

# Sharpe Ratio

[http://spreadsheetml.com/finance/sharperatio\\_performanceindex.shtml](http://spreadsheetml.com/finance/sharperatio_performanceindex.shtml)

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# Table of Contents

<b>1.</b>	<b>Sharpe Ratio.....</b>	<b>1-1</b>
1.1	Sharpe Ratio .....	1-1
1.2	Sharpe Ratio Spreadsheet.....	1-1
1.2.1	SharpeRatio Worksheet .....	1-1
1.2.2	SharpeMultiplePortfolios Worksheet.....	1-2

## 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.*

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# 1. Sharpe Ratio

## 1.1 Sharpe Ratio

The Sharpe Ratio, invented by William Forsyth Sharpe is also known as the Sharpe Performance Index. It is a measure of reward (or excess return) per unit of risk.

$$\text{Sharpe Ratio} = (\text{Average Returns of Portfolio} - \text{Average Risk Free Rate}) / \text{Standard Deviation}$$

The formula uses standard deviation as the unit of risk. Reward (or excess returns) is measured as the difference between the portfolio's return and the risk-free rate of return over a period. The higher the Sharpe Ratio, the better the portfolio's performance. It is important to know that a portfolio can achieve higher returns by taking on additional risks. The Sharpe's Ratio allows us to determine whether the higher returns come from better performance or from additional risks.

The Sharpe Ratio is quite similar to the Treynor Performance Index in the sense that it measures excess return per unit of risk. The difference is in the definition of risk.

Treynor Performance Index uses Beta while Sharpe Ratio uses Standard Deviation. The Treynor Performance Index is suitable for investors who have diversified across funds while the Sharpe Ratio is suitable for investors who put their money in only one or two funds.

## 1.2 Sharpe Ratio Spreadsheet

### 1.2.1 SharpeRatio Worksheet

This worksheet first calculates the Average Annual Returns of a portfolio and the Standard Deviation based on the Portfolio Returns over a 5 year period. It can be easily expanded to 10 year period if required. The following formula is then applied

$$\text{Sharpe Ratio} = (\text{Average Returns of Portfolio} - \text{Average Risk Free Rate}) / \text{Standard Deviation}$$

	A	B	C	D
1	<b>Sharpe Ratio</b>			
2				
3				
4	Average Annual Risk free rate*			
5	5.00%			
6				
7	Year*	Portfolio Returns*		
8	1991	10.00%		
9	1992	11.00%		
10	1993	12.00%		
11	1994	13.00%		
12	1995	14.00%		
13				
14	Average Annual Returns		12.50%	
15	Standard Deviation		0.01	
16	Sharpe Ratio		5.30	

## 1.2.2 SharpeMultiplePortfolios Worksheet

The SharpeMultiplePortfolios worksheet calculates the Sharpe Ratio for up to 5 portfolios.

	A	B	C	D	E	F	H	I	J	K
1	<b>Sharpe Portfolio Performance Measure</b>									
2	<a href="#">Copyright © 2009, ConnectCode. All rights reserved.</a>									
3										
4						<i>Portfolio 1</i>	<i>Portfolio 2</i>	<i>Portfolio 3</i>	<i>Portfolio 4</i>	<i>Portfolio 5</i>
5	Average rate of return for a portfolio during a period (Rp)*					14.00%	13.00%	17.00%	16.00%	0.00%
6	Average rate of return on a risk free investment during a period (Rf)*					8.00%	8.00%	8.00%	8.00%	0.00%
7	Standard deviation of the rate of return for the portfolio during a period (sd)*					20.00%	18.00%	22.00%	23.00%	1.00%
8	Portfolio's risk premium return earned per unit of total risk (S)					30.00%	27.78%	40.91%	34.78%	0.00%

### 1.2.2.1 Inputs

Rp - Average rate of return for a portfolio during a period

Rf - Average rate of return on a risk free investment during a period

sd - Standard deviation of the rate of return for the portfolio during a period

### 1.2.2.2 Outputs

S - Portfolio's risk premium return earned per unit of total risk