(2) Gross Profit Growth:

Gross Profit Growth = $\frac{240-200}{200} \times 100$ = 20%

(3) Operating Income Growth:

Operating Income Growth = $\frac{120-100}{100} \times 100$ = 20%

(4) Net Income Growth:

Net Income Growth = $\frac{60-50}{50} \times 100$ = 20%

(5) EPS Growth:

EPS Growth = $\frac{2.40-2}{2} \times 100$ = 20%

In the above example, all key metrics (Revenue, Gross Profit, Operating Income, Net Income and EPS) grew at

SHARPE RATIO TO INCOME STATEMENT

When applying the Sharpe Ratio to Income Statement Growth, we are essentially adapting it to evaluate how well the income statement growth (eg. revenue growth, profit growth) is performing relative to the volatility of those growth metrics.

Formula:

$$\text{Sharpe Ratio (Growth)} = \frac{\text{Average Growth Rate} - \text{Risk Free Growth Rate}}{\text{Standard Deviation of Growth Rates.}}$$

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Average Growth Rate :- The mean growth rate of a particular income statement metric (eg. revenue, net income, operating income) over a specific period (eg. last 5 years).

Risk Free Growth Rate :- The hypothetical rate of return from an investment with no risk such as a government bond rate). This can be used as a benchmark.

Standard Deviation of Growth Rates : The volatility (risk) of the growth rate of a metric. A higher standard deviation indicates more volatility in the company's income statement growth.

Steps to calculate the Sharpe Ratio for Income Statement Growth :

* Collect Historical Income Statement Data.
* Calculate the Growth Rate
* Compute the Average Growth Rate.
* Calculate the Standard Deviation of Growth Rates
* Determine the Risk-Free Growth Rate:
* Calculate the sharpe Ratio.

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Example:

Consider the below revenue growth rates for a company over last 5 years:

Year	Revenue (in millions)	Revenue Growth (%)
2019	100	-
2020	120	20 %
2021	130	8.33 %
2022	150	15.38 %
2023	180	20 %

Solution:

Step 1: Calculate the Average Growth Rate:

$$\text{Average Growth Rate} = \frac{20+8.33+15.38+20}{4} = \boxed{15.68\ \%}$$

Step 2: Calculate the Standard Deviation of Growth Rates:

$$\text{Standard Deviation} = \sqrt{\frac{(20-15.68)^2+(8.33-15.68)^2+(15.38-15.68)^2+(20-15.68)^2}{4-1}}$$

$$= \boxed{5.56\ \%}$$

Step 3: Choose a Risk-Free Growth Rate

Let us assume the risk-free growth rate is 3%.

Step 4: Calculate the Sharpe Ratio for Growth:

$$\text{Sharpe Ratio (Growth)} = \frac{15.68-3}{5.56} = \frac{12.68}{5.56} = \boxed{2.28}$$

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Interpreting the Sharpe Ratio for Income Statement Growth:

A **higher Sharpe Ratio** indicates that the company's income statement growth (eg. revenue profit) is delivering a better return relative to the volatility (risk) of that growth. In this case the sharpe ratio of 2.28 suggests a strong, favourable risk-adjusted growth rate.

A **lower Sharpe Ratio** indicates much risk (higher volatility) for the same level of growth, or low growth relative to the risk.

A **Sharpe Ratio close to 1** is typically seen as acceptable in investment contexts, but in the case of income statement growth, ratios above 1 indicate that the company is growing its income statement metrics at a rate that justifies the associated risk.