

Coefficients of Variation

Measures of Variation: The Coefficient of Variation = CV

- Always in percentage (%)
- Used to compare the variation among two or more sets of data

$$CV = \left(\frac{S}{\bar{X}} \right) \cdot 100\%$$

Measures of Variation: Comparing Coefficients of Variation

- Stock A:

- Average price last year = \$50
- Standard deviation = \$5

$$CV = \left(\frac{S}{\bar{X}} \right) \cdot 100\%$$

$$CV_A = \left(\frac{S}{\bar{X}} \right) \cdot 100\% = \frac{\$5}{\$50} \cdot 100\% = 10\%$$

- Stock B:

- Average price last year = \$100
- Standard deviation = \$5

$$CV_B = \left(\frac{S}{\bar{X}} \right) \cdot 100\% = \frac{\$5}{\$100} \cdot 100\% = 5\%$$

Both stocks have the same standard deviation, but stock B is less variable relative to its price

Locating Extreme Outliers: Z-Score

$$Z = \frac{X - \bar{X}}{S}$$

X = the data value

\bar{X} = sample mean

S = sample standard deviation

- The Z-score is the number of standard deviations a data value is from the mean.
- A data value is considered an extreme outlier if its Z-score is less than -3.0 or greater than +3.0.

