Correlation Coefficient

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The correlation coefficient is a statistical measure of the strength of the relationship between two continuous variables. There are several types of correlation coefficients, but the one that is most common is the Pearson correlation coefficient, which is represented as *r*.

The values of a Pearson correlation coefficient range between -1.000 and 1.000. A correlation of -1.000 shows a perfect negative correlation, while a correlation of 1.000 shows a perfect positive correlation. A correlation of 0.000 shows no linear relationship the two variables.

A correlation coefficient of exactly *r* = 1.000 means there is a perfect positive relationship between the two variables. As one variable increases, the other variable increases. A correlation coefficient of exactly *r* = -1.000 means there is a perfect negative relationship between the two variables. As one variable increases, the other variable decreases.

Correlation statistics are frequently used in finance and investing. For example, a correlation coefficient can be calculated to determine the relation between the price of crude oil and the stock price of an oil-producing company, such as Exxon Mobil Corporation. Since oil companies earn greater profits as oil prices rise, the correlation between the two variables is expected to be positive.

The strength of a relationship is indicated by the magnitude of the correlation coefficient. For example, a correlation coefficient of 0.200 indicates a positive, but weak, correlation between two variables. A correlation coefficient of 0.800 indicates a positive, and quite strong, correlation between two variables.

Analysts in some fields of investment and finance do not consider correlations important until the value surpasses at least r = 0.800.