

Understanding Risk To Help You Invest Soundly Part III



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Section 3 - Measuring Investment Risk

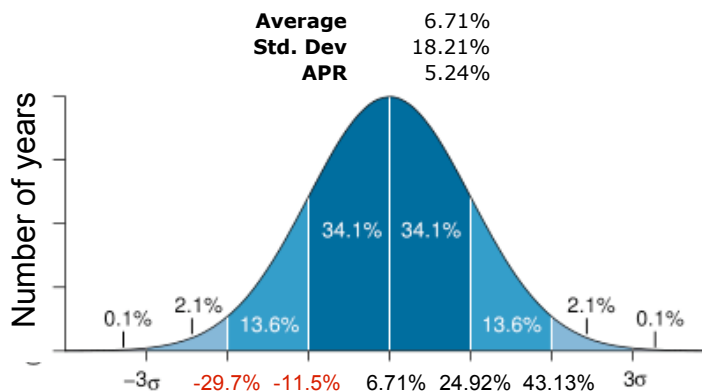
- ❖ Standard Deviation
- ❖ Eliminating Idiosyncratic Risk
- ❖ Sharpe Ratio
- ❖ Security Market Line
- ❖ Beta
- ❖ Alpha

Using the Past to help Guess the Future

There are no guarantees or absolutes with stocks and most aspects about their future are uncertain. Therefore, we have to talk about “Expected Returns” in terms of probabilities.

3

S&P Returns Distribution from 1997 to 08



Lower limit = average - (standard deviation)

Upper limit = average + (standard deviation)

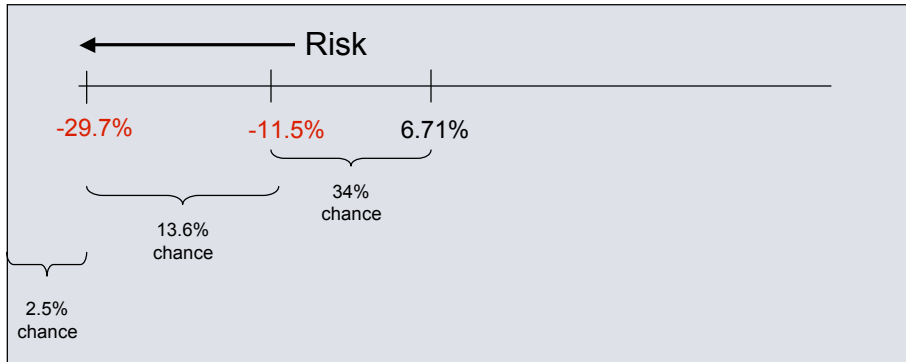
Example 68% of the time between -12% and 25%
95% of the time between -30% and 43%

4

Standard Deviation for S&P 1997 to 08

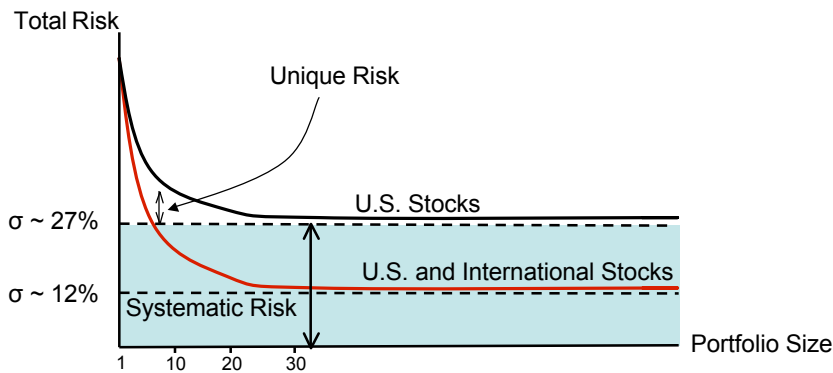
Average Return	6.71%
Std. Dev	18.21%

Range of returns and probabilities of getting those returns
In any given year



5

Diversification - getting rid of unique risk



Source: B. Solnik, "Why Not Diversify Internationally Rather Than Domestically", Financial Analysts Journal

6

Diversification - Example

Date	S&P	S&P Return	EAFE	EAFE Return	S&P + EAFE	S&P + EAFE Return
1/31/08	1378.55	-4.15%	2044.11	-2.09%	1711.33	-2.93%
1/31/07	1438.24	12.36%	2087.67	17.12%	1762.96	15.13%
1/31/06	1280.08	8.36%	1782.57	19.88%	1531.33	14.78%
1/31/05	1181.27	4.43%	1486.97	13.82%	1334.12	9.46%
1/30/04	1131.13	32.19%	1306.42	43.19%	1218.78	37.86%
1/31/03	855.7	-24.29%	912.38	-16.53%	884.04	-20.48%
1/31/02	1130.2	-17.26%	1093.11	-26.70%	1111.66	-22.19%
1/31/01	1366.01	-2.04%	1491.29	-9.43%	1428.65	-6.04%
1/31/00	1394.46	8.97%	1646.62	17.68%	1520.54	13.52%
1/29/99	1279.64	30.54%	1399.24	12.73%	1339.44	20.59%
1/30/98	980.28	24.69%	1241.20	8.63%	1110.74	15.18%
1/31/97	786.16		1142.57		964.37	
Average Return		6.71%		7.12%		6.81%
Return		75.35%		78.90%		77.46%
APR		5.24%		5.43%		5.35%
Std. Dev		18.21%		19.53%		18.04%

Combining S&P and EAFE gives more return than S&P with lower risk.

7

Argument for Diversification

Do you believe that the Financials sector will continue to grow?

Can you tell me which companies in that sector will survive?

*Example: Bear Stearns (BSC), (XLF)

8

Sharpe Ratio

$$\frac{\text{Return} - \text{Risk Free Rate}}{\text{Standard Deviation}}$$

Shows how much return premium we are getting per unit of risk.

A way to compare investments.

9

Sharpe Ratio

Fund A

Fund	JP Morgan Intl Equity
10 YR Return	8.46%
10 YR STD	15.37%
Sharpe Ratio	.32

Fund B

Fund	Oppenheimer Intl Gr
10 YR Return	9.89%
10 YR STD	21.79%
Sharpe Ratio	.29

The extra return is not commensurate with the added volatility

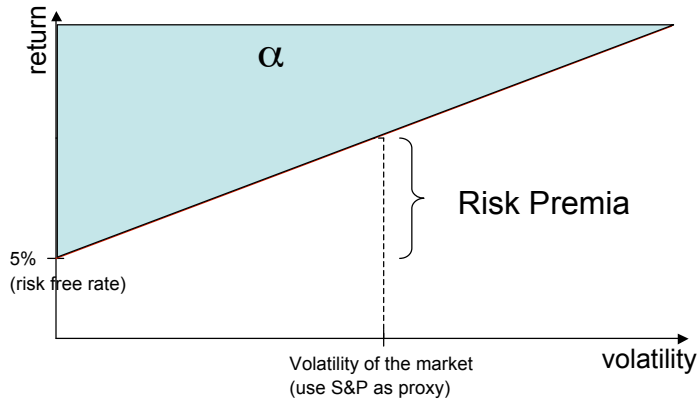
Fund	EAFE Index
10 YR Return	8.66%
10 YR STD	14.53%
Sharpe Ratio	.35

* Yahoo example

<http://www.advancedtrading.com/gold-book-2007/Larry-Smith.jhtml>

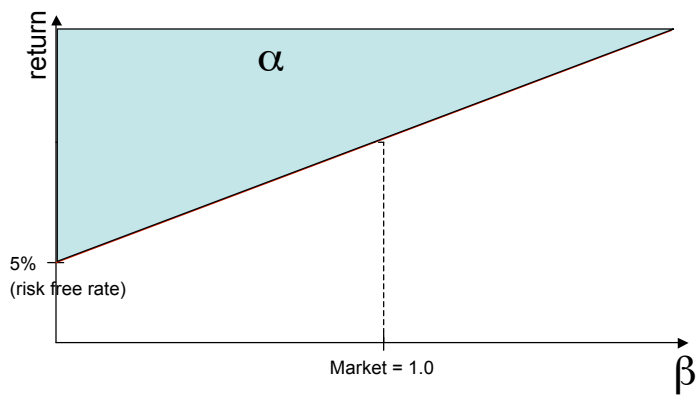
10

Capital Allocation Line and Alpha



11

Security Market Line, Beta and Alpha



β = systematic risk, aka Market Risk

12