Historical Total Real Return Indexes

January 1802 – June 2018

Stocks: 6.7% Real
Bonds: 3.5% Real
Bills: 2.6% Real
Gold: 0.5% Real
Dollar: -1.4% Real

$1,372,018
$1599
$263
$3.09
$0.048

Past performance is not indicative of future results.

Source: Siegel, Jeremy, Stocks for the Long Run (2014). With Updates to 2018
Median PE over period = 17.07

Double Digit Interest Rates

You cannot invest directly in an index
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Definitions of S&P 500 Earnings

- **Firm Reported**: Most liberal, excludes asset impairments, severance costs, Cash plant closing costs, litigation expense, pension value changes, and stock option expenses; 2017 $133.12; Est. 2018 $162.79, Est. 2019 $179.32.

- **S&P Operating**: Excludes some asset impairments (except for financials) and severance costs; 2017 = $124.51 Est. 2018 = $157.79, Est. 2019. $177.00.

- **GAAP**: Mandates write-downs and asset impairments, whether sold or not; Does not permit “write-ups” unless asset sold. 2017= $109.88; Est. 2018 = $142.99; Est. 2019 = $163.51

- Warren Buffet, in 2017 Annual Report, said new mark-to-market rules make GAAP earnings, for analytical purposes, “useless.”
What do PE Ratios Mean for Returns?

- Earning Yield (E/P) is a good predictor of long-term real returns.
- Over past 140 years, P-E ratio averaged about 15, which corresponds to 1/15, or 6.7% E/P, or real return on stocks.
- With S&P at 2871 (Sep 7), stocks are selling for about 18 times 2018 and 16.1 times 2019 estimated operating earnings.
- A PE ratio of 18 forecasts a real return of 5.5% for stocks (or about 7.5% nominal return with 2% inflation). This is more than 4 ½ percentage points over Treasury bonds, a margin economists call the “equity risk premium.” This premium is also above the historical average of 3% to 3 ½%.
- 5.5% real returns comprised of 2% dividend, 3.5% real EPS growth (2.5% of which caused by buybacks).
- Warranted P-E ratio is higher than historical average because of virtually zero cost of indexing, allowing investors to receive far superior risk return trade-offs.

Source: S&P 1/18/18

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What is “warranted” Equity return?

- Indexed return over 19th and first half of 20th century 6.7% real.
- But few, if any investors were able to achieve that net of transactions costs (brokerage plus bid/ask spreads).
- Cost of maintaining cap-weighted portfolio likely 150 bps per year or more in earlier period, leaving a net real return of about 5%.
- Today cost of indexation is virtually zero. An 18 P-E ratio, leading to a 5.5% real return, can be regarded as the “new normal” equity return.
- Record low real interest rates, could push equilibrium P-E ratio even higher.
## Lower Payout Ratio = Higher EPS Growth

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Reported Real EPS Growth</th>
<th>Real Dividend Growth</th>
<th>Dividend Yield</th>
<th>Real Capital Gains</th>
<th>Real Stock Returns</th>
<th>Payout Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1871-2018</td>
<td>1.96%</td>
<td>1.56%</td>
<td>4.34%</td>
<td>2.36%</td>
<td>6.94%</td>
<td>61.5%</td>
</tr>
<tr>
<td>1871-1945</td>
<td>0.67%</td>
<td>0.74%</td>
<td>5.31%</td>
<td>1.32%</td>
<td>6.84%</td>
<td>70.8%</td>
</tr>
<tr>
<td>1946-2018</td>
<td>3.30%</td>
<td>2.42%</td>
<td>3.35%</td>
<td>3.44%</td>
<td>7.05%</td>
<td>51.5%</td>
</tr>
</tbody>
</table>
Shiller CAPE ratio

- In 1996, Robert Shiller, with John Campbell, both at Yale, devised a “Cyclically Adjusted P-E ratio” to judge valuation of the market.

- Shiller averaged past 10 years of (real) per share GAAP earnings on market index portfolio to compute his PE ratio.

- P-E ratio in August 2018 is about 32, based on GAAP earnings, nearly double the 140-year mean value of the series.

- CAPE methodology forecasts forward 10 year real returns on stocks of only 2.6%, about 40% of long-run average (but still more than bonds).
Shiller CAPE Ratio: Reported and Operating

Source: Siegel, “The Shiller CAPE Ratio: A New Look” May 2016, Updated
Shiller CAPE Ratio: Reported and Operating

Source: Siegel, “The Shiller CAPE Ratio: A New Look” May 2016, Updated
Real Per Share Reported Earnings

Log Earnings

Great Depression


Past performance is not indicative of future results.

Real Reported, Operating and NIPA Earnings

Reported
Operating
NIPA

Log Earnings

Great Depression


Past performance is not indicative of future results.

CAPE Ratio Relative to Long-term Mean Shiller Total Return Portfolio 1987-2018

Reported: 1.71
Operating: 1.53
NIPA: 1.36

Shiller CAPE Ratio: Forecast 3.5% real EPS growth

Forecast: 3.5% real EPS Growth

Mean = 17.5

23.8

21.5

CAPE consistent With 18 P-E ratio and 5.5% real equity return

The Shiller CAPE Ratio: A New Look

Jeremy J. Siegel

Robert Shiller’s cyclically adjusted price–earnings ratio, or CAPE ratio, has served as one of the best forecasting models for long-term future stock returns. But recent forecasts of future equity returns using the CAPE ratio may be over pessimistic because of changes in the computation of GAAP earnings (e.g., “mark-to-market” accounting) that are used in the Shiller CAPE model. When consistent earnings data, such as NIPA (national income and product account) after-tax corporate profits, are substituted for GAAP earnings, the forecasting ability of the CAPE model improves and forecasts of US equity returns increase significantly.