CHAPTER 1

The Return Dilemma

Living in dreams of yesterday, we find ourselves still dreaming of impossible future conquests.

Charles Lindberg

Family Office Exchange (FOX), a leading provider of research and education to the wealthy and their advisors, released the results of a survey they made in early 2011. For 2011, wealthy families anticipated a median long-term return of 8% from their investments, consistent with previous years' studies. On the corporate side of the ledger, sentiment is equally optimistic. According to Milliman, a large independent actuarial and consulting firm, large public U.S. companies currently maintain an expected rate of return of 8% for their firms' pension funds, a slight decrease compared with 8.1% for 2009. The annual Milliman study covers 100 U.S. public companies with the largest defined benefit pension plan assets. Although the expected return has steadily declined during the past decade from a gaudy 9.4% in 2001, an 8% return expectation is still above the long-term averages.

The Milliman study also listed the percentage of pension plan assets invested in equities in 2010, which was 45%, a slight increase from the 44% in the previous year. Bond allocations were unchanged at 36%, and allocation to other investments,

including cash, increased from 19% to 20% during 2010. Individual investors, who as a class are typically more aggressive, held 50.9% of their portfolios in stocks and stock funds according to the July 2011 AAII Asset Allocation Survey. This is below average given that the historical standard is for 60% of a typical portfolio to be earmarked for stocks. Bond and bond funds accounted for 25.5% of individual investor portfolios. The historical average is a surprisingly low 15%. This is no doubt due to the low returns earned on cash equivalents. In the survey, individual investors maintained a 23.6% position of their portfolio dollars in cash. The historical average is 25%. The question of all questions is Will the optimists earn the 8% expected return with those allocations? To answer this critical question, an investor must study history and make reasonable assumptions about the future.

An examination of 80 years of data shows the following results:

- The annualized return for the Standard & Poor's (S&P) 500 Index (and its precursor S&P 90 Index) between 1930 and 2010 was 9.37%.
- Dividends have been a noteworthy contributor to the total return of the S&P 500. From 1930 through 2010, dividends accounted for 43% of the S&P 500s return. The percentage contribution of dividends to the total return has been declining steadily since mid-century. During the past 20 years, dividends have accounted for only a quarter of the total return. U.S. bond market returns are lower in comparison to equities for the 80-year period starting in 1930.[1] The average return is only 5.72%.

Most investors combine investments in stocks and bonds to hopefully produce a better return with less risk. This process is known as asset allocation. The theory is that by including asset categories with investment returns that move up and down under

TABLE 1.1 Asset Allocation History, 1930–2010

	Average		
Stocks/Bonds	Average Return	Frequency of losing years	Worst Return
100% Stock, 0% Bond	9.37%	28%	−55.1%
80% Stock, 20% Bond	8.62%	26%	−39.9%
60% Stock, 40% Bond	7.91%	24%	−27.6%
50% Stock, 50% Bond	7.65%	21%	−18.8%

Source: Roger G. Ibbottson and Rex A. Sinquefield, "Stocks, Bonds, Bills, and Inflation: Year-by-Year Historical Returns," *Journal of Business,* University of Chicago Press, 2011.

different market conditions within a total portfolio, an investor can potentially enhance return while reducing risk. Historically, the returns of the two major asset categories such as stocks and bonds have not moved up and down at the same time. If one asset is producing losses, such as stocks in 2008, other assets will rise in value to offset your losses. Table 1.1 shows the breakdown of the long-term returns of combining the two assets.

Most individual investors and pension funds would be happy with these long-term return scenarios. However, three key elements have a dramatic impact on whether or not these returns can be realized:

- The current price-to-earnings (P/E) ratio of the market
- The current dividend yield of the market
- The current bond yield of the market

Importance of the P/E ratio

According to the Wall Street Journal, the P/E ratio of the S&P 500 Index at the end of 2011, based on earnings over the past 12 months, was approximately 15. The average P/E ratio of the

S&P 500 Index and other large-cap stocks over the past 80 years has been approximately 16, based on 12-month trailing earnings. P/E, of course, stands for price/earnings, and it is one of the essential tools investors use to estimate value when it comes to stock analysis. The price/earnings ratio is one of the oldest and most frequently used metrics. Here is the formula;

price/earnings = price of share of stock/E.P.S.
(Earnings per Share)

The P/E ratio gives you an indication of a stock's value. If it is low (though some sectors tend to be chronically low) it usually means that the stock price reflects a reasonable valuation relative to the earnings stream. If it is high (though some sectors tend to be chronically high) it usually means that the stock price reflects a high valuation relative to the earnings stream. Most of the time the P/E is calculated using E.P.S from the last four quarters. This is also known as the trailing P/E. However, it can also be utilized by estimating the E.P.S. figure expected over the next four quarters. This is known as the leading or forward P/E. A third variation is sometimes used that consists of the past two quarters and estimates of the next two quarters. There is not a huge difference between these variations. It is important you realize that you are using actual historical data for the calculation in the first case. The other two are based on analyst estimates that are not always perfect or precise. My preference has always been on trailing P/E.

The P/E ratio is a much better indicator of the value of a stock than the market price alone. For example, all things being equal, a $10 stock with a P/E of 75 is much more expensive than a $100 stock with a P/E of 20. Therefore, the P/E ratio allows you to compare two different companies with two different market prices—comparing "apples to apples," so to speak. A potential problem with the P/E involves companies that are not profitable and consequently have a negative E.P.S. There are varying

opinions on how to deal with this. I recommend that if a firm does not have a P/E due to depressed earnings, an investor should use an alternative valuation model, such as the Price/Sales ratio. It is difficult to state whether a particular P/E is high or low without taking into account two main factors:

Company Growth Rates

A P/E is based primarily on the growth rate of companies within the index. Generally, the higher the growth rate, the higher the expected P/E. If the projected growth rate does not justify the P/E, the market might be overpriced.

The average P/E ratio at the end of each year for the overall market, based on trailing four quarter numbers, is shown in Table 1.2. The far-right column gives the average 10-year future total return of the market on an annualized basis. Figure 1.1 shows the rolling returns on a 10-year basis.

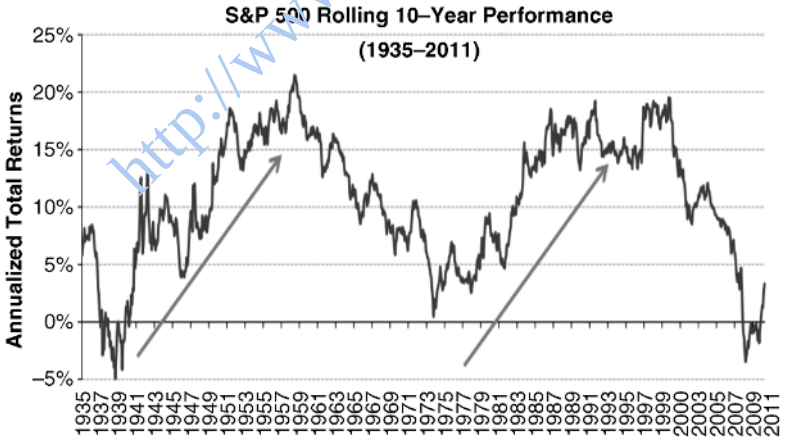

FIGURE 1.1 Rolling Returns on a 10-Year Basis

Source: Roger G. Ibbottson and Rex A. Sinquefield, "Stocks, Bonds, Bills, and Inflation: Year-by-Year Historical Returns," *Journal of Business*, University of Chicago Press, 2011.

TABLE 1.2 Average P/E Ratio for Overall Market

	Period P/E	Forward 10-Year Annualized Return
12/31/1936	16.84	8.42%
12/31/1937	19.34	4.41%
12/31/1938	20.64	9.62%
12/31/1939	13.88	7.26%
12/31/1940	10.08	9.17%
12/31/1941	7.49	13.38%
12/31/1942	9.49	17.28%
12/31/1943	12.41	17.07%
12/31/1944	14.28	14.31%
12/31/1945	18.08	17.12%
12/31/1946	14.43	16.69%
12/31/1947	9.50	18.43%
12/31/1948	6.64	16.44%
12/31/1949	7.22	20.06%
12/31/1950	7.19	19.35%
12/31/1951	9.74	16.16%
12/31/1952	11.07	16.43%
12/31/1953	9.88	13.44%
12/31/1954	12.99	15.91%
12/31/1955	12.56	12.82%
12/31/1956	13.69	11.06%
12/31/1957	11.87	9.20%
12/31/1958	19.10	12.85%
12/31/1959	17.67	10.01%
12/31/1960	17.77	7.81%
12/31/1961	22.43	8.18%
12/31/1962	17.19	7.06%
12/31/1963	18.66	9.93%
12/31/1964	18.63	6.01%
12/31/1965	17.81	1.24%
12/31/1966	14.47	3.27%
12/31/1967	18.10	6.63%
12/31/1968	18.03	3.59%

12/31/1969	15.93	3.16%
12/31/1970	17.96	5.86%
12/31/1971	17.91	8.44%
12/31/1972	18.39	6.47%
12/31/1973	11.95	6.68%
12/31/1974	7.71	10.61%
12/31/1975	11.33	14.76%
12/31/1976	10.84	14.33%
12/31/1977	8.73	13.82%
12/31/1978	7.79	15.26%
12/31/1979	7.26	16.33%
12/31/1980	9.16	17.55%
12/31/1981	7.98	13.93%
12/31/1982	11.13	17.59%
12/31/1983	11.76	16.19%
12/31/1984	10.05	14.94%
12/31/1985	14.46	14.40%
12/31/1986	16.72	14.84%
12/31/1987	14.12	15.28%
12/31/1988	11.69	18.05%
12/31/1989	15.45	19.18%
12/31/1990	15.47	18.20%
12/31/1991	28.12	17.46%
12/31/1992	22.82	12.93%
12/31/1993	21.31	9.33%
12/31/1994	15.01	11.06%
12/31/1995	18.14	12.07%
12/31/1996	19.13	9.08%
12/31/1997	24.43	8.42%
12/31/1998	32.60	5.91%
12/31/1999	30.50	−1.38%
12/31/2000	26.41	−0.95%
12/31/2001	46.50	1.41%
12/31/2002	31.89	?
12/31/2003	22.81	?
12/31/2004	20.70	?

(*continued*)

TABLE 1.2 (*Continued*)

	Period P/E	Forward 10-Year Annualized Return
12/30/2005	17.85	?
12/31/2006	17.40	?
12/31/2007	22.19	?
12/31/2008	40.70	?
12/31/2009	34.94	?
12/31/2010	17.23	?

Source for P/E ratios: Standard & Poor's.
Source for return data: Roger G. Ibbottson and Rex A. Sinquefield, "Stocks, Bonds, Bills, and Inflation: Year-by-Year Historical Returns," *Journal of Business,* University of Chicago Press, 2011.

Here is the performance of the S&P 500 from the lowest 10 P/E ratio starting points, versus the highest P/E ratio starting points. See Table 1.3

TABLE 1.3 Lowest/Highest P/E Starting Points

Lowest P/E Starting Points

	Period P/E	Forward 10-Year Annualized Return
12/31/1948	6.64	16.44%
12/31/1950	7.19	19.35%
12/31/1949	7.22	20.06%
12/31/1979	7.26	16.33%
12/31/1941	7.49	13.38%
12/31/1974	7.71	10.61%
12/31/1978	7.79	15.26%
12/31/1981	7.98	13.93%
12/31/1977	8.73	13.82%
12/31/1980	9.16	17.55%
Averages	7.71	15.67%

Highest P/E Starting Points

	Period P/E	Forward 10-Year Annualized Return
12/31/2001	46.51	1.41%
12/31/1998	32.64	5.91%
12/31/1999	30.55	−1.38%
12/31/1991*	28.12	17.46%
12/31/2000	26.41	−0.95%
12/31/1997	24.43	8.42%
12/31/1992	22.82	12.93%
12/31/1961	22.43	8.18%
12/31/1993	21.31	9.33%
12/31/1938	20.64	9.62%
Averages	27.57	7.09%

Source for P/E ratios: Standard & Poor's.
Source for return data: Roger G. Ibbottson and Rex A. Sinquefield, "Stocks, Bonds, Bills, and Inflation: Year-by-Year Historical Returns," *Journal of Business*, University of Chicago Press, 2011.

Conclusions about P/E Ratios and Subsequent Returns

In predicting future returns for the stock market, P/E ratio should be your primary indicator. Here are eight key facts regarding this most critical statistic:

1. For the overall stock market, P/E is the major driver of whether returns will most likely be above or below average in future periods.
2. In general, the lower the market P/E ratio, the higher the subsequent 10-year average return.
3. When average P/E ratios are below 10 for the market as a whole, subsequent 10-year average returns are well above the standard.
4. The stock market can advance strongly through a combination of higher earnings and low starting P/E ratio. P/E ratio

multiple expansion is a critical component in future returns being above the long-term averages.

5. During recessions, earnings for the S&P 500 companies can collapse, thus leading to a high P/E ratio based on trailing earnings. This could indicate an overvalued market based solely on P/E ratio. In this case, an investor may use a forward P/E ratio as a secondary indicator. In the preceding chart, 1991 is a good example.
6. A high trailing P/E ratio does not guarantee that future returns will be below average for the next year, or even the next five years. The shorter term predictability of high P/E ratios on future returns is poor.
7. Higher inflation causes lower P/Es and deflation causes lower P/Es; P/Es generally peak at higher levels when inflation is low and stable.
8. In addition to higher starting P/E ratios, higher starting profit margins have a negative impact on future expected returns.

Other Valuation Models

The foregoing P/E model utilized to forecast future returns has been criticized in some circles because of the limited nature of such a basic model. Other more sophisticated valuation models have been utilized by various managers to better hypothesize future returns including the Q ratio and the Shiller model. In addition, many analysts also use other factors along with the P/E ratios, including adjustments for profit margins and inflation considerations.

Q RATIO The Q ratio was developed in 1969 by the late economist and Nobel laureate James Tobin. The Tobin Q measures the market value of a company (i.e., its stock price) relative to the replacement cost of its assets. More recently, the ratio has been promoted by Stephen Wright and Andrew Smithers in the book

Valuing Wall Street. The Q ratio is the total price of the market divided by the replacement cost of all its companies. The Q ratio contrasts the total value of the stock market with the net replacement cost of corporate assets. When stock market prices are above asset values, an investor should buy an asset through direct purchase, rather than through equities. A Q value greater than one indicates that a company's assets could be purchased more cheaply than the company itself and consequently, the market is overvaluing the firm in question. A Q ratio of less than one indicates market undervaluation. Wright and Smithers found that a high Tobin's Q for the nonfinancial equities in the S&P 500 accurately predicts a future low real rate of return from investing in the S&P 500 Index. The team argued that in time arbitrage would ultimately drive the value of the private and public markets together.

Academic research has placed a high value on the predictive capability of the Q ratio. In a paper written for the *Journal of Investing* in 2002 by Edward Tower and Matthew Harney from Duke University,[2] the Q ratio demonstrated strong predictive power. Their results suggested the Q ratio provided the most compelling value of the alternatives they tested, including several P/E models. Tower and Harney tested the Q ratio against P/E ratios using 30-, 20-, 10-, and 1-year moving-averaged earnings. The team then ranked the predictive capacity to succeeding rates of return on the S&P 500 index. They then categorized the outcomes by R-squared (represents the percentage of a fund or security's movements that can be explained by movements in a benchmark index).

The Q ratio had the top score in regard to predictive power. The P/E ratio categories (30-, 20-, 10-, 1-year) offered secondary predictive value, in order of the length of time period. Since 1900, the average Q ratio has been 0.78. The ratio has had a wide range for the period, hitting all-time lows twice, in 1948 and 1974 (0.3). The high point in history came in year 2000,

when the ratio hit 1.88. As recently as March 2009, the ratio once again had dropped to 0.43, offering a compelling buying opportunity versus the long-term averages. There have been noted criticisms of the Q ratio. In calculating the Q ratio, book value minus intangible assets is utilized. Thus the denominator excludes intangible assets. Intangible assets (e.g., patents, trademarks, brand recognition, license agreements, and trade secrets) are increasingly important in the economy of the 21st century.

Professor Robert E. Hall of Stanford University published a paper on the stock market and capital accumulation in the *American Economic Review* in 2001.[3] He found that intangible assets do play a larger role and that the accumulation of intangible capital had been much faster in the previous decade. A new paper released in 2010 evaluated the Q ratio with the addition of intangible assets.[4] Professors Erica Li of the University of Michigan and Laura Liu of the Hong Kong University of Science and Technology found that adding intangible assets to Tobin's Q explained stock returns significantly better than the Q theory that maintained only tangible assets. The authors Li and Liu also found that intangible assets are more crucial for firms to sustain their comparative advantages than tangible assets because it is more costly to accumulate intangible assets rapidly. Furthermore, they found that it is advantageous for a company to consistently invest in intangible assets. Considering the growing impact of intangibles on the Q ratio, the long-term range of .3 to 1.88 might no longer be as germane as history suggests. The current Q ratio as of August 2011 is well over 1, suggesting a stretched overvaluation of the markets. However, based on trailing P/E ratio mechanism, the stock market was trading at only 13 times trailing earnings, indicating longer investment horizon value. Overall, the Q ratio has merit based on its strong predictive value. However, consideration must be given to the increasing importance of intangibles in calculating the Q ratio.

THE SHILLER P/E METHOD Robert Shiller from Yale University has developed a separate, widely followed P/E model. Shiller has postulated that utilizing a longer-term cyclical P/E ratio is a better methodology. In this manner, an investor will not be misled by earnings at the top or bottom of economic cycles. Shiller thus smoothes earnings by calculating average earnings over the previous 10 years. He measures this as the cyclically adjusted price earnings ratio.

The inherent problem with Shiller's approach is that there are no assurances that average earnings will end up estimating normalized earnings. If earnings are elevated over a previous 10-year period, an analyst will end up with a higher than average normalized estimate. The reverse is also true. David Bianco, Chief U.S. Market Strategist at Merrill Lynch, has also recently questioned the utility of the Shiller P/E. Mr. Bianco found the 2011 Shiller P/E of 24 was 50% above its 1900–2010 average. The problem was Dr. Shiller's estimate of earnings, at only $55 on an inflation adjusted ten-year trailing average. Comparing this to the average 2011 estimate of traditional analysts of nearly $100 for the S&P 500, Dr. Shiller's average substantially discounts current earnings. I find Dr. Shiller's model, although theoretically correct, not as useful as traditional P/E models or the Q ratio.

CORPORATE PROFIT MARGIN ANALYSIS Since 1948, net corporate profit margins for the S&P 500 corporations have ranged from just above 4% to nearly 10%. Net profit margin is calculated by dividing net profits by net revenues and is generally stated as a percentage. The net profit margin is a signal of how efficient a firm is at producing a profit after all costs have been factored in. The higher the net profit margin, the more successful the firm is at turning total revenue into actual profits. I prefer the net profit margin to other profitability ratios because it takes in all factors in a corporation. It not only measures how well the firm can control expenses at the cost of goods sold level (gross margin) and how

well a firm manages its operating costs (operating margin) but also factors in the firm's interest on debt and tax structure. Net profit margins allow an analyst both to compare firms within similar sectors and to gauge which sectors and/or industries are most profitable. Profitability has risen and dropped rapidly depending on the economic environment and the individual standing of the corporation. From 1950 to 1965, profitability remained extremely elevated (6–10%) due to the economic boom that followed World War II. Net profit margins then peaked during the mid-1960s and declined substantially throughout the 1970s. The period of the 1970s was one of very high inflation, uncertain economic policies, oil embargoes, and labor unrest. In the mid-1980s, margins continued to decline, although at a more level pace, ultimately hitting a low of 4% in the recession of 1991. Average net margins for the S&P 500 doubled over the following decade, reaching a high of 8.1% in 2001. Margins rose until the financial crash of 2008, after which margins once again dropped to the 4% level.

Do margins foretell future equity returns? The answer is mixed. A low net margin starting point, such as the 4% level, does indicate a floor in equity pricing. In the two years since 1948 the net margin level hit 4% (1991, 2008), both offered investors a great buying entry point. However, during the early 1950s, net margins were above 8% and subsequent short-term and longer-term stock returns were excellent. Blackrock Corporation recently reported in an updated paper[5] that the likelihood that margin trends, in isolation, are not an effective tool for forecasting market returns is limited. Blackrock pointed to evidence that of eight post-war peaks in the S&P 500, only two actually correlated with peaks in corporate margins.

Importance of Dividends in Total Returns

As mentioned previously, from 1930 through 2010 dividends accounted for 43 percent of the S&P 500s return. Table 1.4

TABLE 1.4 Return from Dividends

Period	Average Annual Return	Dividend Contribution
1930s	0.30%	NM
1940s	8.90%	66.7%
1950s	19.2%	29.3%
1960s	7.7%	43.1%
1970s	5.7%	72.1%
1980s	17.4%	27.5%
1990s	18.1%	12.9%
2000s	−1.0%	NM

Source: Ned Davis Research.

shows the percentage of return from dividends for each decade since 1930.

As the dividend contribution declined over time as a percentage of total return, the payout ratio for companies has also declined. Table 1.5 shows the payout ratio for companies over the preceding 80 years.

In 1973, 52.8 percent of publicly traded nonfinancial firms paid dividends.[6] The percentage of payers rose to a peak of 66.5

TABLE 1.5 Payout Ratio

Period	Average Payout Ratio	Average Dividend Market Yield
1930s	90.1%	5.9%
1940s	59.4%	6.8%
1950s	54.6%	5.1%
1960s	56.0%	3.1%
1970s	45.5%	5.2%
1980s	48.6%	4.5%
1990s	47.6%	2.8%
2000s	39.0%	2.6%

Source: Ned Davis Research.

in 1978. It then fell dramatically throughout the boom years of the 1980s and 1990s. By 1999, only 20.8 percent of firms paid annual dividends. From 1973 to 1977, one-third of newly listed firms paid dividends. In 1999, only 3.7% of new listings paid dividends. Dr. Eugene Fama and Kenneth French postulated that the decline in the incidence of dividend payers over this period was due to an increasing tilt of new publicly traded firms that were more growth oriented within new industries. These firms had the following characteristics: small size, low earnings, and large investments relative to earnings; they generally paid low or nil dividends. This is a far cry from the days after the Great Depression. During the late 1930s and 1940s, dividends were widely distributed among public companies; they were considered a key source of income and were utilized as an important tool to assure safety.

Investors that experienced the great losses resulting from the 1929 crash demanded higher dividends. In fact, the average dividend yield on stocks exceeded 20-year Treasury Bond yields through 1957. The number of companies issuing dividends today has diminished over time as new industries have emerged (e.g., information technology, biotechnology) that would rather reinvest their own capital. But dividends are a large part of total return for the market and also protect investor capital during poor market environments. For example, during the "lost decade" of the 2000s, the S&P 500 Index declined −2.3% due to price depreciation, but the income provided by dividends (1.8 percentage points) minimized the losses, resulting in a less painful −0.5% total return throughout the decade. Investors that concentrated investment dollars in high-dividend firms did even better.

Inflation can also have a dramatic impact on stock returns. The decade of the 1970s provides an example of how inflation has impacted returns for stocks. During the 7-year period from 1974 to 1980, the average rate of inflation was 9.3% while the S&P 500 Index had an average annual return of 9.9%, with dividend income accounting for nearly half of the total return.

Academic studies have demonstrated that the average dividend yield of the market also has an impact on future returns of the market. Studies done by prominent researchers such as Fama and French (1988) and Campbell and Shiller (1998)[7] concluded that today's dividend yield has the capacity to predict multi-year stock market returns. More recently, Professor John Cochrane from the University of Chicago[8] found that when market prices are low relative to dividends, subsequent 7-year returns are likely to be higher than average. Consider the top line in Figure 1.2 from Dr. Cochrane, which depicts the dividend/price ratio for NYSE stocks, alongside the future 7-year returns. The correlation between the two lines is very high. This same pattern also appears in P/E ratios as discussed previously. One caveat is that all the authors found that stock returns are predictable only when measured over several years. Short-term predictive ability of the dividend model is also weak. Thus a low

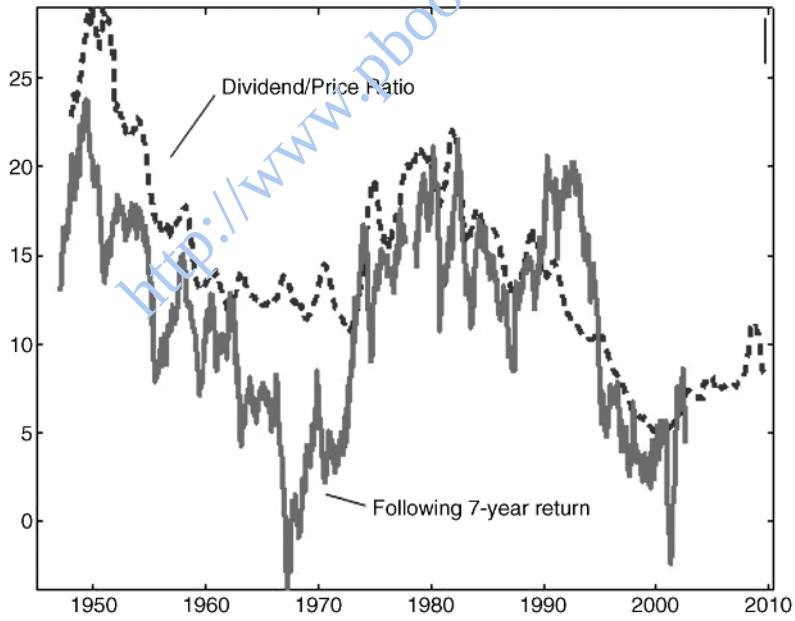

FIGURE 1.2 No Random Walk
Source: John H. Cochrane, University of Chicago.

average dividend yield in one year does not have much predictive power for determining the following year's return.

Importance of the Bond Yields

The average bond total return since 1930 is 5.82%. However, as with stocks, the returns are highly unstable. Bond returns are most dependent on the starting interest rate and the changes in general interest rates over time—that is, when interest rates increase, the value of bonds decrease and vice versa. This fact may have a dramatic impact on future expected returns. Throughout the Great Depression of 1929–1933, bond yields declined as economic growth and inflation turned negative. Under the New Deal in the 1930s, the U.S. Treasury issued new bonds at low interest rates to fund public works and America's preparation for and entry into World War II. This kept yields in check for the decade. The 10-year U.S. Treasury yield was at 3.29% at the start of 1930 but declined to 2.21% by the end of the decade. Interest plus gains in price appreciation resulted in a total return of 4.48%.

Over the decade of the 1940s, inflation picked up, averaging 6.1%, while 10-year Treasury yields averaged only 2.33%. The total return during the 1940s was a mere 1.82%, a quote below the average rate of inflation. During the 1950s, economic growth was strong and interest rates began to slowly climb higher. By the end of the decade, 10-year U.S. Treasuries were yielding 4.72%. In fact, the 40 year period from 1940 to 1979 provides an example of an extended stage of rising bond yields. As discussed previously, changes in yields have a hefty impact on bond prices. As bond yields first rise in a low–interest rate environment, capital losses are more pronounced because lower interest payments only partially offset the capital losses. As yields increase, higher annual interest payments are more successful in offsetting the price declines.

This latter concept was demonstrated in the 1970s. In the 1970s, bond yields and inflation both increased dramatically.

Yields on 10-year Treasury Bonds increased from 7.79% in 1970 to 10.8% by 1980. The annualized return for the decade was an above-average 6.97%. However, much of the return earned from interest was offset by price loss due to increasing inflation. Inflation averaged 7.8% during the 10-year period. Again the return consists of a capital loss of 4.5% offset by interest earned of 10.5%.

The 1970s marked the end of rising interest rates and led to one of the great bull markets in history. Federal Reserve Chairman Paul Volcker raised interest rates to as high as 20 percent to tame inflation during 1981. In the years that followed, inflation and interest rates declined rapidly, pushing up bond prices. The 10-year Treasury yield, which reached a high of 15.8 percent in September 1981, fell to as low as 2.05 percent on Dec. 30, 2008. Investors reaped the rewards, getting both interest alongside capital appreciation from declining bond yields. The average annual gain for 10-year Treasury Bonds was 10.36% throughout the 1980s. For the 1990s, the annualized return was 7.53%. The return over the previous decade matched the long-term average, at 5.7%. Today, the 10-year Treasury Bond is yielding below 2%. Thus after five decades, we have returned to an interest rate period similar to that of the mid-1940s.

Most of the longer-term returns from bonds over the preceding 80 years have come from the 4-decade period from 1960 to 2000. It is during this time phase that bonds provided a higher than average yield component. Combined with the capital appreciation factor from declining yields during the 1980s, bonds produced outsized returns for investors for nearly half a century.

Gazing into the Future

Given that government bond yields today are at historical lows, the opportunity for price appreciation is minimal. More likely, the collection of interest payments will provide most, if not all,

of market returns. Additionally, interest rates could also trend up over the ensuing decade. This would result in capital losses as bond prices rise, reducing total return further. Much like the decade of the 1940s, total returns from bonds will most likely be subdued as either market interest rates remain constant or interest rates trend upwards. Most certainly investors cannot expect an average long-term return of 5.72%. A 3% total return over the ensuing decade is most probable. The problem with this examination is that most individual investors and pension plans have a substantial portion of their assets in bonds, especially in government bonds. As the average total portfolio return target is 8% on an annualized basis, investors must expect either a substantial decline in interest rates from the current historic lows or that equities will make up the difference.

Given that future prospects for the bond market are low, stock returns should be more constructive. The ultimate drivers of stock returns will be affected by four major components: starting P/E ratio, future earnings growth, dividend yield, and corporate profit margins. P/E ratio expansion and contraction will have a profound impact on the future returns of the market. Profit margin expansion and contraction are also constituents in forecasting future returns.

Inspecting historical data on the market, the current P/E ratio of 15 is slightly below the median. I pulled up 10 similar periods of temperate P/E ratios since 1930 as shown in Table 1.6.

Based on this analysis, at an average P/E ratio of 15, the market has historically delivered an annualized return of just above 13% per year for a 10-year period, above the historical average. Adding the historical net profit margin (since 1948) to the same chart, the results are shown in Table 1.7.

Note that when the net profit margin was at 8.9 at the end of 1966, forward returns were less favorable. This is due to the fact that although the P/E ratio was fairly moderate in 1966, average S&P 500 profit margins were elevated. Over the ensuing decade,

TABLE 1.6 Historical Market Data, P/E Ratios

	Period P/E	Forward 10-Year Annualized Return
12/31/1987	14.12	15.28%
12/31/1944	14.28	14.31%
12/31/1946	14.43	16.69%
12/31/1985	14.46	14.40%
12/31/1966	14.47	3.27%
12/31/1994	15.01	11.06%
12/31/1989	15.45	19.18%
12/31/1990	15.47	18.20%
12/31/1969	15.93	3.16%
12/31/1986	16.72	14.84%
Averages	15.03	13.04%

Source for P/E ratios: Standard & Poor's.
Source for return data: Roger G. Ibbottson and Rex A. Sinquefield, "Stocks, Bonds, Bills, and Inflation: Year-by-Year Historical Returns," *Journal of Business*, University of Chicago Press, 2011.

TABLE 1.7 Historical Market Data, P/E Ratios, Plus Net Profit Margin since 1948

	Period P/E	Net Profit	Forward 10-Year Annualized Return
12/31/1987	14.12	4.4	15.28%
12/31/1985	14.46	5.2	14.40%
12/31/1966	14.47	8.9	3.27%
12/31/1994	15.01	5.5	11.06%
12/31/1989	15.45	6.1	19.18%
12/31/1990	15.47	4.3	18.20%
12/31/1969	15.93	6.6	3.16%
12/31/1986	16.72	4.8	14.84%
Averages	15.03	5.7	13.04%

Source for P/E ratios: Standard & Poor's.
Source for return data: Roger G. Ibbottson and Rex A. Sinquefield, "Stocks, Bonds, Bills, and Inflation: Year-by-Year Historical Returns," *Journal of Business,* University of Chicago Press, 2011.

the average net profit margin dropped from 8.9 to 5.7. Thus, profit margin compression had an impact on future returns for the period from 1966 to 1975. However, also note that the future returns for the decade after 1989 (when the average profit margin was a more elevated 6.1) outperformed the 10-year period following 1990 (19.18% versus 18.20%). Therefore, there is no guarantee that the lowest average profit margin statistic will offer the highest period return. The key question is whether or not there is substantial room for net profit margins to expand. In the case of both 1989 and 1990, expansion was potentially available.

In the middle of 2011, the average net profit margin for the S&P 500 was 7.4%. This is towards the higher range witnessed in the past six decades. Listed are the three closest yearly matches in regard to P/E ratio and net profit margin, with forward 10-year average return as shown in Table 1.8.

The returns vary widely in all three instances. The average 10-year forward return is 9.7%, nearly in line with the long-term return of stocks. Given the expansive range of returns in the three closest yearly matches, a further analysis is warranted to produce a more narrow and realistic outcome. (See Table 1.9.)

To predict future returns for equities for the next ten years, an additional data piece is needed; future E.P.S. for the year 2021. Based upon data from Robert Schiller, the historical

TABLE 1.8 Three Yearly Matches, P/E Ratio, and Net Profit Margin

	Period P/E	Net Profit	Forward 10-Year Annualized Return
12/31/1954	12.99	7.7	15.91%
12/31/1959	17.67	7.9	10.01%
12/31/1969	15.93	7.1	3.16%

Source for P/E ratios: Standard & Poor's.
Source for return data: Roger G. Ibbottson and Rex A. Sinquefield, "Stocks, Bonds, Bills, and Inflation: Year-by-Year Historical Returns," *Journal of Business*, University of Chicago Press, 2011.

TABLE 1.9 Starting P/E Ratio of 15/Starting Net Profit Margin of 7.2.

Period	Current P/E	Current Net Profit	Forward
7/31/2011 to 7/31/2021	14.89	7.2	?

Source for P/E ratios: Standard & Poor's.
Source for return data: Roger G. Ibbottson and Rex A. Sinquefield, "Stocks, Bonds, Bills, and Inflation: Year-by-Year Historical Returns," *Journal of Business*, University of Chicago Press, 2011.

annualized growth rate in earnings is approximately 5.4 percent per year. For year-end 2011, Standard & Poor's has estimated $98.04 for combined S&P 500 company earnings. Given the current E.P.S., here are three possible outcomes.

Scenario #1—Expansion

1. P/E Ratio expands to 20
2. Net Profit Margins remains at 7.2%
3. Dividend Yield average expands to 3.5%
4. E.P.S. Growth averages 6%

Year	E.P.S.	Annual Price % Return	Dividend % Return	Average Yearly Return
2021	$175.50	12.3%	3.5%	15.8%

Scenario #2—Moderate

1. P/E Ratio remains at 15
2. Net Profit Margins drop to 6%
3. Dividend Yield average rises to 2.5%
4. E.P.S. Growth averages 5.4%

Year	E.P.S. (discounted for net profit margin contraction)	Annual Price % Return	Dividend % Return	Average Yearly Return
2021	$144.31	6.52%	2.5%	9.02%

Scenario #3—Contraction

1. P/E Ratio drops to 10
2. Net Profit Margins drop to 5.5%
3. Dividend Yield average remains at 2%
4. E.P.S. Growth averages 5%

Year	E.P.S. (discounted for net profit margin contraction)	Annual Price % Return	Dividend % Return	Average Yearly Return
2021	$123.20	0.69%	2%	2.69%

Based upon this analysis, expectations for stocks for the next decade still have a wide range of outcomes. It also is dependent on earnings and profit margin stability or expansion. Additionally the Q ratio, which is also useful as a secondary indicator, was at a 1.2 level during the summer of 2011. This is also close to the high range in history. Given these facts and the history of mean reversion in secular bear markets, here is my probability analysis of expected returns:

	Probability Analysis of Returns		
	Return	Probability	Result
Scenario #1	15.8%	15%	2.30%
Scenario #2	9.02%	50%	4.51%
Scenario #3	2.69%	35%	0.94%
Expectation		100%	7.75%

Given the preceding data, my expectation is that stocks will deliver a 7.75% annualized return over the next ten years. Combined with my 3% expected return from U.S. Treasury Bonds, a total portfolio return of 5% to 6% would be the most likely outcome. Thus, individual and pension fund investors, based on historical analysis, will not be able to secure expected returns utilizing the current investment strategy of focusing primary dollars on traditional investment choices.