Quarterly Review and Outlook Using the CAPE Ratio

August 2023 – **Robert J. Shiller and Laurence Black**

Introduction

The first half of the year witnessed some unexpected developments in financial markets. Most of the talk centered on whether the U.S. would see a recession against the backdrop of three bank failures, and yet there was a surge in the technology sector driven by enthusiasm for AI and AI-related stocks. Investors poured a record amount of capital into the tech sector. Nvidia (NVDA) emerged as a leading AI company, with its stock price nearly tripling, market capitalization surpassing $1 trillion, and a PE exceeding 200.

Despite the volatility, equity returns have been positive. The U.S. experienced a standout rally, with the S&P 500 Index up over 8% in the quarter. Japan has come to life with a quarterly return of over 6% for the MSCI Japan, and Europe (the MSCI Europe Index) was essentially flat for the quarter.

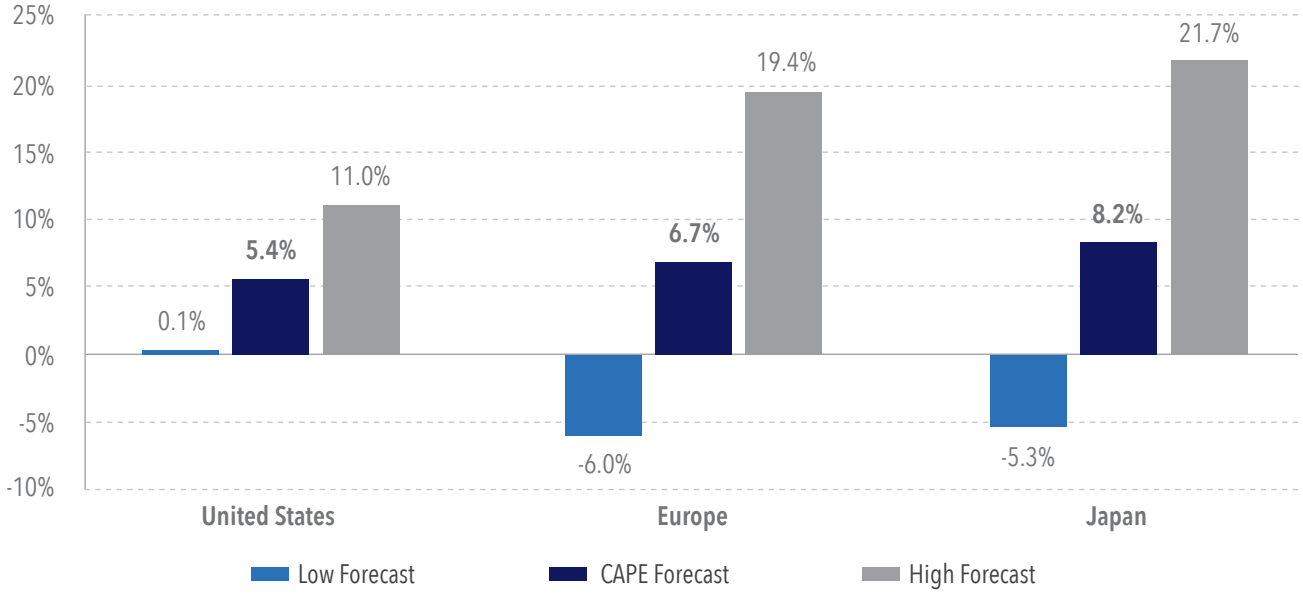
The path ahead remains uncertain for AI and whether it can deliver on expectation and a complex landscape of macro-economic and geo-political risks. We would not bet against American exceptionalism, but would be wary of the rally and be diversified across various regions.

Our final point in this quarterly update is the increasing belief that equity markets will rebound after any market shocks. We think that investors find solace in the belief that the Federal Reserve, the guardian of stability, will step in to support the markets when turbulence arises. It is a psychological reflex, born out of the 2007 global financial crisis and the conviction that the Fed possesses the power to cushion any significant blows. This expectation is not without merit, for history shows that the Fed has often acted as a stabilizing force in times of crisis, wielding its tools to inject liquidity and reassure investors. The belief in the Fed's ability to prevent market disruptions has become deeply ingrained in the investor psyche, leading many to view it as the ultimate backstop against tumultuous times. Yet, as we tread further into an uncertain future, it remains essential to recognize the limits of such expectations.

Key Findings: Our Forecasts Based on the CAPE Ratio

The graph below highlights our 10-year annualized nominal forecasts using the CAPE Ratio[1] for the three key regions. Japan has the highest expected annualized returns at 8.2%[2], Europe at 6.7% and the United States comes in at 5.4%. 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 trailing OECD historical inflation numbers and include the Q4 2024 expectation numbers, for the U.S. this is 2.7%, 2.3% for Europe and for Japan it is 1.1%. We show a range for a 95% confidence level indicating our uncertainty around these forecasts. We use conventional tools to forecast expected returns, however financial markets are very unpredictable, making forecasting an inherently difficult task. In addition, unforeseen events provide another layer of difficulty and can impact our forecasts in both a positive and a negative manner.

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



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

A Note About Forecasting

These are annualized long-term forecasts with a horizon of 10 years. These forecasts are intended to provide a framework to 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-a-kind transient factors like COVID-19, political changes or monetary policy changes, not because these are unimportant, but because we are not able to quantify them without guesswork. We also are showing ranges here (95% confidence levels) to give some indication of the uncertainty around our forecasts. The reader must bear in mind that confidence level intervals are hampered by fundamental epistemic uncertainty, which is unquantifiable. For example, some would argue that the upper bound for the 10-year annualized return for Japan in the preceding table is too high, based on their knowledge that the investors in Japan have learned their lesson from the 1980s-1990s and will not overprice markets that much again. It is impossible to be sure one way or the other whether this "knowledge" is correct, since it relies on human judgment about people's thinking.

[1] The CAPE Ratio was developed by Robert Shiller and John Campbell in the late 1980's 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 that our forecasts include the bubble period in Japan in the 1980s, and this may overstate some of the numbers.

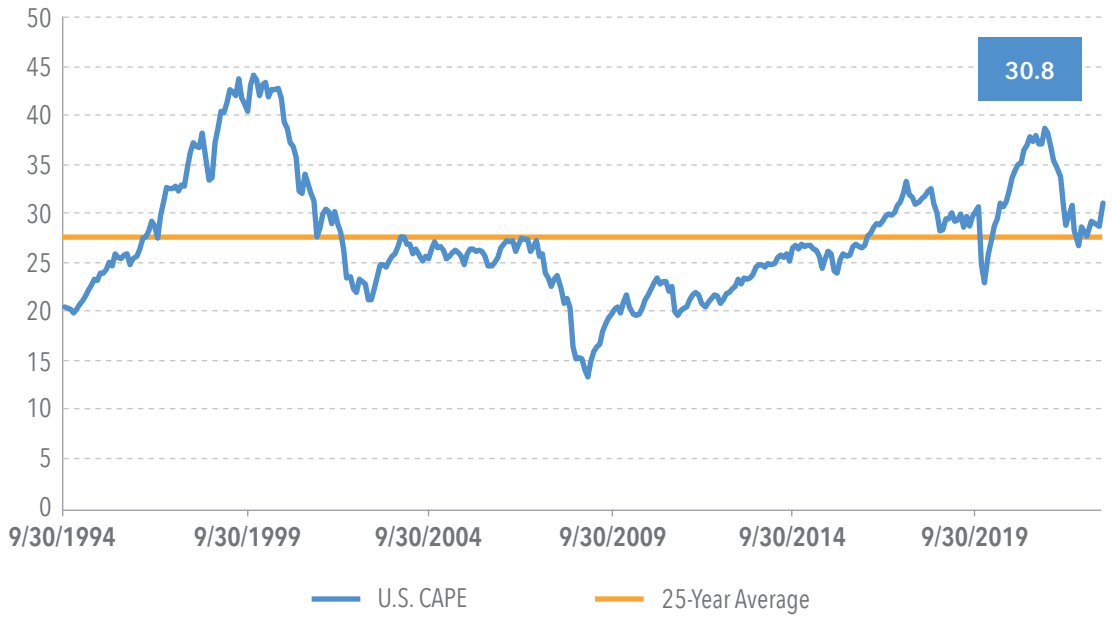
United States – Forecasts Based on the S&P 500 Index

The CAPE Ratio for the United States is 30.8 and the expected 10-year annualized nominal total return is 5.4%. Returns for the S&P 500 Price Return Index are expected to be around 3.3%, and here we subtract the average historical dividends of 2.1%. We also show ranges for U.S. returns. Professor Shiller created a series of value-based indices with Barclays, namely the Shiller Barclays CAPE Family of Indices, which seeks 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 well.

UNITED STATES FORECAST RETURNS	EXPECTED ANNUALIZED RETURNS
Expected Nominal Total Returns* (S&P 500 Total Return Index)	5.4%
Approximate Expected Nominal Price Returns (S&P 500 Price Return Index)	3.3%
Upper Range of Expected Nominal Total Returns* (95% Confidence Level)	11.3%
Lower Range of Expected Nominal Total Returns* (95% Confidence Level)	-0.2%

*using the CAPE Ratio

United States – Historical CAPE Ratio



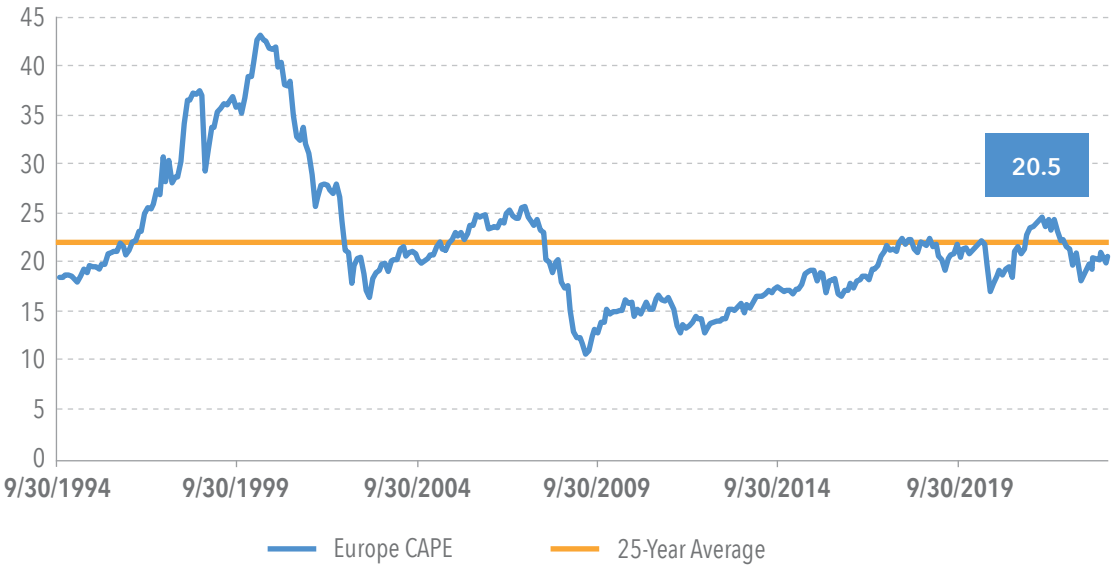
Europe – Forecasts Based on the MSCI Europe Index

The CAPE Ratio for Europe is 20.5 and the expected 10-year annualized nominal total return is 6.7% as of the end of this quarter. Price returns for the MSCI Europe Price Return Index are forecast to be around 3.5%, when we subtract the historical dividend yield and assume this holds true for the next 10 years. We also show ranges for European returns.

EUROPE FORECAST RETURNS	EXPECTED ANNUALIZED RETURNS
Expected Nominal Total Returns* (MSCI Europe Total Return Index)	6.7%
Approximate Expected Nominal Price Returns (MSCI Europe Price Return Index)	3.5%
Upper Range of Expected Nominal Total Returns* (95% Confidence Level)	19.4%
Lower Range of Expected Nominal Total Returns* (95% Confidence Level)	-6.0%

*using the CAPE Ratio

Europe – Historical CAPE Ratio



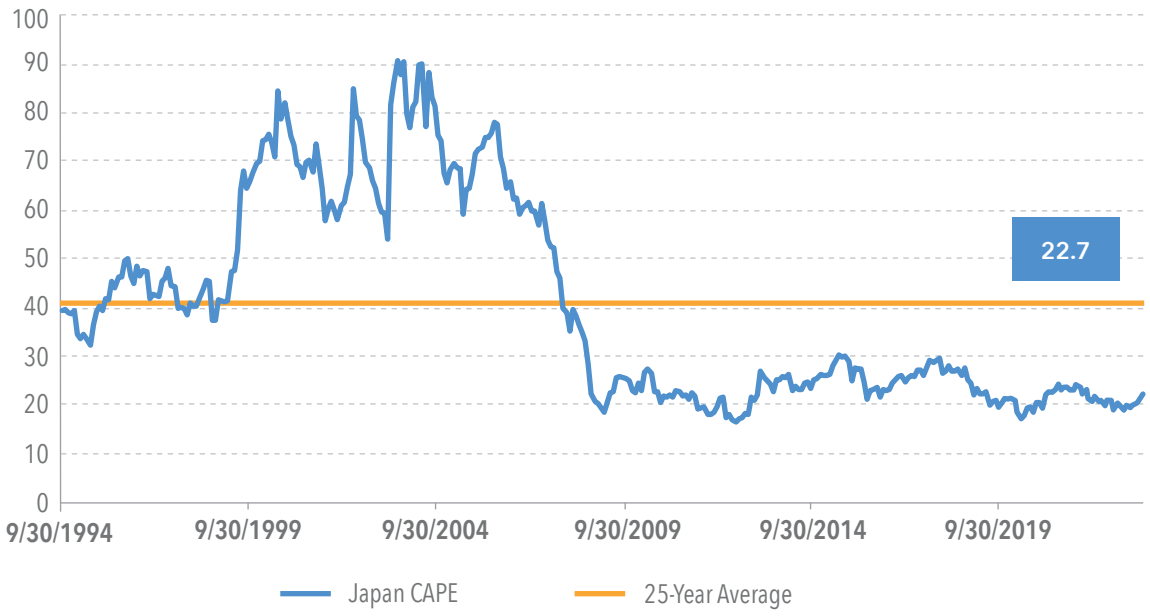
Japan – Forecasts Based on the MSCI Japan Index

The CAPE Ratio for Japan is 22.7 and the expected 10-year annualized nominal total return with the CAPE Ratio is 8.2%. Price returns for the MSCI Japan Price Return Index are forecast to be 5.9%; again, we subtract the historical dividend yield from Bloomberg[3] and assume this holds for the next 10 years. We also show ranges for Japanese returns. Note our forecasts include the bubble period in Japan in the 1980s and this may overstate some of the numbers.

JAPAN FORECAST RETURNS	EXPECTED ANNUALIZED RETURNS
Expected Nominal Total Returns* (MSCI Japan Total Return Index)	8.2%
Approximate Expected Nominal Price Returns (MSCI Japan Price Return Index)	5.9%
Upper Range of Expected Nominal Total Returns* (95% Confidence Level)	21.6%
Lower Range of Expected Nominal Total Returns * (95% Confidence Level)	5.9%

*using the CAPE Ratio

Japan – Historical CAPE Ratio



[3] Bloomberg: AI Frenzy and Bank Collapses: The First-Half Stock Market Themes, June 25, 2023

Approach to Forecasting

Firstly, we predict the expected real 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 regress 10-year real returns on the prevailing CAPE level and a real long-term interest rate, and then we project returns based on the plane of best fit. These are then converted to nominal returns using average inflation rates from the OECD from 2017 to Q4 2024, which includes historical and forecast inflation rates from the OECD. We also show ranges for each country's forecasted returns to indicate the uncertainty around our forecasts.

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.

We expect that in years to come, the science of narrative economics—with the expansion of our use of digitized text and artificial intelligence to look for specific indicators of the public spreading of ideas—will be used to narrow our prediction intervals. They may be able to develop time series of evidence on how the public will be thinking about multiple relevant economic narratives that will enable us to improve our forecasts of economic variables. Examples of such narratives include the intense COVD-19 pandemic with its politicized connection to other narratives, the prospects for world war, and climate change. At this juncture, however, we use the CAPE Ratio suggesting overpricing or underpricing to help us predict the markets.