2'385.45		\$750.00	-\$114.55		\$0.00
COGS Product B	-\$6'840.00	-\$8'000.00	\$1'160.00	\$704.55		\$360.00	\$95.45		\$0.00
Total Cost of Goods Sold (COGS)	-\$13'590.00	-\$13'000.00	-\$590.00	-\$1'680.91	\$0.00	\$1'110.00	-\$19.09	\$0.00	\$0.00
Gross Profit	\$22'035.00	\$13'530.61	\$8'504.39	\$1'703.25	\$4'897.96	\$1'110.00	\$66.14	\$727.04	\$0.00
Operating Expenses	-\$7'700.00	-\$7'500.00	-\$200.00			-\$200.00			\$0.00
EBITDA	\$14'335.00	\$6'030.61	\$8'304.39	\$1'703.25	\$4'897.96	\$910.00	\$66.14	\$727.04	\$0.00

Therefore, the higher EBITDA in 2023 (+\$8.3K or +138%) in our example could be better explained with the following drivers:

- a **favorable pricing** (+\$4.9K) reflecting price increases across the portfolio (selling price product A: +22%, selling price product B: +13%);
- **higher volumes** (+\$1.7k) reflecting an increase of 10% or +300 units in the volumes sold;
- **lower costs** (+\$0.9K) reflecting a decrease in COGS unit prices (+\$1.1K) partially offset by higher operating expenses (-\$0.2K).
- **favorable currency** (+\$0.7) reflecting a strengthening CHF over the USD on the revenue line;
- slight **improvement of our product mix** (+\$0.1K).

Point of Attention

Sometimes it can happen that you have no volume/amount for a period in one of the accounts. If so, you need to consider the below adjustments to your formulas to make sure your calculations work properly.

Adjustments

- When the *Reference Amount* and the *Reference Volume* are equal to zero:
 - For **Var_Mix**: The $(\text{Reference Amount} / \text{Reference Volume})$ is replaced by $(\text{Current Amount} (@\text{Ref. FX Rate}) / \text{Current Volume})$.
 - For **Var_Vol**: The $(\text{Reference Amount} / \text{Reference Volume})$ is replaced by $(\text{Current Amount} (@\text{Ref. FX Rate}) / \text{Current Volume})$.
 - The “Due to Volume” = “Due to Volume” + “Due to Price” & “Due to Cost”.
 - For **Var_Price**: The $(\text{Reference Amount} / \text{Reference Volume})$ is replaced by $(\text{Current Amount} (@\text{Ref. FX Rate}) / \text{Current Volume})$.
 - The “Due to Price” is moved to “Due to Volume” (so “Due to Price” = 0).
 - For **Var_Cost**: The $(\text{Reference Amount} / \text{Reference Volume})$ is replaced by $(\text{Current Amount} (@\text{Ref. FX Rate}) / \text{Current Volume})$.
 - The “Due to Cost” is moved to “Due to Volume” (so “Due to Cost” = 0).
- If the *Reference Volume* = 0, then replace the $(\text{Reference Amount} / \text{Reference Volume})$ by 0.
- If the *Current Volume* = 0, then replace the $(\text{Current Amount} / \text{Current Volume})$ by 0.
- If $-1 < \text{Reference Volume} < 1$ then replace $(\text{Reference Amount} / \text{Reference Volume})$ by 0
- If $-1 < \text{Current Volume} < 1$ then:
 - For **Var_Price**: replace $(\text{Current Amount} / \text{Current Volume})$ by 0;
 - For **Var_Cost**: replace $(\text{Current Amount} (@\text{Ref. FX Rate}) / \text{Current Volume})$ by 0;
- If the *Portfolio Ref. Amount* = 0 and *Portfolio Ref. Volume* = 0, then set **Var_Mix** = 0

Other comments:

- **Var_Price** for accounts not linked to volumes (i.e. without a variance due to volume), replace all volumes in the formula with the value 1.
- **Var_Cost** for accounts not linked to volumes (i.e. without a variance due to volume), replace all volumes in the formula with the value 1.