EMPIRICAL
WEALTH MANAGEMENT

July 5, 2007 **Second Quarter 2007 Client Letter**
"Capital Market Expectations"

Introduction

The focus of this quarter's letter is on developing estimates for market returns. This process is referred to as "developing capital market expectations" or "CME". First, we will discuss what we hope to accomplish by setting CME, along with the limitations. Next, we will walk through developing CME by examining historical asset class returns, presenting a model that has done a good job explaining the make up of historical market returns, and finally using the model to set a range of estimated return expectations for the next ten years.

This letter continues our theme of educating our clients about Empirical's investment approach. We realize that our clients possess varying levels of interest and understanding of investment concepts and because of this, when we get to the point of creating return expectations the focus will stay on US stocks as represented by the S&P 500 and bonds as measured by the Ten Year Treasury Note.

Why Develop Capital Market Expectations?

Having a set of market expectations allows an investor to examine their financial objectives along with a rational estimate of what returns may be produced during a given time horizon. Furthermore, investment professionals use CME to guide their decisions on how much capital to allocate between various asset classes such as public and private stocks, bonds, public and private real estate and alternative investments like hedge funds.

As your financial advisor, Empirical uses CME estimates to make moderate adjustments to your asset allocation and to give consideration to the validity of return estimates used in financial planning. Many investors and advisors default to using historical market returns as future estimates in financial plans regardless of market valuations. If equities are overvalued (in a historical sense) future return estimates may be low and a portfolio that is heavily weighted in equities may present a problem to someone in retirement or near retirement. The more income demanded from that portfolio over the near term the more dangerous the potential outcome. While we believe the exercise of setting CME is useful, we also believe that action taken needs to be measured with prudence and a keen understanding that markets are unpredictable, especially over short periods of time.

Considerations and Limitations

Warren Buffet made the following statement: "*In the short run the stock market is a voting machine, in the long run it is a weighing machine.*"

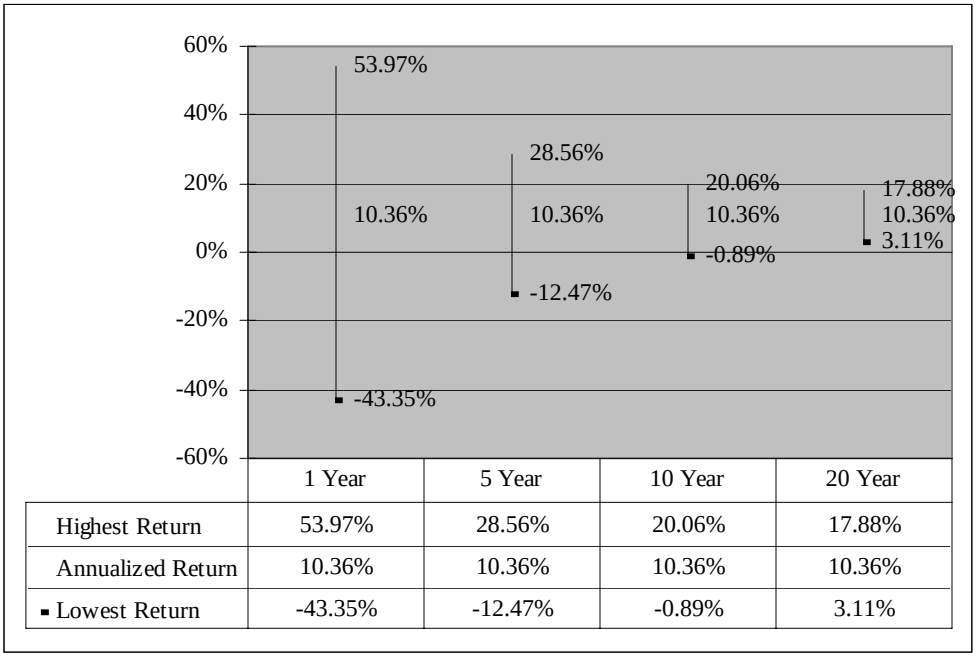
The founder of Vanguard, John Bogle, made this statement about developing market return estimates in his book "Common Sense on Mutual Funds": *"Don't think you know more than the market." "Nobody does." "Put another way, in volatile and uncertain financial markets, rationality provides only a reasonable range of expectations, and only over a long time horizon at that."*

It is our belief that it is impossible to predict returns on individual securities and it is also impossible to predict the performance on pools of securities (entire asset classes) over very short periods of time. Our goal with CME is to have a basis for setting rational return expectations on a long term basis for globally diversified portfolios. When developing a long term investment strategy it is wise to study market history. Doing so helps us to understand where investment returns come from and what patterns of behavior we might expect from the market in the future. Entering into an investment with little understanding of what is driving returns and the risk inherent in that investment is a mistake commonly made by individual investors (I think back to my days working at Charles Schwab and the dominance of technology stocks in many self directed individual's portfolios at the peak). Thus, it is logical to examine the historical behavior of broad asset classes to form a basis for developing future returns.

Most academics agree that the accuracy of estimating market returns increases with time. This notion makes a lot of sense since the market has historically displayed a tendency to gravitate towards an average return over time (referred to as mean reversion). The longer your investment horizon the narrower the range of outcomes you should expect to see around that average. Figure 1 below demonstrates how the range of outcomes on the S&P 500 narrows around the long term average as the time horizon extends.

Figure 1

Standard & Poor's 500 Index Overlapping Returns Annualized
1926-2005



	1 Year	5 Year	10 Year	20 Year
Highest Return	53.97%	28.56%	20.06%	17.88%
Annualized Return	10.36%	10.36%	10.36%	10.36%
▪ Lowest Return	-43.35%	-12.47%	-0.89%	3.11%

In the table above we see a 97.32% range of returns in the one year outcomes, with the highest one year return being 53.97% and the lowest being -43.35%. This range should make it clear why predicting returns over one year periods of time is an exercise in futility.

Examination of Historical Returns

Because of the mean reversion phenomenon mentioned above, the first step we take in building expectations is an examination of historical returns. If we have enough historical data (typically we want 30 years or more) for an asset class we can get a sense of the average return the asset class might gravitate towards and its expected volatility. We also examine the correlation to the other asset classes (we presented a correlation table in last quarter's letter). With historical information, along with our forward estimates, we have a basis for making rational decisions on how to blend asset classes into a complete portfolio. Figure 2 below illustrates historical returns and standard deviations (a measure of risk) for most of the asset classes being used in your portfolio as represented by indexes.

Figure 2

Summary Statistics - Annual Data

January 1927-December 2006

Asset Class Index	From 1927		From 1970	
	Annualized Returns	Std. Dev.	Annualized Returns	Std. Dev.
US Large Blend *(S&P 500 Index)*	10.41	20.20	11.23	16.80
US Large Value *(Fama/French US Large Value Index (ex utilities))*	11.54	26.32	13.69	18.34
US Small Blend *(Fama/French US Small Neutral Research Index)*	13.94	28.89	15.65	20.83
US Small Value *(Fama/French US Small Value Index (ex utilities))*	14.51	34.51	16.09	24.28
US Microcap Blend *(CRSP Deciles 9-10 Index)*	13.04	39.43	12.36	26.69
One-Month US Treasury Bills	3.72	3.12	5.99	2.89
Five-Year US Treasury Notes	5.28	5.68	8.16	6.61
International Large Blend *(MSCI EAFE Index (net div.))*			10.85	21.83
International Small Blend *(Dimensional International Small Cap Index)*			16.95	29.27
International Small Value *(Dimensional International Small Cap Value Index)*				
International Large Value *(Fama/French International Value Index)*				
Commodities *(Goldman Sachs Commodity Index Total Return)*				
1-3Yr. Treasury Index *(Merrill Lynch US Treasury Index 1-3 Years)*				
US Total Bond Market *(Lehman Brothers Aggregate Bond Index)*				
US Real Estate *(Dow Jones Wilshire REIT Index)*				
Emerging Mkts. Large Blend *(MSCI Emerging Mkts. Index (gross div.))*				
Emerging Mkts. Large Value *(Fama/French Emerging Mkts. Value Index)*				
Emerging Mkts. Small Blend *(Fama/French Emerging Mkts. Small Cap Index)*				
Global Real Estate *(FTSE EPRA/NAREIT GLOBAL REIT Index in USD)*				

Figure 2

Summary Statistics - Annual Data
Continued

Asset Class Index	*From 1982*		*From 1990*	
	Annualized Returns	*Std. Dev.*	*Annualized Returns*	*Std. Dev.*
US Large Blend *(S&P 500 Index)*	13.37	15.54	10.85	17.35
US Large Value *(Fama/French US Large Value Index (ex utilities))*	13.82	17.88	10.57	20.09
US Small Blend *(Fama/French US Small Neutral Research Index)*	17.27	17.44	16.29	18.33
US Small Value *(Fama/French US Small Value Index (ex utilities))*	17.04	22.78	16.20	24.89
US Microcap Blend *(CRSP Deciles 9-10 Index)*	13.11	23.70	14.40	26.00
One-Month US Treasury Bills	5.33	2.51	4.14	1.81
Five-Year US Treasury Notes	8.76	7.43	6.70	6.06
International Large Blend *(MSCI EAFE Index (net div.))*	11.80	22.56	5.94	19.29
International Small Blend *(Dimensional International Small Cap Index)*	14.50	25.39	6.96	23.14
International Small Value *(Dimensional International Small Cap Value Index)*	17.82	26.54	10.16	23.91
International Large Value *(Fama/French International Value Index)*	17.18	24.29	11.86	23.73
Commodities *(Goldman Sachs Commodity Index Total Return)*	9.46	22.14	6.63	25.43
1-3Yr. Treasury Index *(Merrill Lynch US Treasury Index 1-3 Years)*	7.42	4.72	5.66	3.41
US Total Bond Market *(Lehman Brothers Aggregate Bond Index)*	9.48	7.62	7.18	5.48
US Real Estate *(Dow Jones Wilshire REIT Index)*	13.38	16.16	13.21	17.99
Emerging Mkts. Large Blend *(MSCI Emerging Mkts. Index (gross div.))*			11.51	33.12
Emerging Mkts. Large Value *(Fama/French Emerging Mkts. Value Index)*			16.90	37.78
Emerging Mkts. Small Blend *(Fama/French Emerging Mkts. Small Cap Index)*			12.42	33.94
Global Real Estate *(FTSE EPRA/NAREIT GLOBAL REIT Index in USD)*			10.68	25.14

Figure 2 above covers the time period from 1927 through the end of 2006. However, because several asset classes did not exist in 1927, we added new starting years as indexes became available to track. The returns of added asset classes are tracked along with all other pre-existing classes. For example, the first international index became available in 1970; the table shows the addition of the two international indexes along with the pre-existing US indexes from 1970 through 2006.

Return Variances Explained by Size and Style

Since we are examining historical returns, it is worth mentioning that there is a historical precedent of small company stocks and value stocks outperforming large company stocks and growth oriented stocks. This size and style bias exists across geographic lines, occurring inside and outside of the United States. See Figure 3 below for an illustration of this size and style effect.

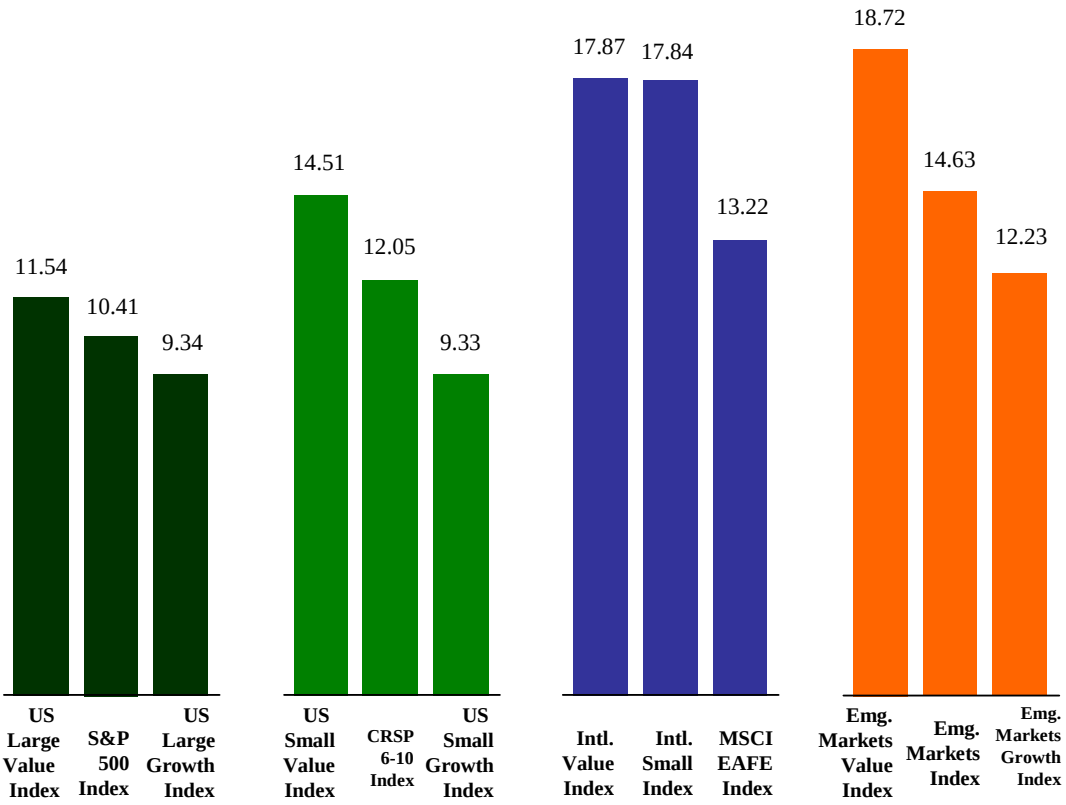
We will reserve a detailed discussion on this occurrence and the research that explains it for a different letter. Suffice it to say that you will not see your portfolio tilted (weighted) toward

growth stocks due to their poor historical returns. Although, our portfolios do include growth, growth stocks are present in the indices which include the word "Blend" in the description as shown in Figure 2. Blend funds by nature of their construction typically have a larger tilt toward growth than value. Over long periods of time odds are in favor of value stocks outperforming growth stocks, we offset the growth bias inherent in blend funds by tilting our portfolios to value. Including value equities provides the opportunity to add return over broad market indices. Value tilting presents a type of risk referred to as "benchmarking risk" (this is the risk that your portfolio does not closely follow broad market indices, especially over short periods of time) so we tilt to value with this in mind.

Figure 3

Size and Value Effects Around the World

Annual Index Data



	US Large Capitalization Stocks 1927-2006			US Small Capitalization Stocks 1927-2006			Non-US Developed Markets Stocks 1975-2006			Emerging Markets Stocks 1989-2006		
Annual Average Return (%)	14.83	12.35	11.51	19.60	16.27	14.26	19.92	20.76	15.09	23.79	18.82	16.25
Annual Standard Deviation (%)	26.32	20.20	21.53	34.51	30.85	34.11	22.54	27.05	21.04	37.44	32.84	31.59

Equity Returns

In order to estimate future equity returns you need to be able to explain where past returns came from. John Maynard Keynes who was one of the most influential economists of the twentieth century divided returns among two sources, investment and speculation:

I. **Investment**: this is a function of estimating and pricing the prospective yield of an asset over its projected life. We break this into two components collectively referred to as the fundamental sources of return, these are:
   1.) The beginning dividend yield.
   2.) The growth rate of earnings.

II. **Speculation**: This source of return comes from the market forecasting future prospects and is best seen through the expansion or contraction of price to earnings ratios (PE ratios).

The sources of return can be subdivided further and a complicated discussion of the variables behind these sources of return takes place frequently in the investment journals and academia. We will stay focused on a simple model and a description of how it works. To demonstrate this we are borrowing a table from John Bogle's book. Mr. Bogle broke the market into ten year time periods to demonstrate how the components of return mentioned above do a good job of explaining returns over longer periods of time. Take note of how small the differences are between the calculated return for each time period and the actual resulting return.

Figure 4

10-Year Nominal Stock Market
1927-1997

Periods		1	2		3	1+2+3		
Start 1-Jan	End 31-Dec	Initial Yield	10-Year AEG*	Closing P/E Ratio**	P/E Effect***	Calculated Return	Actual Return	Difference
1927	1936	5.10%	-1.9%	16.8	4.5%	7.7%	7.8%	-0.1%
1930	1939	4.5	-5.7	13.9	0.4	-0.8	-0.1	-0.7
1940	1949	5	9.9	7.2	-6.3	8.6	9.2	-0.6
1950	1959	6.8	3.9	17.7	9.4	20.1	19.4	+0.7
1960	1969	3.1	5.5	15.9	-1.0	7.6	7.8	-0.2
1970	1979	3.4	9.9	7.3	-7.6	5.7	5.9	-0.2
1980	1989	5.2	4.4	15.5	7.8	17.4	17.5	-0.1
1990	1997	3.1	7.3	24.1	5.7	16.1	16.6	-0.5
Average		4.5%	4.2%	14.8	1.6%	10.3%	10.5%	-0.2%

Note: Data based on Standard & Poor's Composite Stock Price Index.
**Average earnings growth.*
***Initial price-earnings ratio: 10.9 times.*

Let's look at the first ten year period in Figure 4 above (Jan 1927 to Dec. 1936). The initial dividend yield for the S&P index was 5.10% and thus contributed 5.10% to returns. The average earnings growth (which was negative) resulted in a reduction of returns equal to 1.9% per year. The expansion of the P/E ratio resulted in a contribution to total return of 4.5% per year (the starting P/E ratio was 10.9 and the ending P/E ratio was 16.8). Adding all three of the return components together we get a calculated return of 7.7% which is very close to the 7.8% that actually occurred. Figure 4 shows that the process has worked well in explaining where equity returns come from.

Forward Estimates

Having a model that explains where equity returns come from is the easy part, using it to determine future returns is the tricky part. As we mentioned above in the considerations section of this letter, making these projections in advance is very difficult and it will not be precise a great deal of the time. The initial dividend yield is a known quantity at the beginning of our investment period. The rate of earnings growth has been relatively predictable within ranges but is by no means known in advance. The change in the P/E ratio has been a very speculative variable that can have a large impact on the resulting returns.

Dividend Yield

When estimating equity returns in the future we know what the dividend yield is at the start. Currently the dividend yield on the S&P 500 index is near 1.7%. This is much lower than the 4.5% average (of ten year periods) listed in Bogle's table above.

Earnings Growth

We need to make an estimate for earnings growth to calculate the second source of the fundamental return. It is impossible to predict exactly what earnings growth will be over the next ten years, the best we can do is use history as a guide and look at reasonable estimates. Historically, corporate earnings have been closely tied to GDP growth making up about 8% of GDP for the last 50 years. We are using a 3% real (adjusted for inflation) GDP growth figure for the next 10 years. Using an estimated inflation rate of 2.5% (the current inflation rate implied by the market using the yield difference between inflation protected treasuries and standard treasuries) would bring the nominal earnings growth rate to around 5.50%. In our view, a 5.5% nominal earnings growth rate is reasonably conservative as an estimate for the next ten years. This estimate is closer to the long-term earnings growth rate than the higher earnings growth rates experienced in more recent times.

P/E Ratio Changes

The market re-prices itself frequently through an adjustment of how much it will pay for a dollar of earnings. This change in market attitude is apparent in the P/E ratio. The P/E ratio is simply the price of the market per share divided by the amount of earnings the market generates per share. In times of extreme optimism about future prospects P/E ratios expand and during times of pessimism about future prospects P/E ratios compress. This part of the return is subject to the short term irrationality markets experience. The movement of P/E ratios can explain a lot of the short term volatility that occurs in the market since over the long run the fundamental components of return dominate. The average historical price to earnings multiple for the market

is equal to about 15.94 (1926-2006). The P/E ratio on the S&P 500 closed as low as 6.64 in 1948 and reached a historic high of 46.5 in 2001.

For insight into how much the change in P/E ratios can affect ten year returns of the stock market look at Figure 4 again and specifically the two decades covering the 1970's and the 1980's. Heading into 1970's the P/E was near its long term average sitting at 15.9 but closed the decade at 7.3. This compression of the P/E ratio subtracted an average of 7.6% per year from the market return. During the 1980's the P/E expanded to close the decade at 15.5, This expansion of the P/E added an average of 7.8% per year.

P/E ratios have demonstrated the same tendency to revert to a long term average as market returns have. Knowing this we can keep perspective when market valuations go to extremes. Yale professor Robert Schiller studied the validity of using P/E ratios to guide market return expectations over ten year time frames. He concluded that there is a statistically significant relationship between the starting P/E ratio and subsequent ten year returns. We did our own study and came up with a positive correlation as well.

The approach we take is to assume that the P/E will gravitate towards its long term average over our projected ten year period. For example, the P/E ratio for the DFA Large Company Fund (this fund tracks the S&P 500) on May 31, 2007 was 17.44. If the P/E ratio contracts to the long term average of 15.94 we would expect a reduction in returns approximating .9% per year. When John Bogle tested this approach he found that it worked very well 1/3rd of the time, reasonably well 1/3rd of the time and not well at all 1/3rd of the time (again, showing it is impossible to be accurate all the time). In our opinion it is wiser to make an assumption that is based on a reversion to the long term average then to estimate what the P/E ratio will be based on speculation of future market attitudes (which is what most market timers do whether they realize it or not). We also feel it wise to examine a number of scenarios rather than one estimate.

Tying it all together

Let's examine some possible return scenarios for the S&P 500 using our calculations to account for the fundamental and speculative sources of returns. Figure 5 below shows our base assumption highlighted in the middle with lower return scenarios on the left and higher return scenarios on the right. The top part of the table holds P/E ratios constant and varies the resulting earnings growth rates. The bottom portion of the table holds earnings growth constant and varies the ending P/E ratio. This should give you an idea how the two unknown variables (earnings growth and the ending P/E ratio) can affect the return outcome over the next decade.

For example, if we look at the top portion of the table and assume that earnings will grow at 7.5% per year instead of 5.5%, the S&P 500 return goes up by 2% to average 8.3% per year. If earnings stay constant at 5.5% but the P/E ratio expands to 24, the return increases by 4.14% resulting in an annual return of 10.44% per year. Now, if we combine 7.5% earnings growth with an ending P/E of 24 the total annual return equals 12.44% per year (this is not in the table but can be deduced by adding the return differences from varying earnings and ending P/E's). It is clear to see how small differences can have a large effect on the resulting return.

Figure 5

Return Composition Table
May 2007 – May 2017

With Varying Growth Rates							
Initial Dividend Yield	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%
10 Year AEG	2.50%	3.50%	4.50%	**5.50%**	6.50%	7.50%	8.50%
P/E Effect (Ending P/E constant =15.94)	-0.90%	-0.90%	-0.90%	-0.90%	-0.90%	-0.90%	-0.90%
Total Calculated Annual Return	**3.30%**	**4.30%**	**5.30%**	**6.30%**	**7.30%**	**8.30%**	**9.30%**
With Different Ending P/E Ratios							
Initial Dividend Yield	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%
10 Year AEG	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%
Ending P/E Ratio	4.00	8.00	12.00	**15.94**	20.00	24.00	28.00
P/E Effect	-13.69%	-7.50%	-3.67%	-0.90%	1.38%	3.24%	4.85%
Total Calculated Annual Return	**-6.49%**	**-0.30%**	**3.53%**	**6.30%**	**8.58%**	**10.44%**	**12.05%**

Note: Beginning P/E = 17.44

Bond Market Return Estimate

Projecting the returns on fixed income instruments is a much simpler process. Here again, John Bogle's explanation is appealing to us because of its simplicity and because of the historical accuracy in projecting bond returns. The approach is to use the initial interest rate on the ten year treasury at the start of a given decade as your return estimate. Bogle found that doing so provided projections that resulted in a positive (+.93) correlation to resulting returns. Remember from our last letter that a positive correlation of (+1) is a perfect correlation. Figure 6 below was reprinted from Bogle's book and shows how this model has worked historically.

Figure 6

10-Year Nominal Bond Market Returns
Long-Term U.S. Government Bonds (1927-1997)

Period				
Start 1-Jan.	**End 31-Dec.**	**Initial Yield**	**Actual Return**	**Difference**
1927	1936	3.5%	4.9%	-1.4%
1930	1939	3.4%	4.9%	-1.5%
1940	1949	2.3%	3.2%	-0.9%
1950	1959	2.1%	-0.1%	2.2%
1960	1969	4.5%	1.4%	3.1%
1970	1979	6.9%	5.5%	1.4%
1980	1989	10.1%	12.6%	-2.5%
1990	1997	8.2%	9.9%	-1.7%
Average		**5.1%**	**5.3%**	**-0.2%**

Note: Yield at end of 1997 was 5.9 percent

Current Projection

The current yield for the ten year treasury bond is 5.04% and thus is the best estimate going forward. That being said, if interest rates change then the rate available to reinvest the interest payments received changes. A change in the "reinvestment rate" will have an effect on the ultimate return achieved over the next decade. The reinvestment rate effect is impossible to predict in advance and within reasonable ranges does not drastically change the projected return.

Conclusion

Setting capital market expectations is a difficult but valuable exercise. While predicting future market returns with precision is impossible, the process of reviewing the sources of return over the past and applying them to the future using rational estimates can provide reasonable ranges of returns. The returns should be projected over a minimum of ten years and the longer the better. Using reasonably conservative estimates we came up with a projected return on the S&P 500 of 6.3%. We estimated growth for earnings at 5.5% which is closer to the long term average. However, S&P 500 earnings have grown about 9% per year over the last 20 years, and 7.27% over the last 30 years. Thus it is possible that future earnings growth exceeds our estimate and in turn will come higher returns. It is also possible that they grow at a lower rate, which is why we use these estimates as a check for extremes and not a precise basis.

Given an estimated return of 6.3% for the S&P 500 and 5.04% for the ten year treasury, we have an equity premium of 1.26% per year over the next ten years. This means that using conservative estimates the equity market is still priced in a way that it should reward investors with a return premium over risk free bonds.

While we only projected the returns on the S&P 500 for purposes of illustration, it is important to recognize that this piece of the market represents about 20% of our equity allocation. The other 80% invested in equities is spread out among the other asset classes listed in Figure 2 at the beginning of this letter. We know that historically other equity asset classes such as small companies and value companies have afforded a return premium over the S&P 500. Therefore, we expect that the projected equity return on our portfolio should exceed that of the S&P 500.

Next quarter the topic of investment selection will be addressed, in addition we will begin to discuss investor psychology and how it affects behavior in capital markets.

Sincerely,

The Empirical Wealth Management Team
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Chief Executive Officer