

Market Valuation & Expected Returns

Smart investors, just like any buyer, should care about price. This article discusses a few methods that some successful investors use to determine whether the overall market is expensive or not. Using these metrics at the beginning of 2013, the market is somewhat overpriced by historical standards. Furthermore, if we invert the problem, we see that investors that buy and hold the market at these price levels should expect low annualized returns over the next decade.

The Importance of Price The gain or loss that you can expect from any investment depends on the price that you originally pay. Everyone knows: "Buy Low, Sell High." If you buy at a "good" price (*i.e.*, substantially below the true value), you should expect to make money on the investment over the long term; buying at a "bad" (*i.e.*, high) price means you might regret the purchase. For an individual investment like real estate, gold, or stock in a company, the ultimate question for the buyer is whether the price is good or not.

*"Price is what you pay, value is what you get."
— Warren Buffet*

For a stock, the true value derives from all the cash that will eventually flow to the stockholder. In most cases this is essentially impossible to know since it requires absolute knowledge of an uncertain future, but an investor can make an estimate by building a well-informed financial model of the company. The investor also accounts for one other complication: future payments are worth less to the investor than cash received today, so the true value is equal to the sum of all the *discounted* future cash flows.

It is worth noting that the estimate of true value doesn't have to be correct to be useful. It serves as a benchmark to inform a purchasing decision. Depending on the investor's perception of the type and size of the uncertainties in the estimate, he or she will demand a greater or lesser margin of safety in deciding to purchase (or sell) the stock.

Since a full financial model of a company is difficult, many investors decisions about price versus value are guided by rules of thumb where they compare simple ratios for a company to historical norms, *e.g.*, Price/Sales. This method can be useful, but it usually ignores important details.

Stock Market Valuation It also makes sense to think about the price of "the market" compared to its true value. This answers a direct question about a potential investment since mutual funds and ETFs can serve as a proxy for the market. More importantly, comparing the current price of the market to its true underlying value could provide information about the expected long-term future trend of the market and, more specifically, the influence that the market could be expected to exert on

individual stocks in that market since “a rising tide lifts all boats.”

“Investors making purchases in an overheated market need to recognize that it may often take an extended period for the value of even an outstanding company to catch up with the price they paid.”
— Warren Buffett

Calculating the true value of the market is a very difficult problem, so sophisticated investors use carefully chosen rules of thumb to guide them as to whether the market price is good or not. These rules of thumb are most useful in providing insight as to the long-term returns

that can be expected if the investor buys into the market now and holds the investment for a long time, say ten or more years.

Regardless of how analysts come to a conclusion about price versus value for the market, the language used is confusing. If the price of the market is deemed to be too high (*i.e.*, it costs too much), the market is said to have a high valuation or is over-valued and the investor can expect low returns when pursuing a simple buy-and-hold strategy. If the price of the market is considered to be low (*i.e.*, it can be bought for a good price), the market is said to have a low valuation or is under-valued, and a buy-and-hold strategy for the long term can be expected to yield a good outcome

Long-Term Metrics

Most rules of thumb for market valuation use a ratio of two quantities: the numerator is related to the current price of the market, and the denominator is related to the earnings or revenues of the companies in the market. (The denominator is chosen to be somehow related to the true value of the market.) These two types of quantities have very different time scales. Price really can fluctuate minute-by-minute because of the emotional nature of markets. In contrast, the underlying value of the companies that make up the market doesn't change quickly. This is important because some pundits choose rules-of-thumb for market valuation where the denominator, the proxy for the underlying value of the market, is susceptible to short term fluctuations. For instance, a common choice is the earnings of all the companies in the market over the last 12 months. That number is interesting, but when the economy is in turmoil, those short-term earnings numbers can vary much more than what should be expected over the long-term. All of the valuation metrics discussed here attempt to minimize sensitivity to short term fluctuations in corporate earnings.¹

Shiller Method of Market Valuation Robert Shiller popularized the Shiller P/E: the inflation adjusted price of the S&P 500 divided by the prior 10-year mean of inflation adjusted earnings of all companies in the index. By using the 10-year mean, this measure reduces sensitivity to the short-term market cycles that can distort earnings numbers.

In the year 2000 in his book, *Irrational Exuberance*², Shiller concluded that the U.S. stock market was in a bubble by examining the returns that investors experienced in the two decades after implementing a buy-and-hold strategy at every level of the Shiller P/E since the late 19th century. (Shiller was also the most well-known economist saying that the U.S. was in a housing bubble before the credit crisis occurred.) Figure 1 shows that data updated through the end of 2012.³ Superimposed on the plot is the Shiller P/E of 22.2 at the beginning of 2013. The prognosis is not good for the buy-and-hold in-

vestor. While there have been a few occasions in the past when buying-and-holding the market at a Shiller P/E of around 22 has yielded a robust long-term return of 7%, the chart shows that the investor is likely to experience low returns. Over the full data sample, for Shiller P/E between 20 and 24, the mean 10 year annualized real return was 2.7. Increasing the time-horizon to twenty years, the mean annualized real return for the market was marginally worse at 2.4%.⁴

Had investors quantified their decisions and considered more carefully this type of long-term data on stock market returns, perhaps more would have moved assets into long-term government bonds that were yielding nearly 7% in year 2000. Instead, most believed "this time it's different," and continued to buy into a strongly over-priced market and experienced the subsequent declines that Shiller warned about.

¹www.hussmanfunds.com/wmc/wmc050222.htm

²*Irrational Exuberance*, Robert J. Shiller, Princeton University Press (2000).

³Source: irrationalexuberance.com/shiller_downloads/ie_data.xls

⁴For an excellent article discussing the merits of the Shiller P/E analysis and its application to current events, see “An Old Friend: The Stock Market’s Shiller P/E”, Clifford S. Asness, AQR Capital Management, November 2012.

Buffet Method of Market Valuation According to Warren Buffet, the market value of all publicly traded securities as a percentage of the country's business is probably the best single measure of market valuation at any given moment.⁵ This is the ratio of the Total U.S. Market Capitalization to the U.S. Gross National Product: (TMC/GNP). The Total Market Capitalization represents the price to purchase all of the publicly traded domestic companies; this is the price of the market. The Gross National Product is the final value of all production by the U.S. in one year. Thus TMC/GNP can be thought of as a type of price to sales ratio of the U.S. Economy. (GNP is larger than the more commonly quoted Gross Domestic Product (GDP) by only about 1%, but GNP is a more logical measure for this since it accounts for business by U.S. companies and citizens in foreign countries. Since the difference between GDP and GNP is small, GDP is often used in the calculation.)

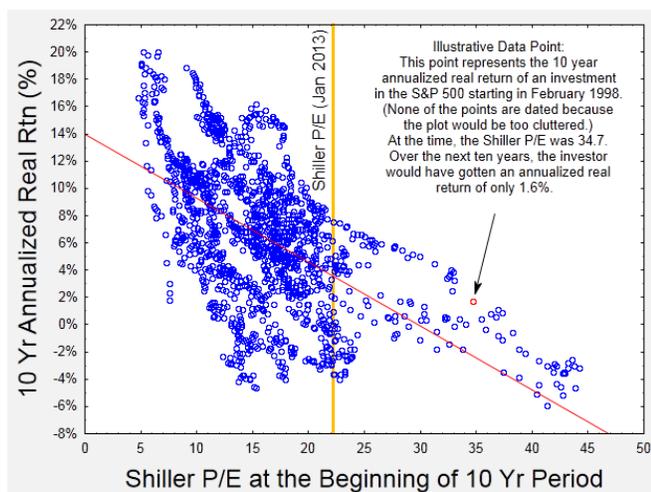


Figure 1: Scatterplot of annualized real returns (adjusted for inflation) experienced by an investor who held the market for 10 years (incl. dividend reinvestment) starting with the given Shiller P/E. (1881-2003) Each of the 1466 points in the plot shows the Shiller P/E for each month from 1881-2003 along with the annualized real return an investor would have obtained had they bought the S&P 500 and held it (including dividend reinvestment) for the subsequent ten years. Data ends in January 2003 because that is the last month for which 10 years of returns have occurred.

Buffet's thinking is simple: it is impossible for long-term investors in the U.S. stock market to gain wealth at a rate faster than the long-term growth of U.S. business. There can of course be short-term deviations during bubbles or crashes, but over the long term, GNP growth governs growth of the value of the companies in the econ-

omy. Like Shiller above, Buffet used his measure to support his view that the U.S. was experiencing a market bubble in the late 1990s.

Figure 2 shows TMC/GNP generated by Jacobi using the Federal Reserve data graphing tool, but there are a variety of online sources that track this indicator.⁶ With a value of around 100% at the beginning of 2013, Buffet's metric indicates that the market is moderately overpriced, but the data provides a warning: the TMC/GNP ratio has only reached this level twice since before the Great Depression (the internet bubble and just before the credit crisis), and both occasions were followed by serious market corrections.



Figure 2: The U.S. Total Market Cap divided by Gross National Product, 1952-2012. Source: St. Louis FRED (Federal Reserve Economic Data)

Valuation as a Tool for Investing At the beginning of 2013, using stable historical measures, it appears that the market is expensive. Nevertheless, it is certainly true that no one can predict future market returns, and none of the people who originally authored the various measures discussed here claim to have a crystal ball. The market may go up from this level, or the market may go down. In fact, history offers two recent examples of markets priced higher than this market, and even to have reached the current level, investors had to purchase at already inflated prices.

What is certainly true is that if the market does go up from the current level, it is highly likely to decline later, erasing most if not all of the interim gains. Of course there are pundits who argue otherwise, but to believe them, you also have to believe that, "This time it's different." These pundits usually claim short-term metrics (involving, for example, forward looking earnings) as support for their thesis, but it seems much more likely that their metric is inappropriate rather than that the world of

⁵Loomis, C. (2001, Dec 10). Warren Buffet on the Stock Market, *Fortune*

⁶www.gurufocus.com/stock-market-valuations.php updates the number daily.

investing has fundamentally changed.

“Historically speaking, advances that emerge from low valuations have typically been “permanent” in the sense that they are not erased by later market declines.”

— John Hussman^a

^awww.hussmanfunds.com/wmc/wmc050222.htm

So what is an investor to do? One answer is to use market valuation as the only guide for investing: buy only when market prices are low and sell when market prices are high. Figure 3 shows a comparison of the return of a passive buy-and-hold strategy in the S&P 500 versus a valuation-based strategy: buy the S&P 500 when Shiller P/E valuation falls below 14 and transfer the money to T-Bills when the Shiller P/E rises above 18. (The values weren’t optimized; they were chosen based on the fact that the mean and median were 16.5 and 15.9, respectively, from 1881 to the present.⁷)

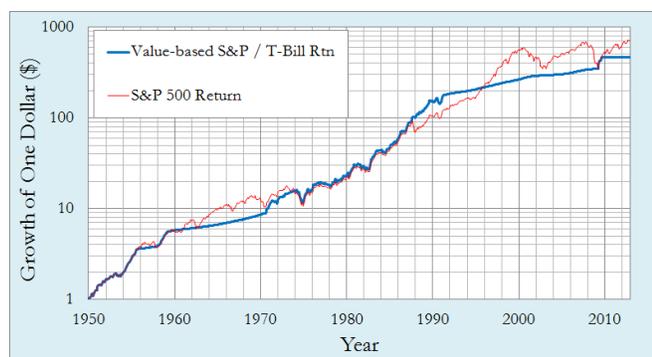


Figure 3: Cumulative returns (plotted on a logarithmic scale) since 1950 of a simple buy-and-hold the S&P 500 strategy compared to a valuation-based strategy of holding the S&P 500 or T-Bills depending on the level of the Shiller P/E.

In one respect, the valuation strategy performed well. Over the past 60 years, the two strategies would have delivered comparable cumulative returns, but the valuation-based strategy offered lower volatility and would have helped the investor to avoid the dramatic losses after the internet bubble and during the credit crisis. However, the strategy has one fundamental problem that is evident when the cumulative returns are plotted on a linear scale as shown in Figure 4. The valuation strategy completely missed the dramatic market gains in the late-1990s and mid-2000s. It is true that those gains were subsequently almost completely erased, but it takes an iron will to hold T-bills while your friends talk about

the massive gains they make week after week by being fully invested in the market. More important than the emotional discipline required to implement a pure market valuation strategy is the simple fact that an investor can do better if they can stay in the market longer when prices are rising.

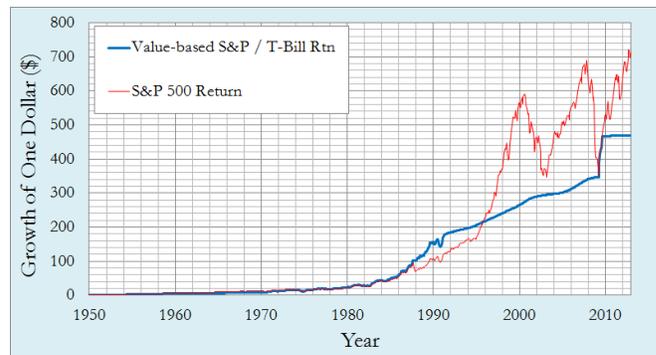


Figure 4: Cumulative returns (plotted on a linear scale) since 1950 of a simple buy-and-hold the S&P 500 strategy compared to a valuation-based strategy of holding the S&P 500 or T-Bills depending on the level of the Shiller P/E. Note the shortfall the valuation-based strategy experienced relative to the simple S&P 500 strategy in the late-1990s and mid-2000s.

The problem is that markets are driven by more than just simple valuation. Some of these drivers, like monetary policy, are straightforward: when the central bank drives interest rates down, companies tend to borrow more and investors tend to invest in equities (since fixed income investment yields fall). Both effects tend to drive stock prices higher. Some drivers are more complex. Market prices are determined by the actions of people, and people are affected by emotions like fear and greed. When everyone sees the market rising, greed helps overwhelm quantitative analysis, and markets can continue to rise far into bubble territory. When markets fall in a crisis, fear leads investors to shy away from investing at exactly the moment when investments are attractive. Understanding and tracking these other drivers are critical to the overall success of an investment program.

To the investor, market valuation should be something like blood pressure for a doctor. The doctor uses blood pressure measurements to determine a patient’s long term risk of developing a wide range of health problems. As blood pressure increases, risk increases; and doctors will recommend increasing levels of intervention to reduce it. Still, blood pressure doesn’t really say much about what might happen to the patient tomorrow or next month except at extreme levels. Furthermore, if people let blood pressure rule their lives all the time to the

⁷Source: irrationalexhuberance.com/shiller_downloads/ie_data.xls

exclusion of all other medical information, they would miss out on many of the good things in life since having fun often leads to a temporary increase in blood pressure!

No doctor would complain if a runner experienced moderately high blood pressure during a race if all other physical conditions suggest good health. Similarly, opportunities can exist to make money by investing in a market that is moderately overpriced if a broad array of other factors support the investment. The important point is that to generate good returns and control risk, market valuation must be part of a multi-disciplinary investment philosophy that also involves quantifying eco-

nomics issues like monetary policy as well as the market dynamics driven by investor behavior.

One thing is clear in January 2013: like in the period leading up to the late-1990s and mid-2000s, the market is getting moderately expensive, and market conditions are turbulent. It is not a time for implementing a passive buy-and-hold market strategy. Unfortunately, the traditional safe haven during times of market risk, long term government bonds, have yields approaching zero. There is no simple strategy that promises attractive long-term returns for the passive investor at the beginning of 2013.

Invert. Always invert. Jacobi Capital Management was named after Carl Jacobi, a 19th century German mathematician famous for the maxim, "Invert, always invert," which captured his belief in the value of inverting difficult problems to gain insight. Generally, investment professionals use valuation information to inform investment decisions – a worthy goal. However, history teaches us that it is worth looking at the picture from the other direction: what does the data tell us about what returns are reasonable to expect in the future.

Warren Buffett did that at least twice in a very public way, first in 1979 and then again in 1999. In August 1979, Buffett wrote a commentary for *Forbes* where he decried the counter-productive investor emotions inherent at the time.⁸ (It's hard to appreciate the negative investor sentiment present at the time, but we can get a glimpse by noting that a *Business Week* cover story from that same month was entitled "The Death of Equities." The *Business Week* article described how individuals, institutions, and pension funds were all running from stocks and quoted investment professionals as to why they should stay away.⁹) In his article Buffett was cautious not to say when the market would improve, but he argued that at the then-current market price in 1979, the market could be expected to return 13% annualized over the next twenty years. Using Shiller's data from above, we calculate that the market actually returned an annualized nominal return of nearly 18%, or a real return (after inflation) of about 13% over the twenty year time period. It was the start of greatest bull market in U.S. history, but almost no one believed it at the time.

Then, in 1999, almost exactly twenty years after the first article on market valuation, Buffett coauthored an article in *Forbes* where he concluded that the then-current market investor should expect roughly 4% annualized real return for the market over the next 17 years.¹⁰ So far, 13 years have passed, and a buy-and-hold investor in the S&P 500 starting in November 1999 has earned only 2.6% nominal annual return since then and approximately 0% real annualized return (after inflation) – even worse than Buffett predicted. It was the start of a period of terrible returns, but almost no one heeded the warning signs. Like the last time, investment professionals had the tools to look at expected future returns, but instead they pedaled what people wanted – the idea of easy money.

So what do we see when we invert our problem of using valuation as a tool for investing and instead look at what we should expect from the market in the future? We see that market valuation is most powerful when used as a predictor of long-term returns.

Currently, the market is poised to return a meager 2% to 4% annualized over the next decade. While a variety of pundits are suggesting easy money, citing the returns since 2009, historical evidence suggests that passive investors in the market are in for a difficult decade.¹¹

⁸www.forbes.com/2008/11/08/buffett-forbes-article-markets-cx_pm-1107stocks.html

⁹www.businessweek.com/stories/1979-08-13/the-death-of-equitiesbusinessweek-business-news-stock-market-and-financial-advice

¹⁰money.cnn.com/magazines/fortune/fortune_archive/1999/11/22/269071/

¹¹Rather than redoing the calculations, we note that GuruFocus.com provides calculations of long-term market returns using the methods from Shiller and Buffett along with other similar methods. At the beginning of 2013, the various estimates at GuruFocus suggested that the market is poised to return only 2% to 4% annualized over the next decade. (www.gurufocus.com/news/203809/market-valuations-and-expected-returns-jan-2-2013)

Conclusion Market valuation reveals how expensive the market is and provides an indication of expected returns over the long-term, the next 10 to 20 years. Even for investors focused on individual stocks as opposed to diversified portfolios, it is still important to consider the market's price level, since market movement has a strong influence on the price of individual securities in that market.

Nevertheless, the market's valuation is only one important factor for the prudent investor. The information on valuation can help protect investors from being caught in the market frenzy associated with bubbles, but by itself the information is useful only for investors with the will

to heed the quantitative data as opposed to the emotional frenzy associated with market bubbles. As a single indicator, it is a convenient tool for the investor to compare long term expected returns from the market with expected returns from other asset classes, most especially long-term bonds.

As a tool for investing, valuation data is most useful when used as part of a multi-disciplinary investment approach for the intermediate-term and long-term time horizons where it serves to inform the investor about the fundamental risks in participating at the market price level.

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