

Stocks, Bonds, Bills,  
and Inflation

**SBBI**

**2006 Yearbook**  
Market Results for 1926–2005

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## Size of the Deciles

Table 7-5 reveals that most of the market value of the stocks listed on the NYSE/AMEX/NASDAQ is represented by the top three deciles. Approximately two-thirds of the value is represented by the first decile, which currently consists of 169 stocks. The smallest decile represents just over one percent of the market value of the NYSE/AMEX/NASDAQ. The data in the second column of Table 7-5 are averages across all 80 years. Of course, the proportions represented by the various deciles vary from year to year.

In columns three and four are the number of companies and market capitalization. These present a snapshot of the structure of the deciles near the end of 2005.

The lower portion of Table 7-5 shows the largest firm in each decile and its market capitalization.

**Table 7-5**  
**Size-Decile Portfolios of the NYSE/AMEX/NASDAQ:**  
 Bounds, Size, and Composition  
 from 1926 to 2005

Decile	Historical Average Percentage of Total Capitalization	Recent Number of Companies	Recent Decile Market Capitalization (in thousands)	Recent Percentage of Total Capitalization
1-Largest	63.29%	169	\$8,869,801,117	60.92%
2	13.97%	182	2,025,323,685	13.91%
3	7.57%	195	1,074,448,763	7.38%
4	4.74%	206	656,297,080	4.51%
5	3.24%	207	452,329,097	3.11%
6	2.37%	238	389,595,517	2.68%
7	1.73%	299	319,642,175	2.20%
8	1.28%	352	287,783,718	1.98%
9	0.99%	693	268,738,291	1.85%
10-Smallest	0.81%	1,746	216,334,858	1.49%
Mid-Cap 3-5	15.55%	608	2,183,074,940	14.99%
Low-Cap 6-8	5.39%	889	997,021,410	6.85%
Micro-Cap 9-10	1.80%	2,439	485,073,149	3.33%

Source: Center for Research in Security Prices, University of Chicago.

Historical average percentage of total capitalization shows the average, over the last 80 years, of the decile market values as a percentage of the total NYSE/AMEX/NASDAQ calculated each month. Number of companies in deciles, recent market capitalization of deciles and recent percentage of total capitalization are as of September 30, 2005.

Decile	Recent Market Capitalization (in thousands)	Company Name
1-Largest	\$367,495,144	General Electric Co.
2	16,016,450	Entergy Corp.
3	7,187,244	Chesapeake Energy Corp.
4	3,961,425	Ball Corp.
5	2,519,280	Celene Corp.
6	1,728,888	AGCO Corp.
7	1,280,966	ESCO Technologies Inc.
8	872,103	West Pharmaceutical Services Inc.
9	586,393	General Cable Corp.
10-Smallest	264,981	4Kids Entertainment Inc.

Source: Center for Research in Security Prices, University of Chicago.

Market capitalization and name of largest company in each decile as of September 30, 2005.

## Long-Term Returns in Excess of Risk

The Capital Asset Pricing Model (CAPM) does not fully account for the higher returns of small company stocks. Table 7-6 shows the returns in excess of risk over the past 80 years for each decile of the NYSE/AMEX/NASDAQ.

The CAPM can be expressed as follows:

$$k_s = r_f + (\beta_s \times \text{ERP}) \quad (28)$$

where,

$k_s$  = the expected return for company **s**;

$r_f$  = the expected return of the riskless asset;

$\beta_s$  = the beta of the stock of company **s**; and,

ERP = the expected equity risk premium, or the amount by which investors expect the future return on equities to exceed that on the riskless asset.

The amount of an asset's systematic risk is measured by its beta. A beta greater than 1 indicates that the security is riskier than the market, and according to the CAPM equation, investors are compensated for taking on this additional risk. However, based on historical return data on the NYSE/AMEX/NASDAQ decile portfolios, the smaller deciles have had returns that are not fully explainable by the CAPM. This return in excess of CAPM grows larger as one moves from the largest companies in decile 1 to the smallest in decile 10. The excess return is especially pronounced for micro-cap stocks (deciles 9–10). This size related phenomenon has prompted a revision to the CAPM that includes the addition of a size premium.

The CAPM is used here to calculate the CAPM return in excess of the riskless rate and to compare this estimate to historical performance. According to the CAPM, the return on a security should consist of the riskless rate plus an additional return to compensate for the systematic risk of the security. Table 7-6 uses the 80-year arithmetic mean income return component of 20-year government bonds as the historical riskless rate. (However, it is appropriate to match the maturity, or duration, of the riskless asset with the investment horizon.) This CAPM return in excess of the riskless rate is  $\beta$  (beta) multiplied by the realized equity risk premium. The realized equity risk premium is the return that compensates investors for taking on risk equal to the risk of the market as a whole (estimated by the 80-year arithmetic mean return on large company stocks, 12.30 percent, less the historical riskless rate, 5.22 percent). The difference between the excess return predicted by the CAPM and the realized excess return is the size premium, or return in excess of CAPM.

This phenomenon can also be viewed graphically, as depicted in the Graph 7-2. The security market line is based on the pure CAPM without adjusting for the size premium. Based on the risk (or beta) of a security, the expected return should fluctuate along the security market line. However, the expected returns for the smaller deciles of the NYSE/AMEX/NASDAQ lie above the line, indicating that these deciles have had returns in excess of their risk.

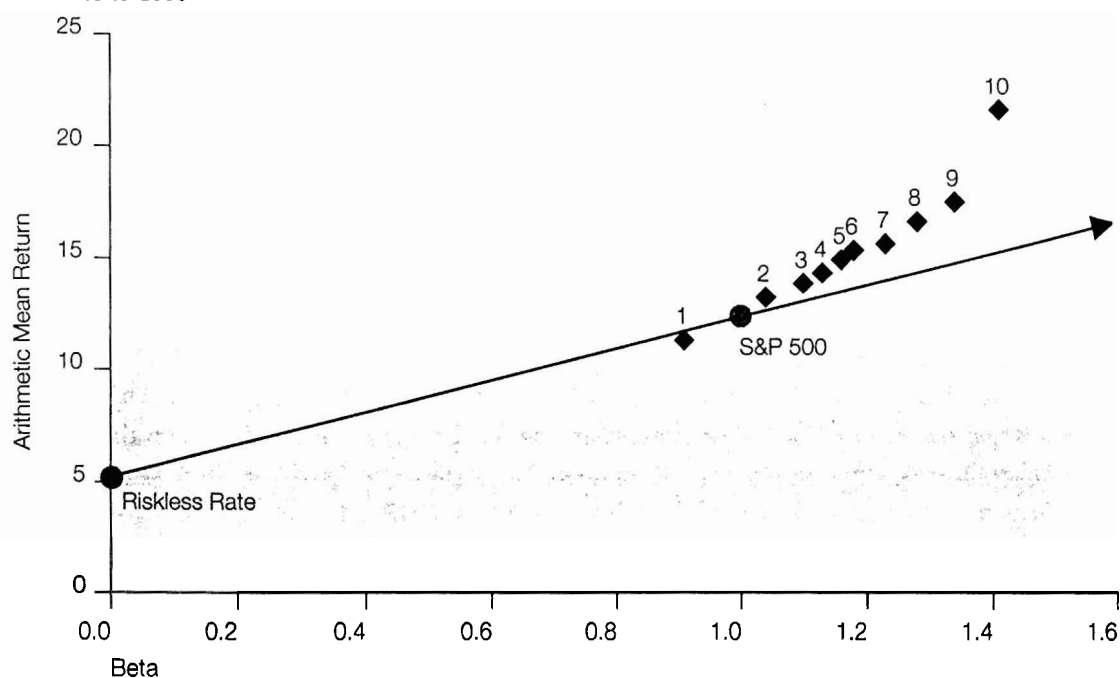
**Table 7-6**  
**Size-Decile Portfolios of the NYSE/AMEX/NASDAQ:**  
**Long-Term Returns in Excess of CAPM**  
 from 1926 to 2005

Decile	Beta*	Arithmetic Mean Return	Actual Return in Excess of Riskless Rate**	CAPM Return in Excess of Riskless Rate**	Size Premium (Return in Excess of CAPM)
1-Largest	0.91	11.29%	6.07%	6.45%	-0.37%
2	1.04	13.22%	8.00%	7.33%	0.67%
3	1.10	13.84%	8.62%	7.77%	0.85%
4	1.13	14.31%	9.09%	7.98%	1.10%
5	1.16	14.91%	9.69%	8.20%	1.49%
6	1.18	15.33%	10.11%	8.38%	1.73%
7	1.23	15.62%	10.40%	8.73%	1.67%
8	1.28	16.60%	11.38%	9.05%	2.33%
9	1.34	17.48%	12.26%	9.50%	2.76%
10-Smallest	1.41	21.59%	16.37%	10.01%	6.36%
Mid-Cap, 3-5	1.12	14.15%	8.94%	7.91%	1.02%
Low-Cap, 6-8	1.22	15.66%	10.44%	8.63%	1.81%
Micro-Cap, 9-10	1.36	18.77%	13.55%	9.61%	3.95%

\*Betas are estimated from monthly returns in excess of the 30-day U.S. Treasury bill total return, January 1926–December 2005.

\*\*Historical riskless rate measured by the 80-year arithmetic mean income return component of 20-year government bonds (5.22).

**Graph 7-2**  
**Security Market Line Versus Size-Decile Portfolios of the NYSE/AMEX/NASDAQ:**  
 from 1926 to 2005



Source: Center for Research in Security Prices, University of Chicago (decile data).