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Financial Market Perspectives and Drivers

If the real economy and the financial economy are two sides of the same coin, what are the linkages, where can they be seen, and what drives changes within those linkages. Figure 1.A draws a link between the size of the real economy, measured by Gross Domestic Product, and the size of the financial economy, measured by the Wilshire Total Stock Market Index, from December 1970 to September 2002.

Figure 1.A

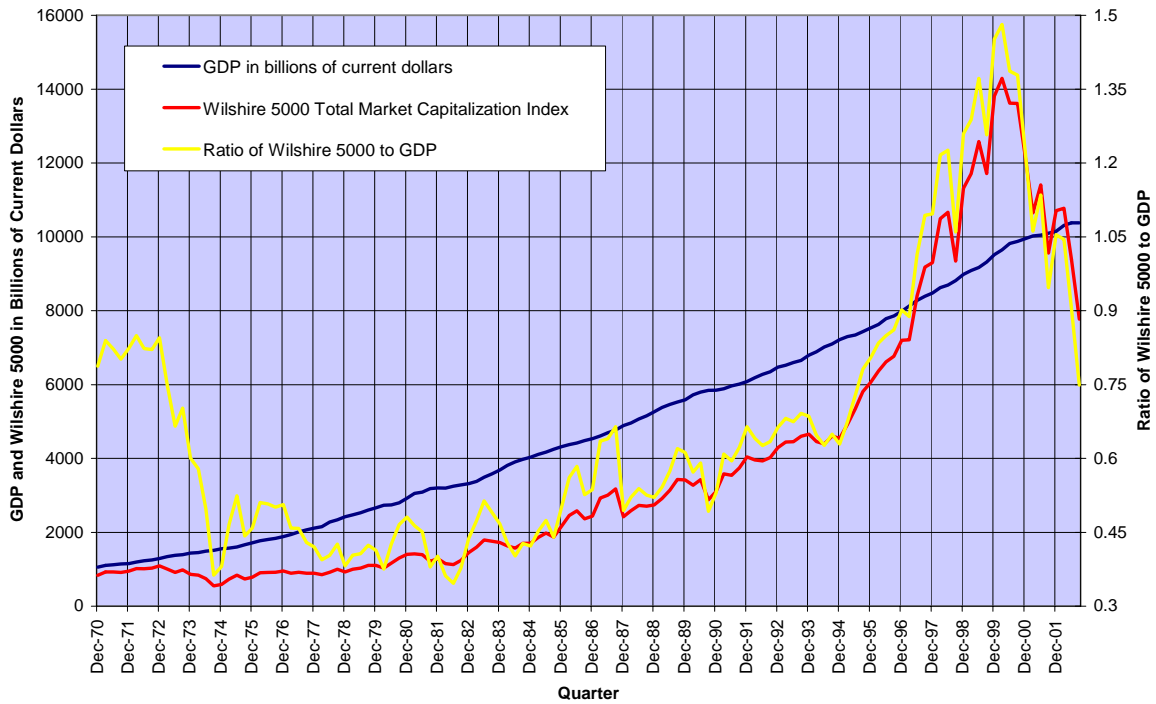**U.S. Market Capitalization vs. GDP**
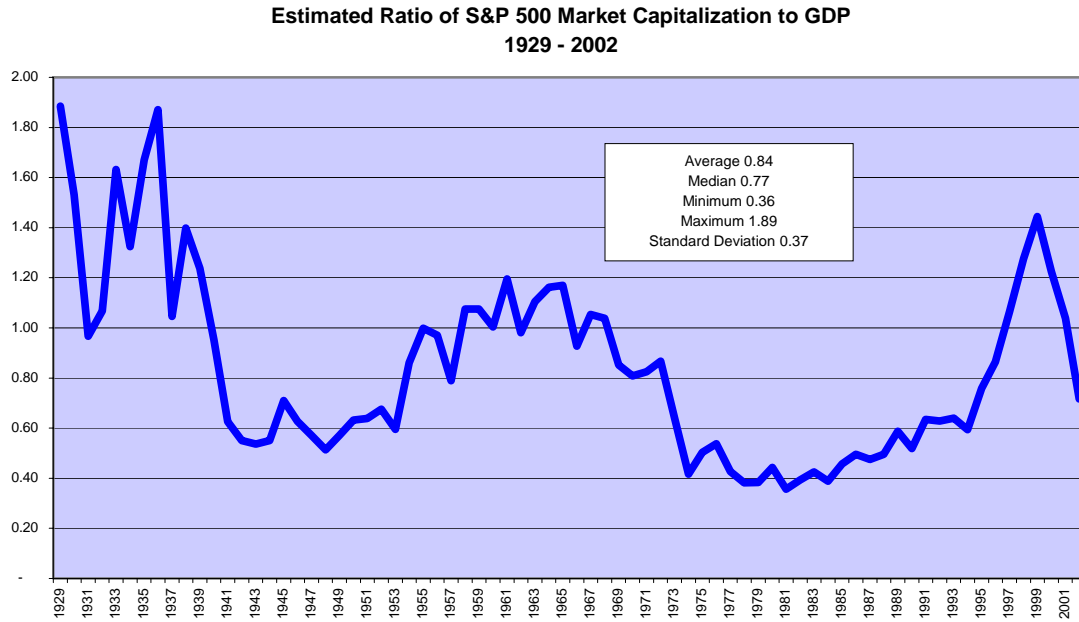**Dec 1970 - Sep 2002**

Figure 1.B provides a longer but less accurate calculation of this ratio, using an estimate of the capitalization of the S&P 500 Index to GDP. Since 1929, this measure has had a median value of 0.77 and average of 0.84. Roughly two-thirds of the data falls in the range 0.5 to 1.0.

Figure 1.B

Estimated Ratio of S&P 500 Market Capitalization to GDP
1929 - 2002

Average 0.84
Median 0.77
Minimum 0.36
Maximum 1.89
Standard Deviation 0.37

What drives this relationship? At least four explanatory variables come quickly to the mind –[#1 valuation] interest rates, [#2 supply] the securitization of previously untraded assets, [#3 demand] the level of participation of U.S. households in the stock market, [#4 risk] the predictability and stability of both corporate earnings and international affairs.

The valuation of equities in relation to GDP reached a low point of 35% in June 1980. At the bottom, the S&P 500 index had been going down or sideways since 1972 while GDP had doubled during the same period; government interest rates had skyrocketed above 10%; securitization was just getting underway; household participation was low, having dropped with share prices during the bear market; corporate earnings were off from the prior year; the political situation was bleak, with the U.S. in the midst of the cold war, an oil shock, and the Iranian hostage crisis. Twenty years later in March 2000 the situation was nearly reversed. The capitalization-to-GDP ratio reached 148%, reflecting dramatically lower interest rates; booming IPOs, asset securitization, and capital investment, all-time high household stock market participation; record corporate earnings and productivity, and a supposedly new internet-based economy taking place in a seemingly cloudless geopolitical climate.

Drivers of Equity Returns

What drives equity returns? Mathematically, equity returns over longer term horizons can be allocated to three fundamental sources—dividends, earnings growth, and P/E multiples.

A glance at Table 1 illustrates the striking contribution of dividends to equity returns. Since 1926, the compound annual total return of equities has been 9.9%. Of this figure, 4.1 percentage points is attributable to the receipt and reinvestment of dividends. The contribution of dividends, while always positive, has declined from roughly 5% historically to just 2% today, reflecting low payout ratios and the adverse affect of high share prices on dividend buying power. Although the dividend payout ratio today is 30% below the historical average, an increase in payouts to normal levels would raise the yield to only 2.5%, still far below average. Thus, in the absence of a further sharp decline in share prices, which would have a positive effect on dividend yields and reinvestment, we assume dividends contribute about 2.5 percentage points to equity returns over the coming decade.

Figure 2

Components of Compound Annual Total Returns for Rolling 10-year Periods
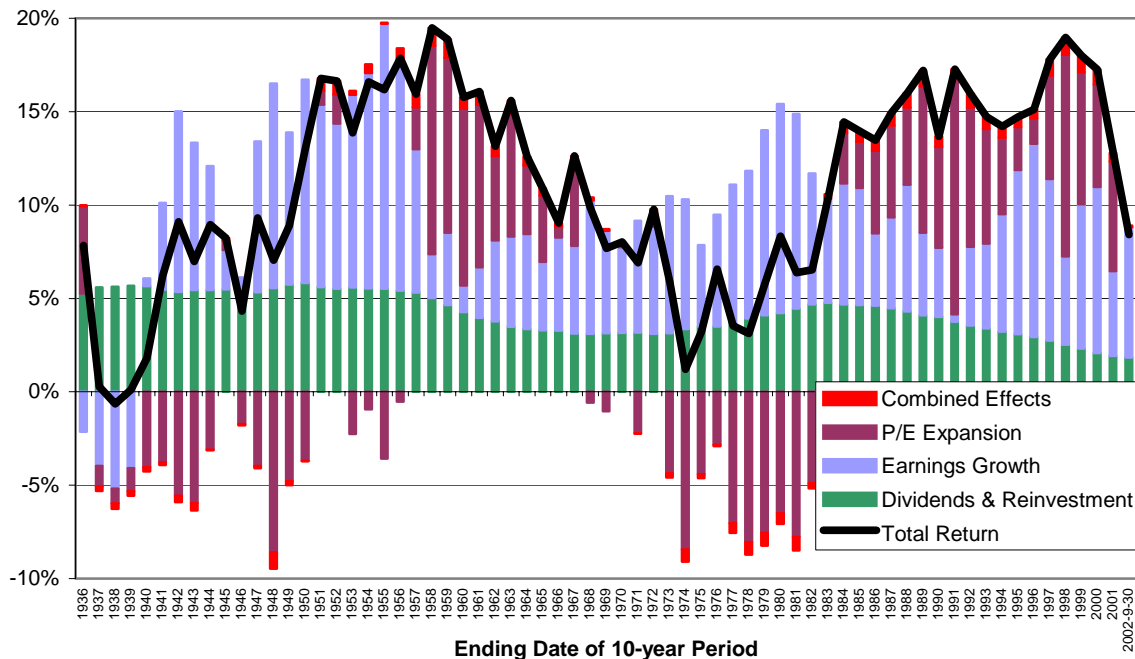**S&P 500 Composite 1926 - Sep 2002**

Ending Date of 10-year Period

Table 1

Components of Total Return, Compound Annual Rates

Period	[A] EPS Growth	[B] P/E Change	[C] Price Appreciation	[D] Dividends & Reinvestment	[E] Combined Effects	[F] Total Return
1927-29	9.1%	7.0%	16.7%	4.1%	1.3%	21.5%
1930-39	-4.1%	-1.2%	-5.3%	5.7%	-0.2%	0.1%
1940-49	8.1%	-4.8%	3.0%	5.7%	-0.2%	8.9%
1950-59	3.9%	9.4%	13.6%	4.7%	1.0%	18.9%
1960-69	5.5%	-1.0%	4.4%	3.1%	0.1%	7.7%
1970-79	9.9%	-7.6%	1.6%	4.1%	-0.7%	5.8%
1980-89	4.4%	7.8%	12.6%	4.1%	0.9%	17.2%
1990-99	7.7%	7.1%	15.3%	2.3%	0.9%	18.0%
2000 - 9/02	-8.0%	-10.6%	-17.8%	1.5%	0.6%	-16.6%
1927- Sep 2002	4.6%	0.9%	5.5%	4.1%	0.3%	9.9%

Notes on Column Arithmetic:

(1+ C) = (1+ A) * (1+ B)

(1 + F) = (1 + C) * (1 + D)

E = F – D - A – B

The second mathematical contributor to total return is earnings growth. Figures 3.A and 3.B show the long term relationship between nominal GDP growth and corporate earnings. Although earnings growth is clearly more volatile, the long term growth rates are similar, 7.2% for GDP, 5.8% for EPS.

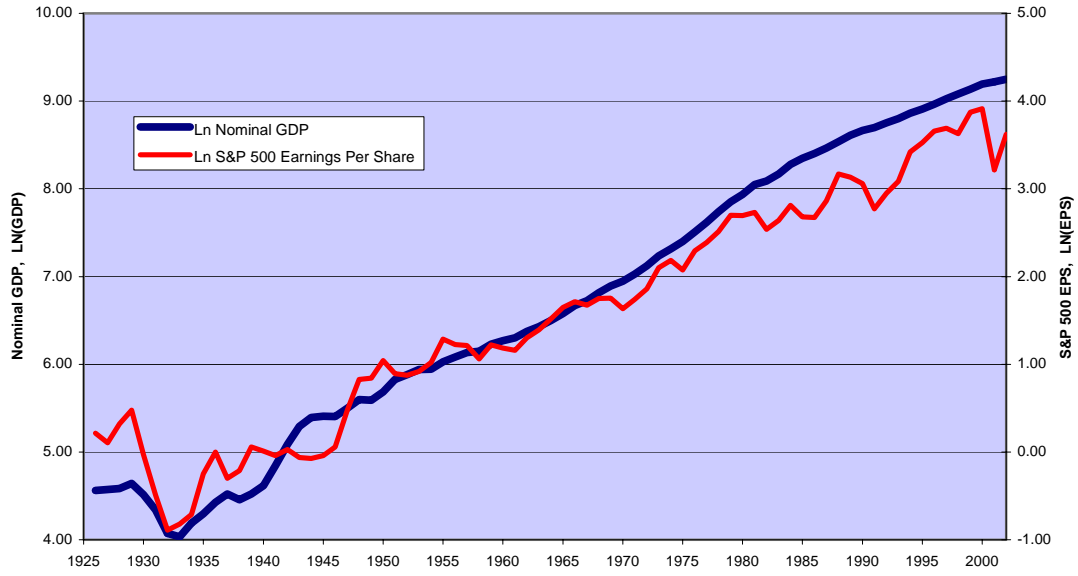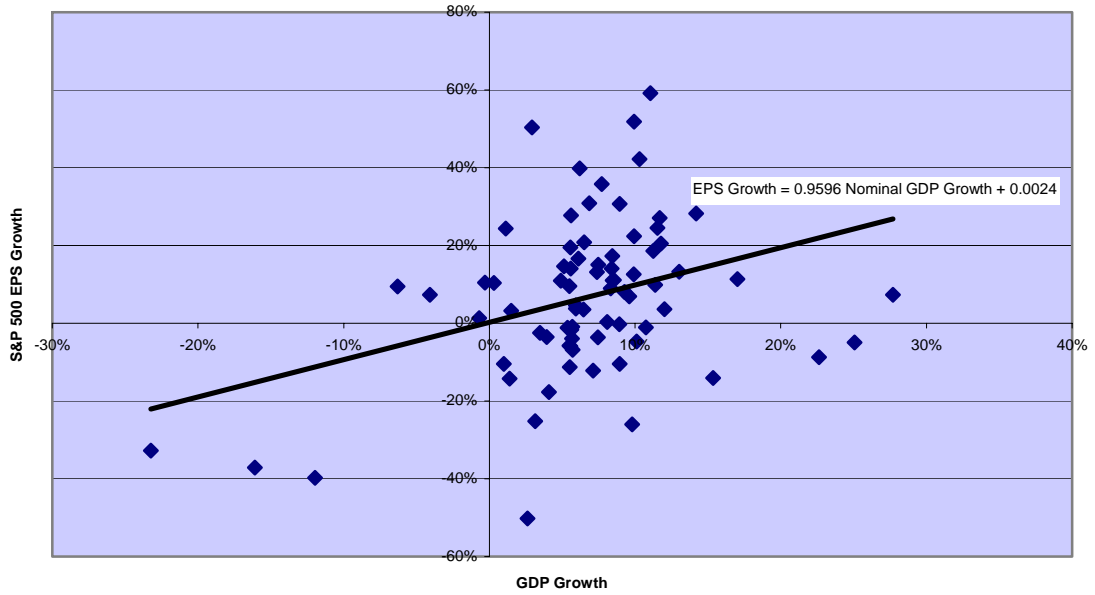**Figure 3.A**

S&P 500 EPS vs. Nominal GDP, 1926 - 2002E

Figure 3.B

Nominal GDP Growth vs S&P 500 EPS Growth

EPS Growth = 0.9596 Nominal GDP Growth + 0.0024

If we add the long term average earnings growth of 5.8% to our estimate of dividend return (2.5%), we obtain a single point estimate of 8.3% for equity returns. However, the current low level of nominal GNP growth suggests that this estimate is too high. What happens to corporate earnings growth then when nominal growth of GDP slows because of less inflation or outright deflation?

Table 2

Compound Annual Growth Rates By Decade
Nominal GDP, Real GDP, Inflation, S&P 500 EPS

Period	Nominal GNP	Real GNP	Deflator	S&P 500 EPS
1930-39	-1.2%	0.9%	-2.1%	-4.1%
1940-49	11.3%	5.6%	5.4%	8.1%
1950-59	6.6%	4.1%	2.4%	3.9%
1960-69	6.9%	4.4%	2.3%	5.5%
1970-79	10.0%	3.2%	6.6%	9.9%
1980-89	7.9%	3.0%	4.8%	4.4%
1990-99	5.4%	3.0%	2.3%	7.7%
2000 - 6/2002	4.6%	2.4%	2.2%	-9.6%

Table 2 shows, by decade, the compound equivalent growth rate for nominal GNP, real GNP, GNP deflator, and S&P 500 earnings. Today the GNP deflator is 1% and real GNP growth is in the area of 2-3%, both well below historical averages. If earnings continue to track nominal GNP, then the outlook for corporate earnings gains is below average as well, perhaps a range of 3-6 percent. Adding this reduced range to the 2.5 percent dividend contribution results in a forecast of 5.5 – 8.0% for equity returns, before considering the last contributor, price-earnings ratios.

Table 3 displays the ranges of the P/E ratio by decade since 1930. Having already accounted for earnings growth in our three part breakdown, the P/E ratio captures the present value, or multiplier, of a constant dollar of earnings paid annually over the investment forecasting horizon, perhaps 20 years. In this light, P/E multiples should move inversely with interest rates, just like bond prices, with low rates producing high P/E multiples, and vice versa. Unlike bonds however, the investment horizon for equities is not a fixed number of years, but an intangible period that fluctuates with investor risk aversion and the level of predictability in the economic and political environment. This uncertainty introduces some noise into the otherwise purely mathematical relationship between interest rates and P/E ratios illustrated in Figures 4.A and 4.B.

Table 3

Analysis of Year-End P/E Ratios, 1930-2002

Period	Min	Max	Avg
1930-39	11.8	23.0	16.5
1940-49	6.6	18.1	11.2
1950-59	7.2	19.1	12.6
1960-69	14.5	22.4	17.9
1970-79	7.3	18.4	12.0
1980-89	8.0	16.7	12.2
1990-99	15.0	32.6	22.5
2000-02	21.8	46.1	31.4
1930-2002	6.6	46.1	15.7

Figure 4.A

P/Es and Long Term Interest Rates Move Inversely

Figure 4.B

Interest Rates vs. P/E Ratios, Year End Data 1960-2002

$$y = -163.08x + 28.689$$
$$R^2 = 0.2422$$
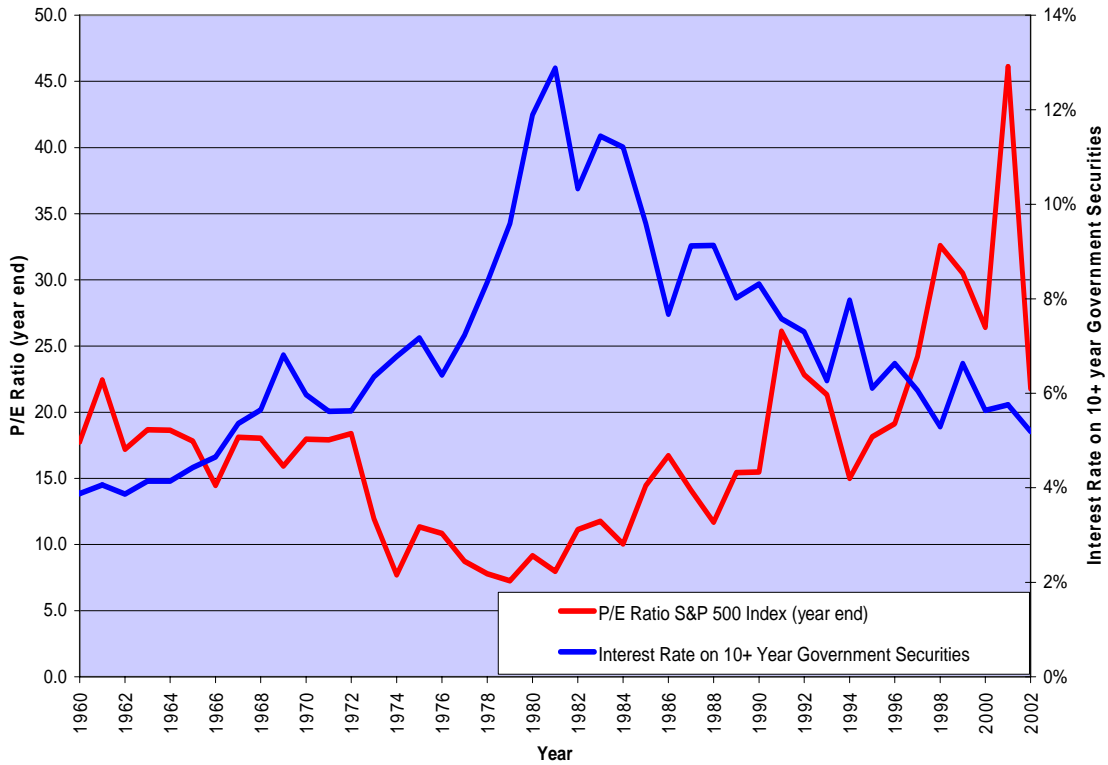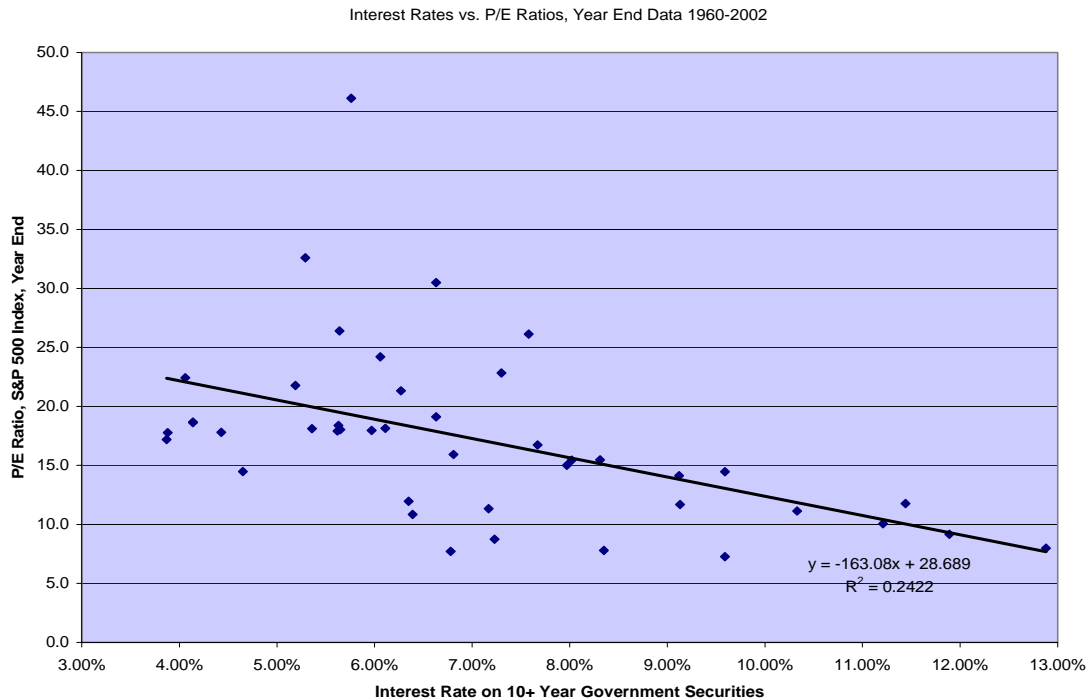
Figure 5 shows a rolling 10-year compound annual equity return going all the way back to 1802. Note here how rarely returns occur outside of a range of +5% to +10%. Returns outside this range are usually the result of movement in P/E ratios. In bull markets, it is the upward moving P/E multiple which turbo charges returns, as the multiple gets applied to an increasing number of shares and strongly growing earnings, compounding the impact of the dividend and earnings growth contributions to return. Over the long run, the impact of P/E changes on equity returns has been a wash, as interest rates have moved roughly randomly. In order for P/Es to have a sustained impact on equity returns, interest rates must move steadily in one direction, preferably lower. This is exactly what happened over the two decades, 1980-1999. During this time frame, the number of S&P 500 units a hypothetical investor owned grew 88% as a result of dividend reinvestment. Meanwhile, the earnings of each unit grew 224% from 14.85 to 48.17. Taken together, these two factors would have produced a cumulative return of 510% = [3.24 * 1.88 – 1]. Lastly, at the beginning of the period, long term government interest rates were 9.6% and the P/E multiple just 7.26. Twenty years later, interest rates had contracted to 6.6% and P/Es had expanded 320% to 30.50. This high P/E ratio applied on top of the returns from dividends and earnings growth resulted in a cumulative return of 2460% for the period. In other words, one dollar invested at the beginning of 1980 became $25.60 by the end of 1999!

Figure 5

Compound Rate of Return For U.S. Stocks
Rolling 10-Year Periods
Date Range: January 1802 - September 2002
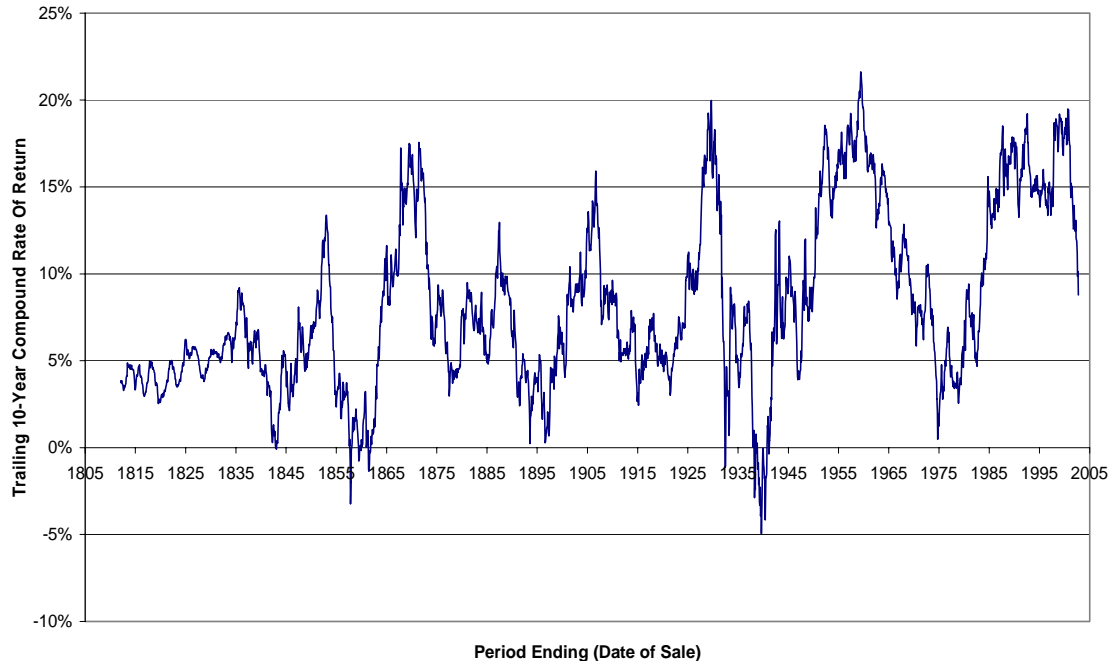
What about P/E's going forward? They will follow inflation and interest rates unless there is a question about earnings integrity or the soundness of the financial markets or world economy, which would increase risk aversion and shorten the discounting horizon. Unfortunately, earnings integrity is under question today as a result of Enron, Tyco, Worldcom and other cases of corporate malfeasance, earnings manipulation, and management self-dealing. It is also unclear whether September 11 represents a one-time event or the harbinger of a long term increase in global violence and economic uncertainty. In this light, it is likely to require a sustained scandal-free and violence-free period for investor confidence to manifest itself in higher P/E ratios. Lastly, many investors have been badly burned by the decline in equities since 1997. The combination of horrific investment losses and the blatant failure of the "new" perpetual growth internet economy are likely to motivate increased risk aversion and investor pessimism in years to come. Certainly, it's unlikely in our lifetimes that we will ever see discounting horizons as in 2000, when investors would happily pay multiples of 100 times sales, let alone earnings, and express a willingness to wait 5-10 years for profitability.

Household participation in equities has probably peaked for a number of reasons. Demographics argue that the proportion of savings allocated to equities should be declining. An old rule of thumb for equity allocation is 100% minus your age. As the median age of households rise, a smaller portion will go to equities.

Unfortunately, the one to 25.6 run referred to earlier became 1 to 14 by the Fall of 2002. Values have declined 50% from their peaks of 2000. For many households, this decline was inconceivable in 2000 as it happened very suddenly. One can see from the mutual fund figures the redemption of equities and the movement into less risky asset classes. This trend should last through 2003 and possibly longer. A large portion of mutual fund inflows and stock purchases in the heydays of the internet bubble (1997–2000) came from first-time investors of all ages. As virtually all equity investments made after 1997 are at a loss, some unimaginably large, I suspect a large portion of young and novice investors have soured on the markets for years to come.

Securitization continues in the fixed income market, but not in the equity market, due to weak demand for initial public offerings any type. While the invention of new securities frequently catalyzes markets by providing public access to a strongly demanded, but previously untraded asset, or by increasing liquidity or the hedgeability of an old asset, the market for IPOs is totally dependent on a healthy equity market to thrive. Thus, any pick-up in the IPO market must await a pick up in the broader markets or the formation of a class of promising private companies offering unique investment prospects.

Summary – the good, the bad, and the ugly

The " good news" is that once we reach fair valuation – when about half the stocks are rising and the other half are falling, returns will be in the 6% to 8% range, very similar to the one hundred years of history. One can succeed in investing in a market where valuation metrics are no longer getting crushed across the board. Eventually, these metrics become neutral in aggregate. Are we there yet? In my view, probably not, but the current level of the DJIA is better than 11,000 just as 1300 is better then 5000 for NASDAQ.

For perspective, most of the great bear markets had fully recovered their all-time highs after 8 years. The unusually long bear market involving the great depression is misleading. The S&P had recovered to nearly 85% of its 1929 peak by the fall of 1939 when Hitler invaded Poland. This development caused a second downdraft in the market and postponed the full recovery for another six years. If the S&P 500 regained its 2000 high six years from now in 2008, the compound annual return of investments today would be 9%. If it takes eight years to reach the 2000 high, the compound annual return would be 7%.

The "bad news" has largely to do with low dividend yields and earnings integrity. Only lower prices will fix yields right now and only time will contribute to confidence in earnings integrity. Time, in this case, is measured in years, not months. Furthermore, households have just begun to leave the equity markets. Redemptions will be poor year over year at least through mid 2003, and probably another year after that.

The "ugly news" reflects conclusions derived from playing "what if" games. The most dire prospect is the one that has us locked in the doldrums of price deflation, low unit growth, and flat to falling employment levels. Place that scenario on an economy with a large debt load at the consumer, business, and government levels and trouble is brewing! This scenario has not arrived, but we are closer than people think. Without recognition of this fact by our leaders and a global coordination of fiscal policies, this possibility could become a likely probability.

We have taken seven trillion dollars of valuation out of the U.S. stock market since March 2002. Surely that discounts something. Expectations have to catch up to realities, meglormania[1] must give way to sobriety, and denial of reality must end. When that is in evidence, the bottom is under formation.

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[1] Meglomania – the deception that you are not subject to self-deception. Apply that definition to people we know for the 1999-2001 period!