TOWNELEY CAPITAL MANAGEMENT, INC.
EQUITY MARKETS RESEARCH BRIEF

Are Equity Markets Currently Overvalued?

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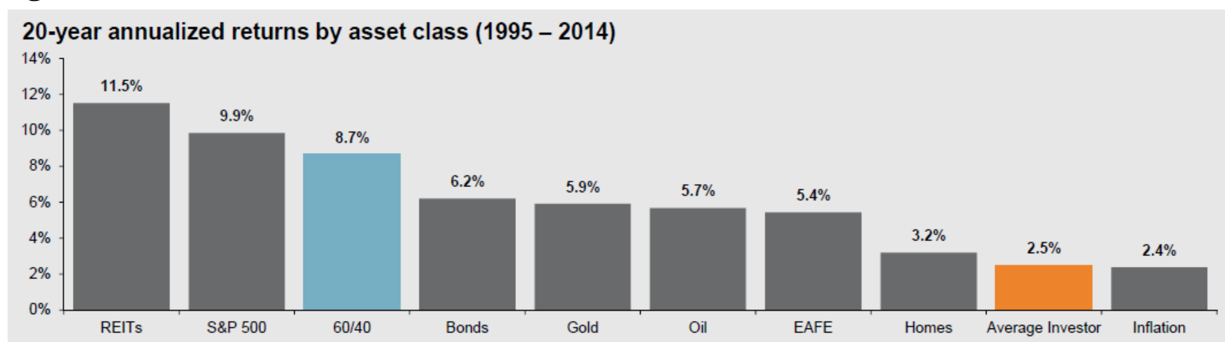
The Behavior of Typical Investors

Investors everywhere want to buy low and sell high, but it's a difficult feat. Investment advisors bring value by applying the results of extensive research to the factors influencing market changes. In this brief, we focus on the CAPE ratio, a useful tool in assessing market values.

Figure 1 below is a bar chart taken from J.P. Morgan's 4Q 2014 market guide. The graph shows the weak returns an average investor has realized over the period 1995 to 2014. The data come from Dalbar Inc. which, since 1984, has tracked investor behavior and published the results. Their study, *The Quantitative Analysis of Investor Behavior*, measures the effects of investor decisions to buy, sell and switch into and out of mutual funds. The average investor, according to Dalbar Inc., earned just 2.5% per year in the past 20 years; this return was smaller than that of eight asset classes and just barely kept ahead of inflation. The average investor lagged the S&P 500 Index by 7.4% per year over the same period.

Figure 1



Understanding the Stock Market

The core of investing is understanding the market. Charles Dow, a legendary figure in the history of investing, invented the Dow Jones Industrial Average in the 1890s and came up with a series of principles to understand market movements and its behavior.

To know values is to know the meaning of the market.
—Charles Dow

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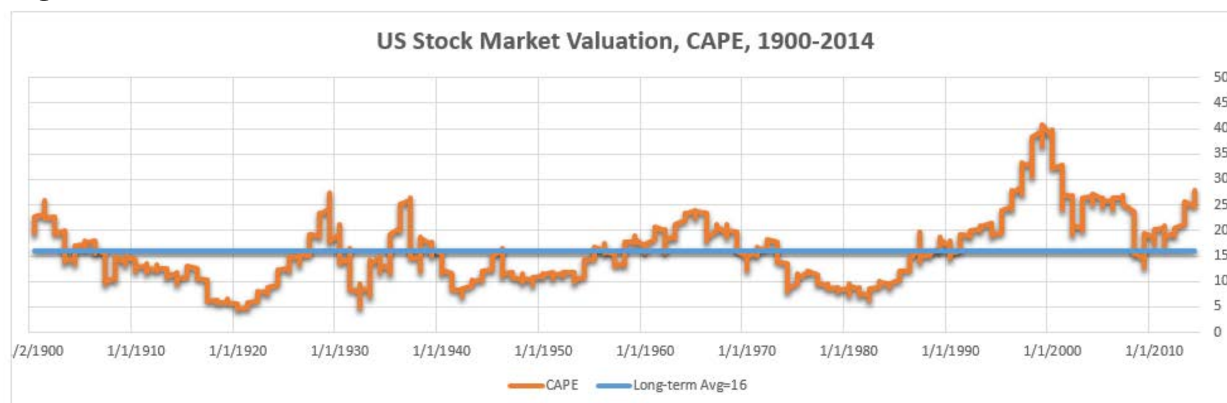
Market highs and lows aren't always meaningful, but the market's essence lies in values. Benjamin Graham, the founder of value investing back in the 1920s, discovered this secret long ago; he argued that successful investing is like buying a stock "… as if groceries were on sale." To judge whether a stock was cheap or expensive, he developed a method based on corporate earnings. He averaged a company's earnings over five years to smooth out year-to-year volatility. He then related the average earnings to stock prices. These ratios, called price-to-earnings (P/E), are not only less noisy but also tend to move up and down within boundaries. The low and high points, according to Graham's research, suggest the time when a stock may be relatively cheap or expensive and frame a stock cycle, defining stock prices as they move from low to high and back again.

Mr. Graham's groundbreaking work was further advanced by Robert Shiller, a Yale professor, in his 1998 paper *Valuation Ratios and the Long-Run Stock Market Outlook*. He revised Benjamin Graham's valuation measure and adapted it to the S&P 500 index. His measure is also called the **cyclically-adjusted price-to-earnings (CAPE) ratio**, which is the stock index price divided by the average of 10 years of earnings, both adjusted for inflation.

Figure 2, the price/10-year averaged earnings, shows the data points seldom went above 25 or fell below 5, suggesting that fundamental measures, such as earnings, are the essence of market value and 10-year averaged market earnings illustrate the true earning power of the market. The CAPE ratio seen in Figure 2 also moves up and down to cross the long-term average from time to time, exhibiting mean reversion.

Figure 2



The exciting discovery of the CAPE ratio spurred research to determine its uses beyond estimating the highs and lows of stock prices. Professor Shiller produced a scatter plot that exhibited an inverse relationship between future 10-year *real* stock returns and their CAPE ratios (see Figure 3). This graph also concludes that the CAPE ratio has the ability to assess prospective equity returns over the long run, perhaps 10 years or longer. If CAPE ratios are divided into five groups (see Figure 4), a powerful and persuasive statement emerges: higher average CAPE ratios suggest lower average future long-term returns.

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Figure 3

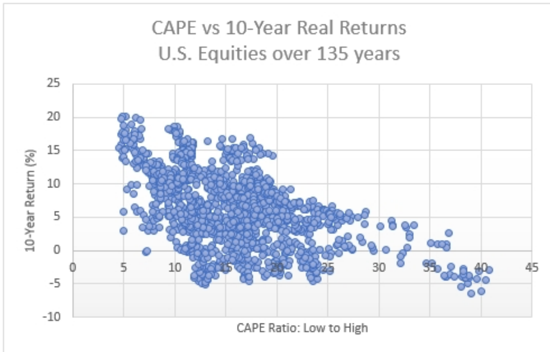
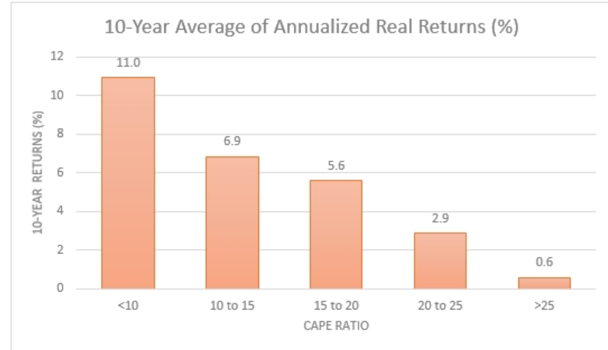


Figure 4



History Says

Professor Shiller used this finding in 1999 to successfully predict the dot-com bubble. Over the past 10 years, his CAPE ratios, also named *Shiller's P/E*, have been widely used to judge the level of market prices compared to average earnings-derived values.

His approach also applies to foreign markets. Figures 5 and 6 below, based on a 25-year history of world equities, show an inverse relationship similar to that found in U.S. markets, even though total return is charted instead of the real return data.

Figure 5

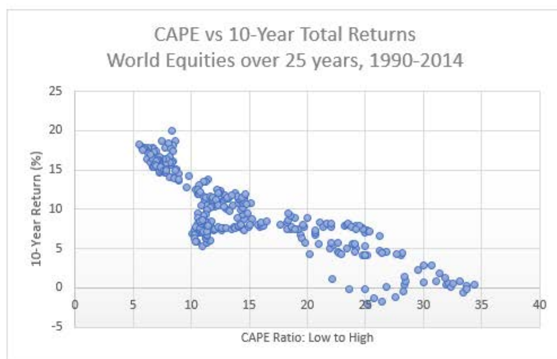
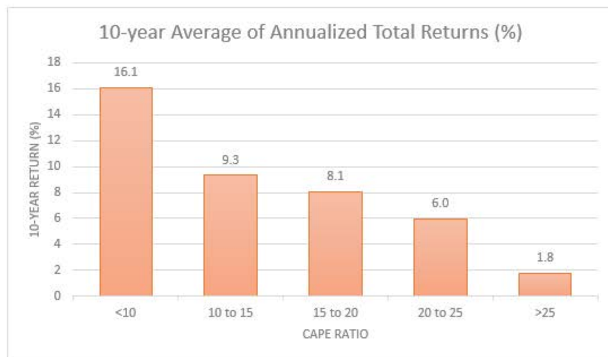


Figure 6



We can also use a similar scheme to assess markets such as World Equities x/U.S., Europe, Japan, the UK, and Canada. Once again we arrive at the same conclusion (see Figure 7): the higher the CAPE ratio, the lower the future long-term returns.

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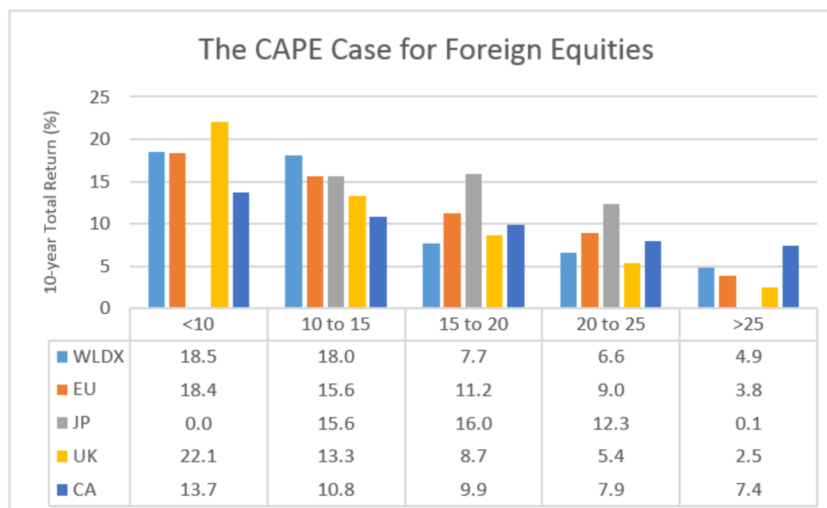
Figure 7



	<10	10 to 15	15 to 20	20 to 25	>25
WLDX	18.5	18.0	7.7	6.6	4.9
EU	18.4	15.6	11.2	9.0	3.8
JP	0.0	15.6	16.0	12.3	0.1
UK	22.1	13.3	8.7	5.4	2.5
CA	13.7	10.8	9.9	7.9	7.4

If overvalued, what now? Diversification works.

Since February 2014, CAPE ratios exceeded 25, but stock market prices, as we know, kept setting new records. Many claimed *this time is different*. Really? The craft of investing is hard on investors who hope to precisely predict when a raging bear will overcome a stock market bull.

As of May 31, 2015, the CAPE ratio of the S&P 500 Index was 27, standing at the 93rd percentile of all available data points since 1890. The current U.S. valuations are at historical extremes. In over a century of U.S. stock market history, CAPEs went to such extremes only three times: 1929, 1997-2000, and 2007-8. When the stock market reaches such valuation extremes the future returns are typically below normal. At the current level, the CAPE ratio suggests that low returns over the next 10 years, perhaps below 1% in real terms, are likely.

Those who cannot remember the past are condemned to repeat it.
—George Santayana

Is there a viable solution to avoid market crashes or prolonged slumps? One possibility is to reduce exposure to expensive markets, such as the U.S. market, and invest more in other cheaper markets.

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Figure 8

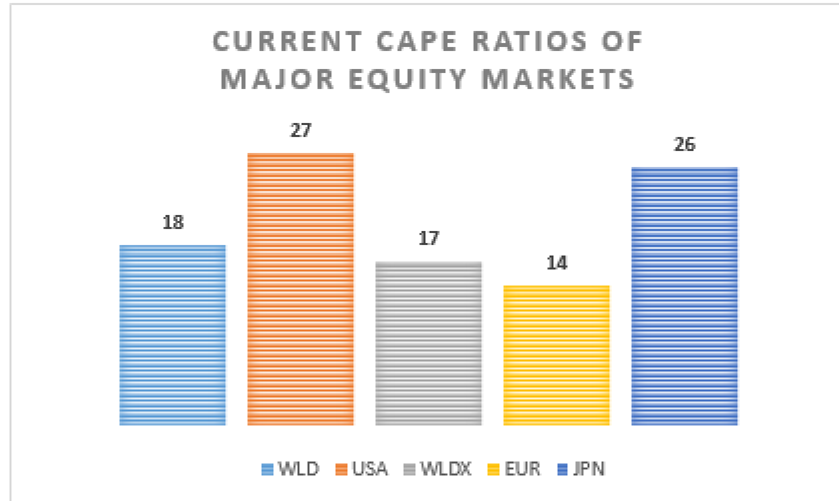

Figure 8 shows the CAPE Ratios for five major stock markets: the World, USA, the World x USA, Europe and Japan. As of May 31, 2015, the U.S. and Japanese stocks were expensive while European equities were much cheaper. The investment risk is reduced if the European market is added into an equity portfolio while reducing the exposure in both U.S. and Japanese markets. In light of this and other research findings, we have increased international equities in our clients' portfolios.

Ongoing, thorough research and disciplined adherence to our time-tested investment philosophy are at the heart of Towneley's portfolio management decisions. Our clients depend on us for our steadfast stewardship of their investment portfolios.