Stocks, Bonds, Bills, and Inflation[a] Valuation Edition 2003 Yearbook.

Stocks, Bonds, Bills, and Inflation[m] and SBBI® are registered trademarks of Ibbotson Associates.

Additional copies of this Yearboolt may be obtained for $110, plus shipping and handling, by calling or writing to the address above. Additional product information can be found at the end of this publication or at our Cost of Capital Center, http://valuation.ibbotson.com. Order forms are provided inside the back cover. Information about volume discounts, companion publication and consulting services may also be obtained.

A statistical measure of the randomness of a return series is its serial correlation. Serial correlation (or autocorrelation) is defined as the degree to which the return of a given series is related from period to period. A serial correlation near positive one indicates that returns are predictable from one period to the next period and are positively related. That is, the returns of one period are a good predictor of the returns in the next period. Conversely, a serial correlation near negative one indicates that the returns in one period are inversely related to those of the next period. A serial correlation near zero indicates that the returns are random or unpredictable from one period to the next. Table 5-3 contains the serial correlation of the market total returns, the realized long-horizon equity risk premium, and inflation.

Table 5-3
Interpretation of Annual Serial Correlations
1926–2002

Series	Serial Correlation	Interpretation
Large Company Stock Total Returns	0.05	Random
Equity Risk Premium	0 06	Random
Inflation Rates	0 65	Trend

The significance of this evidence is that the realized equity risk premium next year will not be dependent on the realized equity risk premium from this year. That is, there is no discernable pattern in the realized equity risk premium—it is virtually impossible to forecast next year's realized risk premium based on the premium of the previous year. For example, if this year's difference between the riskless rate and the return on the stock market is higher than last year's, that does not imply that next year's will be higher than this year's. It is as likely to be higher as it is lower. The best estimate ot the expected value of a variable that has behaved randomly in the past is the average (or arithmetic mean) of its past values.

Table 5-4 also indicates that the equity risk premium varies considerably by decade, from a high of 17.9 percent in the 1950s to a low of 0.3 percent in the 1970s. This look at the historical equity risk premium reveals no observable pattern.

Table 5-4
Long-Horizon Equity Risk Premium by Decade
1926–2002

1920s*	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s**	1993-2002
17.6%	2.3%	8.0%	17.9%	4.2%	0.3%	7.9%	12.1%	−20.2%	4.8%

'Based on the period 1926–1929

**Based on the period 2000–2002