Quarterly Review and Outlook Using the CAPE Ratio

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

Introduction

In Q1 2023, we witnessed significant sharp moves across many asset classes. Despite this, all major asset classes, except the dollar and commodities, delivered positive returns. The quarter began on a speculative note as economic momentum picked up and recession concerns faded. This was primarily due to falling gas prices in Europe, the rapid reopening of China, and a resilient U.S. consumer sector. However, this led to a resurgence in inflation pressures and hawkish rhetoric from central banks, leading to volatility in the equity markets, with Europe and emerging markets (EMs) outpacing the U.S..

Equities rallied across most major markets, with developed markets outperforming EMs. Value started strong, but later retreated due to the banking crisis and growth concerns. The quarter ended with fears around banks, driving volatility upwards. We feel this volatility is driven in part by the lack of certainty in narratives around the U.S. economy, including the threat of a recession and Fed rate hikes and pauses.

However, the quarter was not without its challenges. Silicon Valley Bank (SVB), one of the most prominent lenders in the start-up ecosystem, collapsed on March 10. The collapse caused turmoil in the financial sector, leading to the seizure of SVB and Signature Bank, the private-sector bailout of the U.S. regional lender First Republic Bank, and the takeover of the troubled Swiss bank Credit Suisse by its rival, UBS.

The CAPE Ratio for the U.S. ended the quarter at 28.9, close to where it started the year.[1] At this level, the U.S. market is somewhere between fairly valued to overvalued. Similarly, the European CAPE Ratio has stayed in the same range from the start of the year. Given Europe's outperformance this quarter, earnings have been strong. In Japan, the CAPE Ratio was 20.2 up from 20 last quarter.

Professor Shiller studies narratives and authored *Narrative Economics*. The interesting point about SVB is that social media had an outsized impact. This electronic bank run, driven by social media posts from prominent venture capitalists, urged people to withdraw their money. And many people did, especially electronically. So, this bank run began in social media and ended with people using their electronic apps. Characterized by the extreme speed at which it occurred, the SVB collapse was a "traditional bank run on steroids".

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[1] The CAPE Ratio was developed by Robert Shiller and John Campbell in the late 1980s for forecasting 10-year equity market returns.

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 9.6%[2], Europe at 7.1% and the United States comes in at 5.7%. These are nominal returns and the equalization of expected returns between the United States and Europe are partly driven by different inflation expectations. We use trailing OECD historical inflation numbers and include the Q4 2024 expected expectation numbers, for the U.S. this is 2.7%, 2.6% for Europe and for Japan, it is 0.8%. 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
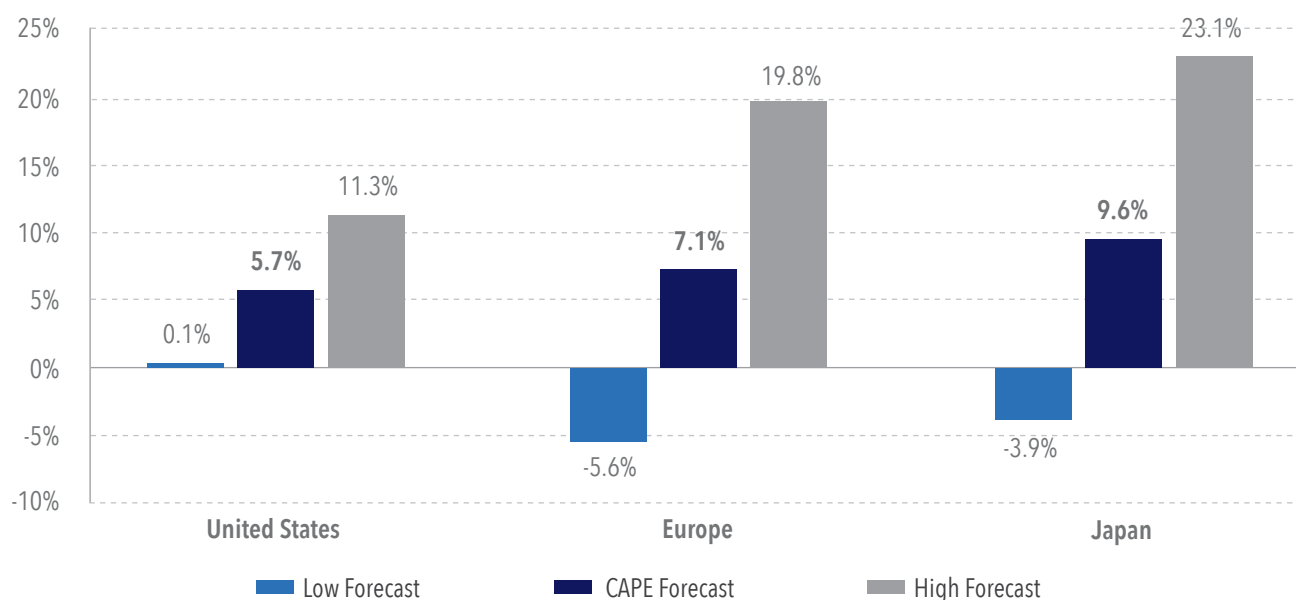
Source: Data Robert Shiller online data, MSCI and OECD.

A Note About Forecasting

These are annualized long-term forecasts with a horizon of 10 years. These forecasts are intended to provide a framework 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-a-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. We also are showing ranges (conventional prediction intervals) to give some indication of the uncertainty around our forecasts. The reader must bear in mind that conventional prediction 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 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.

[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 28.9 and the expected 10-year annualized nominal total return is 5.7%. Returns for the S&P 500 Price Return Index are expected to be around 3.6%, 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 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 the forecast if the value factor performs well.

UNITED STATES FORECAST RETURNS	EXPECTED ANNUALIZED RETURNS
Expected Nominal Total Returns* (S&P 500 Total Return Index)	5.7%
Approximate Expected Nominal Price Returns (S&P 500 Price Return Index)	3.6%
Upper Range of Expected Nominal Total Returns* (95% Confidence Level)	11.3%
Lower Range of Expected Nominal Total Returns* (95% Confidence Level)	0.1%

*using the CAPE Ratio

## United States – Historical CAPE Ratio

28.9

U.S. CAPE   25-Year Average

Europe – Forecasts Based on the MSCI Europe Index

The CAPE Ratio for Europe is 20.2 and the expected 10-year annualized nominal total return is 7.1% as of the end of this quarter. Price returns for the MSCI Europe Price Return Index are forecasted 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)	7.1%
Approximate Expected Nominal Price Returns (MSCI Europe Price Return Index)	3.5%
Upper Range of Expected Nominal Total Returns* (95% Confidence Level)	19.8%
Lower Range of Expected Nominal Total Returns* (95% Confidence Level)	-5.6%

*using the CAPE Ratio

Europe – Historical CAPE Ratio

Legend: Europe CAPE — 25-Year Average

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Japan – Forecasts Based on the MSCI Japan Index

The CAPE Ratio for Japan is 20.2 and the expected 10-year annualized nominal total return with the CAPE Ratio is 9.6%. Price returns for the MSCI Japan Price Return Index are forecasted to be 6.9%, again we subtract the historical dividend yield from Bloomberg 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)	9.6%
Approximate Expected Nominal Price Returns (MSCI Japan Price Return Index)	6.9%
Upper Range of Expected Nominal Total Returns* (95% Confidence Level)	23.1%
Lower Range of Expected Nominal Total Returns * (95% Confidence Level)	-3.9%

*using the CAPE Ratio

Japan – Historical CAPE Ratio

Japan CAPE ——— 25-Year Average
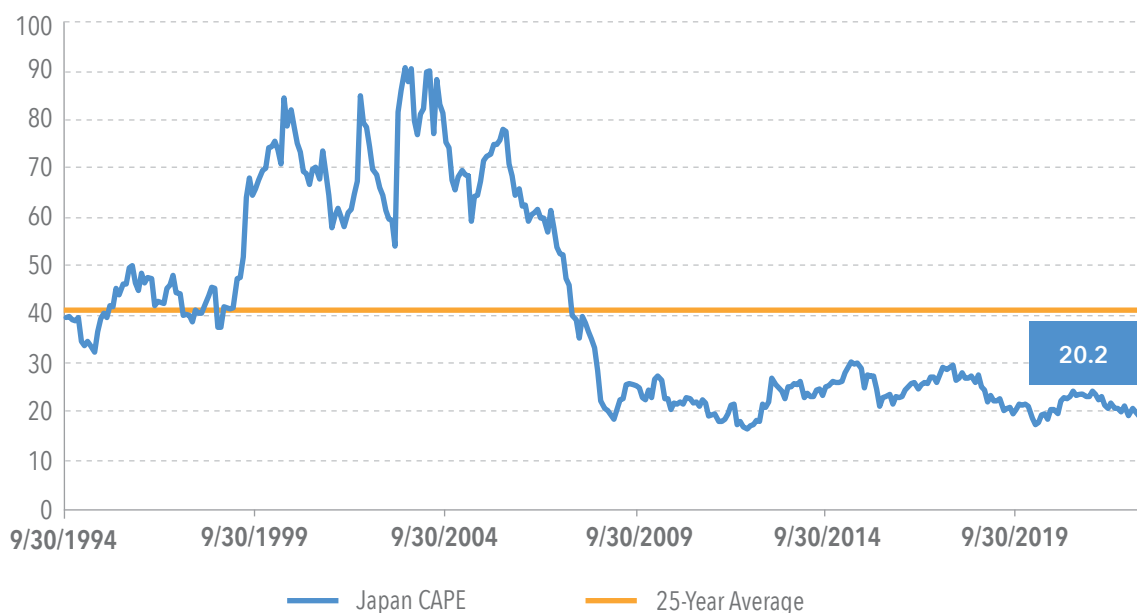
Approach to Forecasting

We outline our approach to forecasting in this section. First, 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 2023, which includes historical and forecasted inflation rates from the OECD. We also show ranges for each country's forecasted returns to indicate the uncertainty around our forecasts.

In *Irrational Exuberance* (3rd ed.), Professor Shiller noted that returns are influenced both by the CAPE and an estimated real long-term interest rate. 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 narrative economics, with the expansion of digitized text, artificial intelligence, and the public spreading of ideas, will be used to narrow our prediction intervals in the coming years. They may develop time series of evidence on how the public will think about multiple relevant economic narratives, including the COVID-19 pandemic and its politicized connections, the prospects for world war, and climate change to improve our forecasts of economic variables. Until then, we use the CAPE Ratio suggesting overpricing or underpricing to help us predict the markets.

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

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