Assets Correlations

http://spreadsheetml.com/finance/assetcorrelation.shtml

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ConnectCode's Financial Modeling Templates

Have you thought about how many times you use or reuse your financial models? Everyday, day after day, model after model and project after project. We definitely have. That is why we build all our financial templates to be reusable, customizable and easy to understand. We also test our templates with different scenarios vigorously, so that you know you can be assured of their accuracy and quality and that you can save significant amount of time by reusing them. We have also provided comprehensive documentation on the templates so that you do not need to guess or figure out how we implemented the models.

All our template models are only in black and white color. We believe this is how a professional financial template should look like and also that this is the easiest way for you to understand and use the templates. All the input fields are marked with the '*' symbol for you to identify them easily.

Whether you are a financial analyst, investment banker or accounting personnel. Or whether you are a student aspiring to join the finance world or an entrepreneur needing to understand finance, we hope that you will find this package useful as we have spent our best effort and a lot of time in developing them.

ConnectCode

1.1 Correlation

Correlation is defined in statistics as the relationship between two or more variables. The relationship is established by observing the values of the variables. When used in finance, correlation is typically used to measure how the prices of two assets move in relation to each other. In the calculation of Portfolio Optimization, correlation is used to find stocks which have a low or negative correlation with each other for diversification purposes. Other than asset prices, some analysts use correlation to find the relationship between asset prices and the various fundamental indicators. An example is the relationship between the S&P 500 earnings with the U.S. Gross Domestic Product (GDP).

1.2 Calculating the Correlation Coefficient

To calculate the correlation basically requires the values of two or more variables. If we have two set of values x and y, the following formula can be used.
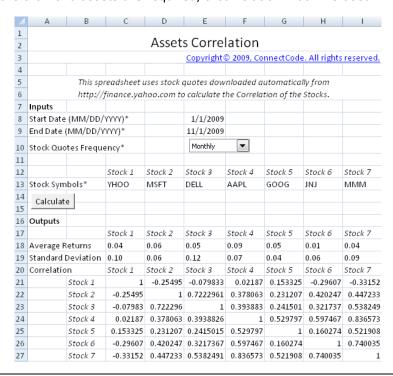
Correlation = Sum((x - Mean of x)*(y - Mean of y)) / SQRT(Sum((x - Mean of x)^2) * Sum((y - Mean of y)^2)

where x is each of the values of x and y is each of the values in y.

In Microsoft Excel, the Correl(x,y) function can be used to calculate the correlation quickly and easily.

1.3 Assets Correlations Spreadsheet

This spreadsheet downloads stock price data from http://finance.yahoo.com and calculates the correlation between the different stocks specified automatically. It is useful for finding correlations between different assets to use in the construction of an optimum portfolio. The free version supports up to 2 stocks while the professional version supports up to 7 stocks. When the correlations of more than two assets are required, a correlation matrix is used.

		A	B	C	D	E	F	G	H	I
1										
2					Assets Correlation					
3					Copyright© 2009, ConnectCode. All rights reserved.					
4										
5				This spreadsheet uses stock quotes downloaded automatically from						
6				http://finance.yahoo.com to calculate the Correlation of the Stocks.						
7		Inputs								
8		Start Date (MM/DD/YYYY)*			1/1/2009					
9		End Date (MM/DD/YYYY)*			11/1/2009					
10		Stock Quotes Frequency*			Monthly					
11										
12				Stock 1	Stock 2	Stock 3	Stock 4	Stock 5	Stock 6	Stock 7
13		Stock Symbols*		YHOO	MSFT	DELL	AAPL	GOOG	JNJ	MMM
14		Calculate								
15										
16		Outputs								
17				Stock 1	Stock 2	Stock 3	Stock 4	Stock 5	Stock 6	Stock 7
18		Average Returns		0.04	0.06	0.05	0.09	0.05	0.01	0.04
19		Standard Deviation		0.10	0.06	0.12	0.07	0.04	0.06	0.09
20		Correlation		Stock 1	Stock 2	Stock 3	Stock 4	Stock 5	Stock 6	Stock 7
21			Stock 1	1	-0.25495	-0.079833	0.02187	0.153325	-0.29607	-0.33152
22			Stock 2	-0.25495	1	0.7222961	0.378063	0.231207	0.420247	0.447233
23			Stock 3	-0.07983	0.722296	1	0.393883	0.241501	0.321737	0.538249
24			Stock 4	0.02187	0.378063	0.3938826	1	0.529797	0.597467	0.836573
25			Stock 5	0.153325	0.231207	0.2415015	0.529797	1	0.160274	0.521908
26			Stock 6	-0.29607	0.420247	0.3217367	0.597467	0.160274	1	0.740035
27			Stock 7	-0.33152	0.447233	0.5382491	0.836573	0.521908	0.740035	1

1.3.1 Inputs

- Start Date (MM/DD/YYYY) - Start date to download the stock price.
- End Date (MM/DD/YYYY) - End date to download the stock price.
- Stock Quotes Frequency - Download the Monthly, Weekly or Daily stock prices.
- Stock Symbols - The stock symbol of the stock to download the stock price.

1.3.2 Outputs

- Average Returns - The stock prices are downloaded for a specified frequency as mentioned in the inputs. Based on the specified frequency, the average returns will be calculated. For example, if the frequency chosen is "Monthly", then monthly stock prices will be downloaded. The returns each month will be calculated automatically in the background. After which, the average returns of each month will be calculated as follows:

Returns from January to February = (Price in February- Price in January) / Price in January

Returns from February to March = (Price in March - Price in February) / Price in February

Average Returns = (Returns from January to February + Returns from February to March) / 2

For other types of download frequency, the average returns will be calculated in a similar manner.

- Standard Deviation - The standard deviation of the returns is calculated in this field.

- Correlation - The correlation of the returns are calculated in this field. If two stocks have a tendency to move in the same direction, it will be shown as a positive number. If two stocks do not have a tendency to move in the same direction, it will be shown as a negative number or a very small positive number.