The Implied Equity Risk Premium and Stock Market Bubbles

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The implied equity risk premium (IERP) and theories of stock market bubbles both offer explanations for the current elevated level of stock prices, but they are strange bedfellows. Here we explore the relation between the two, starting with the implied equity risk premium.

Estimates of the IERP depend on the model used and the assumptions employed. Here we use the general approach advocated by Prof. Aswath Damodaran and the Cornell Capital Group. This approach is presented in Table 1. The table calculates the IERP using the closing price of the S&P 500 on November 26, 2024 of 6022. At that time the yield on the 10-year Treasury bond, which is used as a proxy for the risk-free rate, was 4.30%. Earnings forecasts for the next three years, and the associated growth rates, were taken to be the analyst mean forecasts as reported by LSEG. Beyond year three earnings growth is assumed to decline linearly to a long-run rate of 4.00%. The 4.00% is based on an assumed 2.00% growth in the real economy and 2.00% inflation. This long-run growth rate is used to estimate the terminal value. Value is based on equity cash flows, not earnings, a fraction of which must be retained to finance future growth. Here we assume the equity cash flows, dividends plus buybacks, equal 75% of earnings. That estimate is consistent with the long-run growth rate of 4.00% given the return on equity for the S&P 500. Given these assumptions, the fundamental value of the index equals the present value of the equity cash flows, including the terminal value, discounted at the required return on equity. The Excel solver can then be used to calculate the discount rate that equates the fundamental value with the November 26 level of the index. That discount rate turns out to be 7.78%. The IERP is the difference between the discount rate and the risk-free rate or 3.48% as shown in Table 1. This compares with an average IERP since 2008 of about 5.5%.

Table 1

S&P 500 Intrinsic Value Estimator

Inputs	
Enter current level of index	6,022
Growth and Discount Rate Inputs	
Enter current I10-year Treasury rate =	4.30%
ERP used to compute fair value of index =	3.48%
Expected growth rate in the long term (after year 5) =	4.00%
Earnings Forecasts (Analyst Mean)	**Estimate**
Earnings in 2023 (Actual)	221.36
Earnings in 2024	246.57
Earnings in 2025	275.45
Earnings in 2026	302.27
Cash flows to shareholders as a percent of earnings?	75.00%
Date	11/27/2024

Intrinsic Value Estimate (based on your choice of ERP)

	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027	12/31/2028	*Terminal*
Expected Earnings	$221.36	$246.57	$275.45	$302.27	$325.93	$345.20	$359.01
Expected Earnings Growth Rate		11.39%	11.71%	9.74%	7.83%	5.91%	4.00%
Expected cash payout (dividends + buybacks) as % of earnir	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%
Expected Dividends + Buybacks =	$166.02	$184.93	$206.59	$226.71	$244.45	$258.90	269.26
Expected Terminal Value						$7,118.46	
Required Return on Stocks	7.78%	7.78%	7.78%	7.78%	7.78%	7.78%	7.78%
Time To Cash Flow		0.093	1.093	2.093	3.093	4.096	4.096
Present Value =		$17.11	$190.34	$193.79	$193.87	$5,427.34	
Intrinsic Value of Index =	6,022						

Notice that there is always going to be an IERP which rationalizes the current level of the market no matter how high. For instance, an IERP of 2% produces a fair value estimate of 9938 for the current market, a level not contemplated by even the most optimistic analysts. It is also important to recognize that the IERP produced by this procedure is a very long-run estimate. It is the average compound ERP that investors expect to earn into perpetuity. It is this long-run nature of the IERP that makes calculation of the fundamental value exceptionally sensitive to changes in the IERP, particularly when it is low. This sensitivity is why there is always some level of the IERP that can explain any level of market prices given analyst earnings forecasts. The effect works in reverse as well. For example, if the ERP is set equal to its average of 5.5% in Table 1, the estimated fundamental value falls to 3916, 35% below the closing market value of 6022 on November 26, 2024.

The IERP calculation says nothing about the time path of returns. One possibility is that future returns will approximate the IERP of 3.48% during most of the future years. However, it is also possible that returns will remain robust in the short run and then crash before jumping back to robust levels as happened in 2001. The IERP does not distinguish between such alternatives. It simply says that over the very long run the average future return should be on the order of 3.50%. There is no short-run IERP. The IERP is the solution to the long-run valuation equation equating market price of the S&P 500 index with fundamental value.

The IERP reflects the fact that high levels of stock prices relative to current earnings must predict either rapid growth rates in earnings or low discount rates (expected returns). Because the calculation in Table 1 pins long-run earnings growth to aggregate economic growth, the only way for there to be major increases in the estimated fundament value is for the discount rate to fall. For this reason, high equity prices always imply low future expected returns in the context of the IERP calculation.

In this respect, the IERP calculation is similar to estimates of the long-run expected returns based on valuation multiples such as those produced by Cornell, Cornell and Cornell (2024), Hussman (2024) and Arnott, Kalesnick and Maturzo (2018). Unless one is willing to assume an unprecedented level of earnings growth, exceptionally high valuation multiples imply lower long-run expected returns for the same reason that the IERP calculation does.

Bubble beliefs are different. As Lamont (2024) observes, ***The main idea of bubble beliefs is that many market participants believe that stock prices are too high but are willing to hold equity anyway***. Lamont cites as evidence a Yale survey which found that as of October 2024, 69.2% of respondents think that the market will go up even though 71.5% of the respondents think the market is overvalued. Bubble believers may accept the IERP view that long-run returns will be meager, but counter that the long run has yet to arrive. Until it does, it makes sense to keep buying highly priced stocks because bubble believers conclude that they will be more highly priced tomorrow.

The combination of bubble beliefs with acceptance of the long-run IERP implies the necessity of a correction. If short-run returns exceed the predictions of the IERP, but the long-run average return equals the IERP, then there must be a period during which returns

are below the predictions of the IERP. For it to make sense for bubble believers to continue to buy stock, they must believe that they can exit the market before the correction occurs.

In this regard, bubble beliefs harken back to the comment by Chuck Prince, the CEO of Citigroup, who said, ***As long as the music is playing, you've got to get up and dance.*** The problem is how do you know when the music stops playing? What type of downturn reveals that times have changed? Furthermore, if the signal is sufficient to identify a structural change in market conditions, won't all the dancers recognize it and sell, leading to a trapdoor drop in prices?

Given the difficulty in determining when the music has stopped, Warren Buffet's response to current market conditions has much to recommend it. If stock prices are sufficiently high that they exceed value estimates based on what Mr. Buffet believes is a sufficient ERP, then the best investment is the risk-free asset. It is no surprise, therefore, that Berkshire Hathaway has accumulated $325 billion in Treasury bills.

References

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