Forecasting Equity Returns Using the CAPE Ratio

July 2021 – **Robert J. Shiller, Laurence Black**

Introduction

Equity markets continued their post-COVID pandemic run with the S&P 500 PR Index up 14.4% year-to-date and up 8.2% this quarter. This is one of the strongest equity market performances and leaves the CAPE at one of its highest levels at just shy of 38; it has only been higher in the early 2000s. European markets followed US markets and were up 7.7%, with a year-to-date total of 12.2%. Japan diverged and was marginally down this quarter and up 1.5% for the year.

These strong market performances in the US and Europe have disguised some major factor rotations. For example, in the US, value was up 11.3% in Q1 while growth was up 2.3%. This flipped in Q2 with value up just 5% in Q2 and growth up 11.9%. With interest rates once again dropping, we do not advocate pulling out of equity markets; rather remaining constructively invested in less over-priced areas. As always, we recommend remaining diversified.

We use the CAPE ratio to identify cheap sectors and for context on fundamental valuations, the S&P 500 Value index has a dividend yield of 2.1% and a Price to Book ratio of 2.7. Contrast this with the S&P 500 Growth index that has a dividend yield of 0.7% and a Price to Book ratio of 9.6. The growth factor has benefited from speculative narratives such as stock memes and Robinhood. Expected behavioral changes from the COVID-19 pandemic such as the increased need for technology and the work from home narrative have bolstered growth stocks. Currently fundamentals seem to matter less; eventually this may change leading to market volatility, but the timing is uncertain on this.

In this report, we update our long-term 10-year annualized forecast for equity benchmarks in the United States, Europe, and Japan. We use the Cyclically Adjusted Price Earnings (CAPE) ratio[1] as the basis for our long-term forecasts. The CAPE is a long-term market valuation metric that averages 10 years of inflation-adjusted earnings. Averaging earnings over 10 years smooths out year-to-year fluctuations and provides an earnings estimate that should be, for most companies, a better measure of long-term fundamental value.

Q3 2021 Review

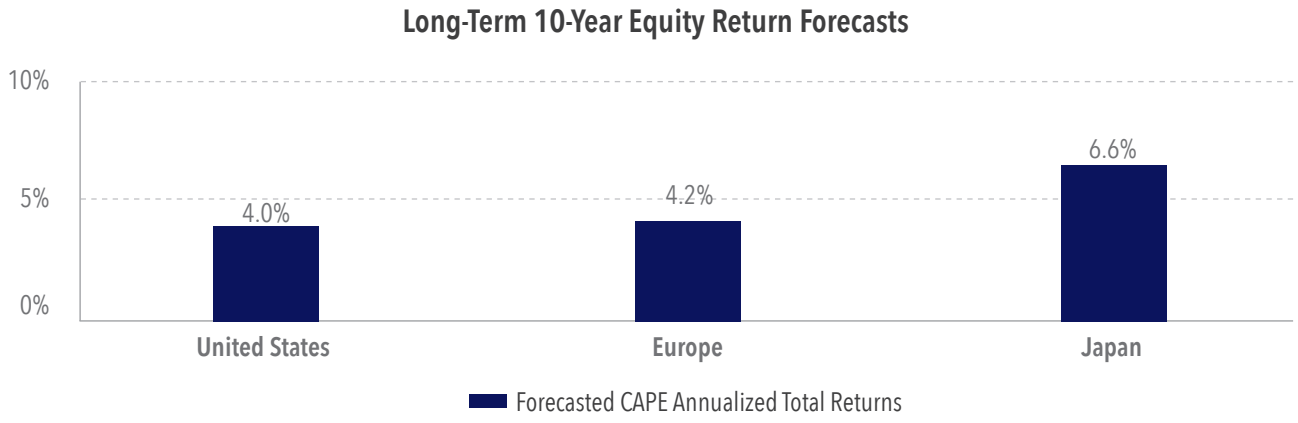
The CAPE ratio in the US is 38 as we noted above and was 35.2 at the end of the last quarter. The CAPE ratio for Europe is 24 (22.8 last quarter.) In Japan[2], the CAPE ratio is 23.8 (24.4 last quarter.) CAPE ratios are stretched; however these are somewhat justified by low interest rates and inflation figures.

Our metric, called the Excess CAPE Yield (ECY) that attempts to quantify the attractiveness of equities over bonds, has dropped from around 4.1% in the US at the beginning of the year to 3% currently, meaning that equities relative to bonds are now slightly less attractive. Overall equities are still more attractive than bonds, whose yields dropped in this quarter.

[1] The CAPE ratio was developed by Robert Shiller and John Campbell in the late 1980s for forecasting 10-year equity market returns. John Y. Campbell and Robert J. Shiller, "Stock Prices, Earnings and Expected Dividends," Journal of Finance, 43:3, 661-76, July 1988.
[2] Note our forecasts include the bubble period in Japan in the 1980's and this may overstate some of the numbers.
[3] The ECY is defined as the difference between the reciprocal (or the inverse) of CAPE – that is, 10-year average annual real earnings divided by real price – and the real long-term interest rate.

Key Findings: Our Forecasts based on the CAPE ratio

The graph below highlights our 10-year annualized nominal forecasts using the CAPE ratio for the three key regions. Japan has the highest expected annualized returns at 6.6%, the United States comes in at 4% and Europe at 4.2%. These are nominal returns and the equalization of expected returns between the United States and Europe is partly being driven by different inflation expectations. We use OECD inflation expectation numbers; the US inflation expectations are now higher at 2.5% vs Europe at 1.33%.



Source: Data Robert Shiller online data, MSCI and OECD.

A Note About Forecasting

These are long-term forecasts with a horizon of 10 years. These forecasts are intended to provide a framework and guide investors around strategic equity allocations. They are not intended for those seeking to time markets or obtain short- to medium-term forecasts, as short-term forecasts are unreliable. The forecasts are presented as nominal total annualized returns in local currencies and are presented as a guide only. The forecasts make no attempt to judge the impact of one of the kind transient factors like COVID-19, political changes, or monetary policy changes, not because these are not potentially important, but because we are not able to quantify them without guesswork.

United States – Forecasts Based on the S&P 500 Index

The CAPE ratio for the United States is 38 and the expected 10-year annualized nominal total return is 4%. Returns for the S&P 500 Price Return Index are expected to be 1.75%; here we subtract the average dividends over the last 10 years. Professor Shiller created a series of value-based indices with Barclays; namely the Shiller Barclays CAPE Family of Indices, which seek to identify undervalued sectors or stocks using the CAPE ratio. These indices aim to earn a long-term value premium. While past performance is not guaranteed, if an investor purchased a value-based index and held this for the long term, they may generate higher returns than forecast if the value factor performs.

UNITED STATES FORECAST RETURNS	EXPECTED RETURNS
Forecast Total Return	4.0%
Forecast Price Return	1.75%

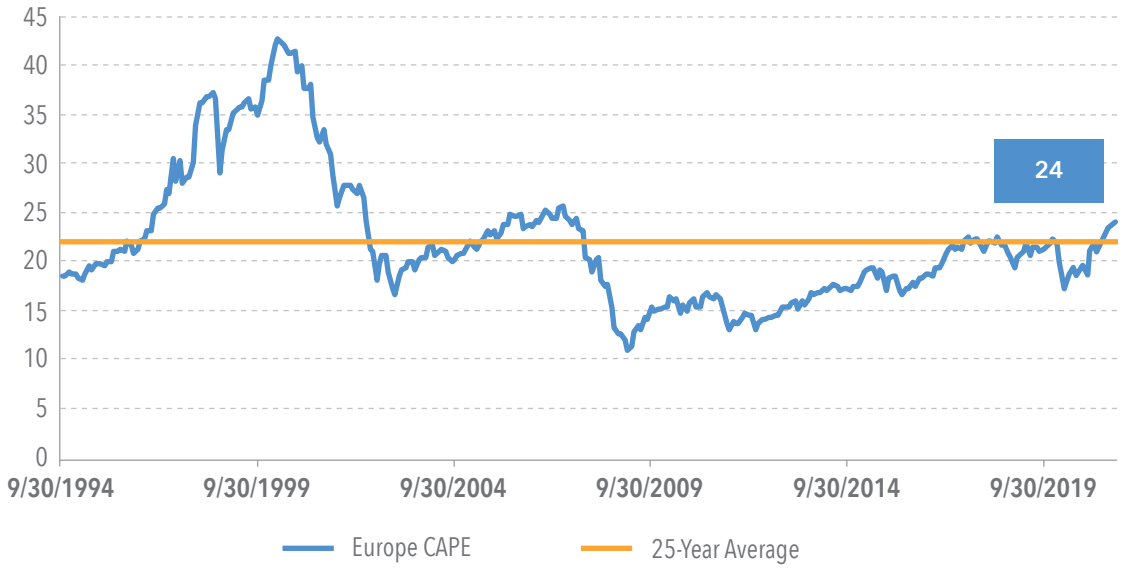
Historical CAPE ratio – United States:

Europe – Forecasts Based on the MSCI Europe Index

The CAPE ratio for Europe is 24 and the expected 10-year annualized nominal total return is 4.2% as of the end this quarter. Price returns for the MSCI European Price Return Index are forecast to be around 1.8%; when we subtract the historic dividend yield and assume this holds true for the next 10 years.

EUROPE FORECAST RETURNS	EXPECTED RETURNS
Forecast Total Return	4.2%
Forecast Price Return	1.8%

Historical CAPE ratio – Europe:



Japan – Forecasts Based on the MSCI Japan Index

The CAPE ratio for Japan is 23.8 and the expected 10-year annualized nominal total return with the CAPE ratio is 6.6%. Price returns for the MSCI Japan Price Return Index are forecast to be 4.6%; again we subtract the historic dividend yield and assume this holds for the next 10 years. Note our forecasts include the bubble period in Japan in the 1980s and this may overstate some of the numbers.

JAPAN FORECAST RETURNS	EXPECTED RETURNS
Forecast Total Return	6.6%
Forecast Price Return	4.6%

Historical CAPE ratio – Japan:

Approach to Forecasting

We outline our approach to forecasting in this section. First, we predict the expected returns based on the CAPE ratio, as developed by Robert Shiller and John Campbell in their paper, "Stock Prices, Earnings and Expected Dividends." To generate the forecast, we take the prevailing CAPE level and regress this against long-term data sets and project returns based on the line of best fit.

Professor Shiller noted that returns are influenced both by the CAPE and an estimated real long-term interest rate in the 3rd Edition of Irrational Exuberance. Given that interest rates are unusually low by historical standards, we also produce a third forecast of excess equity returns over bonds where we regress excess equity returns, the CAPE ratio, as well as the prevailing level of interest rates. Some commentary has noted that higher CAPE ratios may be justified by low rates. Given the low level of interest rates, this is an important facet to consider.

[5] Source: John Y. Campbell and Robert J. Shiller, "Stock Prices, Earnings and Expected Dividends," Journal of Finance, 43:3, 661-76, July 1988.