

Valuations, Inflation and Real Returns

An Interview With Robert Shiller

Article Highlights

- A 10-year history needs to be looked at in order to really get a sense of whether stocks are cheap or expensive.
- Most people, even economists, view returns in nominal terms, rather than factoring in the impact of inflation, which reduces real returns.
- A feedback exists between earnings and the market, where a rise in one can contribute to an increase in the other.

Robert Shiller is the Sterling Professor of Economics at Yale University. He developed a cyclically adjusted price-earnings ratio, called the CAPE ratio. We spoke recently about his research on stock asset valuations and market bubbles.

—Charles Rotblut



Charles Rotblut (CR): *Can you explain what your CAPE ratio is and what it measures?*

Robert Shiller (RS): The basic idea is that you need some measure of value relative to fundamentals. You can't just look at price per share, which doesn't tell you how something is over- or undervalued, but price relative to something. It seems to me that earnings is the natural candidate to compare price with. But the problem with earnings as it is used is that people tend to use lagging one-year earnings or projected earnings for the next year. One year is just too short of a time period because earnings are volatile and they jump around. In particular, the business cycle affects earnings. When we are in a recession, earnings tend to be low, for instance. So, I don't think we should overreact to short-term fluctuations in earnings.

CAPE is called cyclically adjusted price-earnings ratio, and it is cyclically adjusted in the sense that we average the earnings over a longer interval of time. I have been using 10 years, which seems like a very long time for most finance people. People tend to think that something that happened 10 years ago is just so long ago that it is irrelevant. But, the conservative strategy argues that, no, it is not irrelevant and that companies last a long time. In order to really get a

sense of their value, you have to look at a 10-year history and that is what I have been doing. I work with a former student, who is now a Harvard professor, John Campbell. We found that real price divided by 10-year average of earnings does actually help predict the stock market.

The stock market is somewhat predictable, using data all the way back to 1881. It has held up for a long period of time. The CAPE ratio does not predict what is going to happen next year very well. It is for long-term investors. It predicts what will happen over the next five or 10 years. In other words, when prices are high relative to 10-year average earnings, then that suggests that prices will come down, but you don't know exactly when. You might have to wait five years or 10 years for them to come down. For patient, long-term investors, I think it makes sense to follow CAPE as an indicator of value.

CR: *What is the CAPE right now?*

RS: It reached 23.3 on May 7, the day that the Dow first broke 15,000, and that is high. [Figure 1 shows the CAPE over time from Shiller's website www.irrationalexuberance.com.]

CR: *What should a long-term investor looking at the number do? Should they hold off on stocks or lighten up on their allocations? What would you suggest?*

RS: You have to compare the alternatives. The problems now are that the main alternatives are not very good either. Long-term bond yields are near record lows, short-term interest rates are just about zero and the Treasury Inflation-Protected Securities (TIPS) are actually paying a negative yield

out 10 or 15 years, so the alternatives are not very good. Taking that into account, the stock market doesn't look so bad. I'm thinking that people should have something in stocks. You have to put your money somewhere, so although the CAPE ratio is high, it is not super high. In the year 2000, it was twice as high as it is now; I thought that was a bad signal, and I was right about that. We aren't getting such a bad signal now from CAPE, so I think it is still important to put something in the market.

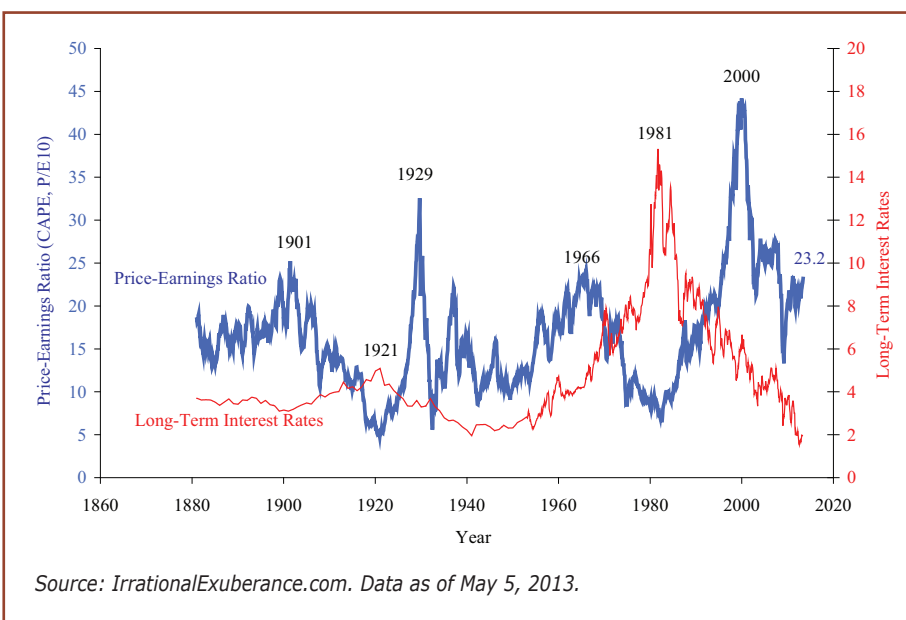
CR: *If we were in a more normal situation for interest rates and bonds looked more attractive for investors, should investors put less in stocks or pull out of stocks until the ratio goes down? Using the year 2000 as an example, what should an investor have done at that point?*

RS: In 2000, that's when my first edition of "Irrational Exuberance" (Princeton University Press) came out, I expressed strong worries about the stock market. So the smart thing to do would have been to pull out completely or almost completely in 2000. In fact, more aggressive investors may have shorted the market. Shorting the market is a more aggressive policy that most people won't do.

The question today is whether you want to short the bond market. And in a sense, I think you do want to short it. One thing is to buy a house and get a mortgage. Mortgage rates are so low now, so borrowing to buy a house is like shorting the bond market.

We live in a very unusual financial world right now. I find it so strange that the TIPS (Treasury Inflation-Protected Securities) yield is negative because that means that long term, 10 years, you can't make a riskless return at all in real (inflation-adjusted) terms. Nothing. Less than nothing. If you invest your money, and you want it to be riskless, you are guaranteed that you will lose money. Guaranteed. But then it becomes a problem of preservation. There isn't any safe way to store value and make money. If it is safe, it is losing money. If it is safe in real terms, it is losing money. And that's just the world we live in now.

Figure 1. Historical Stock Market Valuations, as Measured by the CAPE



CR: *Do you think investors grasp the concept of real returns and how their investments are faring relative to future changes in their purchasing power?*

RS: It is something that has been remarked for over a century. People, even economists, are not good at being consistent at correcting for inflation. I say even economists, professors of economics, would get very upset if their employer cut their pay in nominal terms, but not very upset if they don't raise it. But that's not really rational. If in an inflationary environment your pay isn't raised, you really have taken a pay cut in terms of buying power. But most people don't see it that way. They think in nominal terms rather than real terms, so it is very hard to correct. It affects people in strange ways. For example, one reason people think that housing has been a great investment is because, more often in housing than in other investments, they hear what an asset cost 20 or 30 years ago. Grandma is selling her house to move to a continuing care retirement community and someone points out that we sold her house for \$300,000, but she only paid \$30,000 for it 40 years ago. Wow, that looks really good. But, they don't reflect that the Consumer Price Index rose five-fold in the last 40 years, and so she got less

than 2% a year real return on that investment. So they have the impression that housing has been this wonderful investment, when it really hasn't.

CR: *When you look at inflation, what do you use as a measure?*

RS: I customarily use the CPI (U.S. Consumer Price Index). But right now there's a lot of talk about the chained CPI [which attempts to account for the effects of substitution when estimating price changes] and the Federal Reserve likes to use the personal consumption expenditure deflator, and these both give lower measures of inflation. This is what is being debated in Congress right now about redoing the indexing of Social Security with the chained CPI. They're not that different, however. The chained CPI tends to show an inflation rate of about 4/10ths of a percent less, so it is not a huge difference. If you're trying to get a general sense of investing, I don't think it matters which index you use. TIPS use the Consumer Price Index, not the chained Consumer Price Index.

CR: *One of the criticisms of the CAPE that I have heard is that over time accounting standards have changed, so earnings in the early 20th century are different than earnings now.*

RS: They are different. I believe

one difference going back to the 19th century is that companies more often expensed capital expenditures rather than depreciating them, so that gives a volatility and rockiness to their earnings numbers because it is more sensible to depreciate expenses. But for the purpose of using them in CAPE, that particular change doesn't matter a whole lot because we average over 10 years anyway. So, I don't think that is a big issue. There may have been differences in the way they did write-offs, I can't be sure they are entirely consistent.

But I have looked at earnings statements of firms from long ago, and from outward appearances they're basically the same. You have your revenue, your sales, your costs and your taxes—all that was the same. There is a broader problem in reading history that when you look at things from long ago, you have a problem putting yourself in their shoes and understanding their vocabulary and their thinking. But I don't think we should shy away from trying to read history, because we only learn from history. A hundred years ago is still relevant. This room we are sitting in for this interview here at Yale is from 1884 and we are still enjoying it. So I think 100 years ago is still relevant; that is one of my philosophical orientations.

CR: *Another criticism, particularly from people who are bullish, is that earnings from the last 10 years are depressed by the last two recessions.*

RS: We have also had a big boom too. One could go in and make adjustments. I'm not saying that someone should rely exclusively on CAPE as a measure. You can make adjustments. If you go back to Graham and Dodd in their 1934 book, "Security Analysis," which is a classic that apparently informed the judgments of many successful investors, they mention something like CAPE. And Benjamin Graham mentions other value indicators. What he tells you to do is to sit down and think about every company, using all available value measures.

I have a product with Barclays, which is called the Barclays ETN+

Shiller CAPE ETN (CAPE); it is traded on the New York Stock Exchange. It invests in U.S. sectors, according to the CAPE. It invests in low-CAPE sectors. It is an exchange-traded note, so it does not look at anything else. I don't think that should be the only thing one invests in. But because it goes into the low-CAPE sectors, it stands a good chance of outperforming the overall stock market. So, as a substitution, it seems to be sensible.

CR: *Can you explain the S&P/Case-Shiller Home Price Index, what it measures and how it is constructed?*

RS: I started working with Karl Case in the 1980s. It is kind of amazing what is not measured. In Europe, the governments are spending billions of dollars to try to measure the health of troubled countries [Portugal, Ireland, Italy, Greece and Spain], but they don't even measure home prices very well, or at least they didn't when we first started this. People didn't know. I went back looking at old newspapers and they would comment on home prices, but it would be impressionistic. They would quote some real estate broker and say, "Oh I think home prices went up maybe 5% last year," and that's all they had. They didn't have indexes.

Then they started to get median home values from the National Association of Realtors. These were the same people who had earlier published surveys of impressions by realtors of home prices. They just looked at median home prices, and medians are sometimes unreliable indicators.

We thought we could do a better job. So we produced the Case-Shiller Home Price Index, and now it is being run by Standard & Poor's and CoreLogic. What we wanted to do was get the price of an unchanging home, so it is a repeat-sales index; it looks at changes in prices of individual homes. What we discovered was that when you clear out all of the noise, home prices are very inertial. They tend to go in the same direction for years sometimes. It is different than the stock market. So, home prices are going up now and that suggests further price

increases based on our index, although I'm not so sure about that because of the economic situation we are in. They are going up now according to our measure and that suggests, based on history, they will continue to go up for a while.

CR: *Other than viewing it as a sign of the health of the economy, is there a way investors can use the index in terms of making investment decisions with their portfolios? Obviously, a house is a very illiquid asset with a lot of transaction costs.*

RS: Usually investment decisions are very difficult, and I think people would benefit from having an investment adviser to help them. I have no connection with financial advisers, but I do think people could use the help. Right now, for example, if you are thinking of buying a house, the main thing that comes to my mind is whether you want to accelerate the purchase. Say you're thinking of waiting a year and then buying a house: I think there might be reason to think that home prices will be higher in another year, so you might want to get in sooner. On the other hand, the inventory is low now. There isn't a lot of choice and selection. So if you rush into it you may buy a house that you don't really like. That probably is more important than any speculative game. Living in the wrong neighborhood could cost you for years and years. So one thing people are deciding is whether they should speed up the purchase or not.

Another decision people are making is should I buy or rent? That's an interesting question. If you think home prices are going to go up a lot, then you might want to buy and take those capital gains over years. I'm thinking that the argument that home prices are going to go up a lot over the next five, 10, 15 years is not very strong. It's more likely that the stock market will go up a lot. People should remember that when buying a house, you're committing yourself to maintaining this property and paying property taxes on it. It's only a hope that it will go up in price. And history suggests that it probably won't. If it is like history, it probably won't go up very much in real inflation-corrected terms.

So I'm thinking that buying a house is more of a consumption decision than an investment decision. You should buy it if you want it; if you would like living in a house and you want to settle down for a long time, then that's great.

The other thing about our economy right now is that interest rates are so low. Coming back to my earlier point, if you're deciding to buy now or wait a year, I kind of wonder if it wouldn't be better to do it now, other things being equal, and if you can find a house that you like, because you might get a lower mortgage rate now.

CR: In *"Irrational Exuberance,"* you talk about bubbles. Do you think when people approach a decision, whether it's to buy a house or a stock, that they think they are making a decision based upon maximizing profit when they are really instead acting more on emotion?

RS: The problem with investing well is that it takes attention and work. A lot of people don't want to do that; they don't want to give it the time and attention. Thinking back to the bubble in 2003: Home prices were going up fast, so it looked like a great idea to invest in houses because you could borrow at a 6% mortgage rate and home prices were going up 20% a year. It wasn't so much that people were irrational or stupid; they were looking at the obvious. Maybe they weren't thinking through all of the steps carefully or making historical comparisons, but people back then were saying, look, when home prices are going up 20% a year and I can borrow at 6%, it's a no-brainer to go in. Some of them were right about that.

But then there's the other side of it: You also had to get out at the right time. You had years to do that. This was in 2003 and the peak didn't come until 2005, so that's two years later and you could have still gotten out at a profit for several more years. Eventually, though, it catches up with you and home prices fall. And most people are not going to be that attentive, that's the problem. Business success tends to reward people who like business, who like to think about it and are willing to spend the time. If you're not, then maybe you don't want

to try to time the market. Just invest in a diversified portfolio.

CR: In your book, *"Finance and the Good Society"* (Princeton University Press, 2012), you made a comparison between bubbles and mental illnesses.

RS: There's an analogy that a speculative bubble is like an infectious disease: The excitement of one spreads to another often by word of mouth, but also through the news media. There's also a comparison to mental illnesses, where most mental illnesses also occur in mild form in normal people. For example, some people are addicted to gambling and they have ruined their lives—I'd call that a mental illness. But normal people can get a little bit addicted to gambling and that's not really abnormal, it's within normal range, but it can cloud their thinking when they're doing something, like deciding whether they should get in to a housing bubble. So, decisions aren't always made rationally. You're thinking, well, the housing bubble is going on right now, but I have to get out before it bursts so maybe I shouldn't get in. But when you're actually making the decision, the little devil inside you says, "Come on now, live life with gusto. Let's do it." That's a bit of a gambling spirit that influences judgment. It's not clear that a gambling spirit is a bad thing to have because it may encourage one to be entrepreneurial or to take calculated risks. But it can also have a bad side where it can bring you into speculative booms as well.

CR: Any suggestions to investors on how to avoid this behavior? I'm sure you have seen the fund flow data where it shows investors buying into funds when the market is going up and selling funds when the market is going down.

RS: You have to be aware of human psychology. It is good to read about psychology. Most people don't know about the certain anomalies that psychologists have discovered about human decision-making and they think of themselves as being more rational than they really are. Most people underestimate, I think, just how much they are influenced by hearsay and by others. It's hard to think

independently. You have to work at it.

CR: Do you view the markets as being efficient, or do you think they are more driven by behavioral errors or herd mentality?

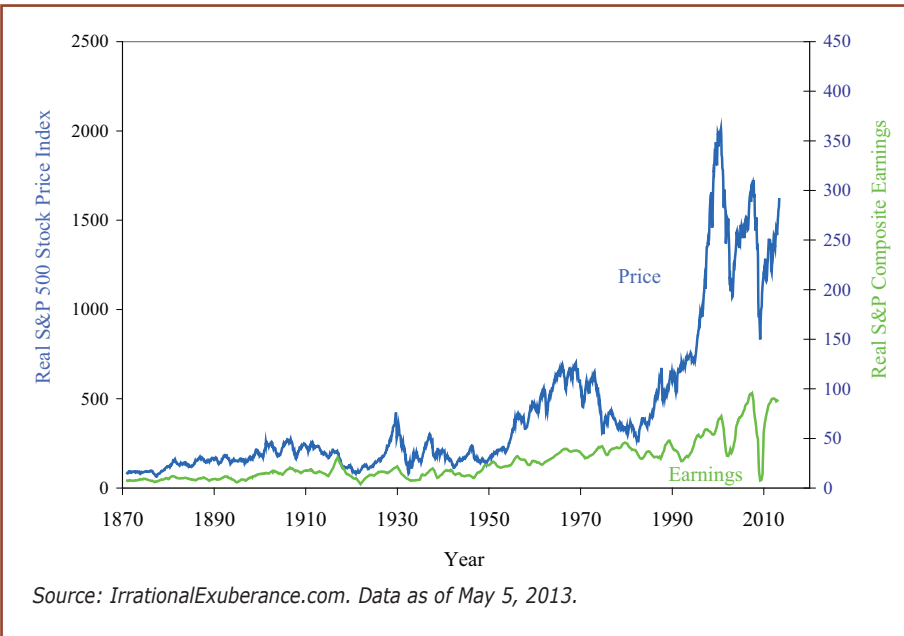
RS: I like to talk about this with my students and I have a free online course that anyone can take: Econ 252: Financial Markets (oyc.yale.edu/economics/econ-252-11). I tell my students that it is a half-truth. I like to start off with the good side of efficient markets theory, which is that markets are harder to beat than you ever thought. It always seems so easy, but it turns out that there are a lot of other very smart people you're competing against who are trading in markets. You have to recognize that skill and professionalism does confer an advantage—again why I think people need financial advisers. But then the dark side of efficient markets is that the theory doesn't recognize that there are bubbles and that there is craziness in markets and that it does take some kind of common sense to stay out of these and that there is something to be gained to be aware of speculative bubbles.

CR: Do you think analysts or investors have a hard time judging whether an asset is fully priced or overpriced?

RS: It is very hard. One problem is that there are so many different ways to look at any one investment. It's like the blind men and the elephant fable. Each blind man touched a different part of the elephant, and imagined that what he touched was something totally different. It's the same way with stocks. It is also possible for people to play tricks on you. It's easy to lie with statistics by quoting statistics in a biased way, even though all the statistics are accurate. People confuse themselves by looking at statistics and they get overconfident.

Overconfidence is an important thing that has been documented by psychologists. Most people think they're above average, when in fact only half the people are above average. In order to really succeed well in investing, you have to do better than just be above average. It's not just raw talent, you have to put work into it and be consistent. That is, if

Figure 2. S&P 500: Price Movement and Real Earnings



news comes in while you're on vacation, you drop your vacation. That's one of the costs of good investing.

CR: *What do you think drives stocks higher? In “Irrational Exuberance,” you talk about how people think it has to do with earnings or economic growth, but you say there is not an exact correlation.*

RS: Well, when you talk about aggregate earnings, they are driven by

irrational exuberance as well. It is driven by people's spending on the products that companies make. I show a plot of corporate earnings through history and a plot of stock prices and they do seem to match up somewhat [see Figure 2]. When earnings are growing, stock prices go up. So you might think that earnings are really driving the market, and in some sense they are. But in another sense, it is feeding back because the market is

driving earnings. When the market goes up, people spend more because they feel richer and are more optimistic, so earnings go up. So it is feedback both ways between stock prices and earnings. It is not that earnings are just driving things; they're not exogenous. It's part of a feedback between stock prices and earnings.

CR: *When they're analyzing the market, should investors look at a variety of indicators and piece together a story versus try to decide on one data point?*

RS: It depends on your interests. But I think it's reasonable for most people to conclude that they are not going to put enough time into this, especially to try to figure out the large-cap stocks that everyone is trading in because there are professional analysts following them and there are a lot of smart people you're competing against. So I think it's quite reasonable for someone to delegate authority by either getting an adviser who does it for them or simply diversifying broadly. The very simple way to diversify broadly is to invest in a market index. But those who are interested in thinking about investing can get somewhat of an edge. It's not a huge edge, not as big as you might wish, but it is enough to be worthwhile if you enjoy doing this kind of thing. ▲

Robert Shiller is the Sterling Professor of Economics at Yale University. He will give a keynote address at AAI's Investor Conference this fall in Orlando, Florida; go to www.aai.com/conference for details. Find out more about Shiller at www.aai.com/authors/robert-shiller. Charles Rotblut, CFA, is a vice president at AAI and editor of the AAI Journal. Find out more about Charles at www.aai.com/authors/charles-rotblut and follow him on Twitter at twitter.com/charlesrotblut.