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## **U.S. Market Commentary**

How Expensive Is the U.S. Market?  
Evaluating the Shiller P/E and Our Valuation Metrics

Jason Liebel | Lisa Miller



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## How Expensive Is the U.S. Market? Evaluating the Shiller P/E and Our Valuation Metrics

U.S. equity valuations have been the subject of intense debate. Investors should maintain their focus on normalized P/E ratios, which indicate that valuations are elevated and that U.S. stocks are priced to deliver low multi-year returns.

After watching the U.S. stock market return 58% over the past three years, investors are engaged in a vocal debate about its valuation. Bulls point to reasonable price-earnings (P/E) ratios, continued earnings growth, attractive valuations relative to bonds, and flaws in cyclically adjusted valuation measures as indicators of strong forward-looking returns. Bears, on the other hand, highlight an elevated Shiller P/E ratio, cyclically high profit margins and earnings, and the threat of rising interest rates.

We believe this is an opportune time to comment on recent valuation discussions and remind investors of our approach. In this paper, we discuss the pitfalls of simple P/E ratios and the importance of using cyclically adjusted valuation ratios such as the Shiller P/E and our composite metrics. We describe the construction of these normalized measures and consider their sensitivity to the assumptions that underlie them. Our analysis answers the questions “how reasonable are valuations compared to past history?” and “what is the risk of disappointment?”

Regardless of the approach to analyzing them, U.S. market valuations are high compared to history and vulnerable to worse-than-expected news. We estimate that the U.S. market is priced 30% above fair value. Depending on the assumptions and methodology used, a plausible range of uncertainty around this overvaluation is 20% above or below our estimate. Barring the most extreme scenarios, however, investors should expect low, single-digit real returns over the next decade.

The reasons for today’s high stock prices are hardly a mystery. High valuation multiples make

sense in times of stable inflation, rock-bottom discount rates, and good corporate health. The U.S. market’s expensiveness is also not yet extreme. On a relative basis, however, it is the least attractively valued major equity region we track. We recommend underweighting U.S. stocks in favor of those in European and emerging markets, where earnings results must clear a much lower hurdle to deliver attractive long-run returns.<sup>1</sup>

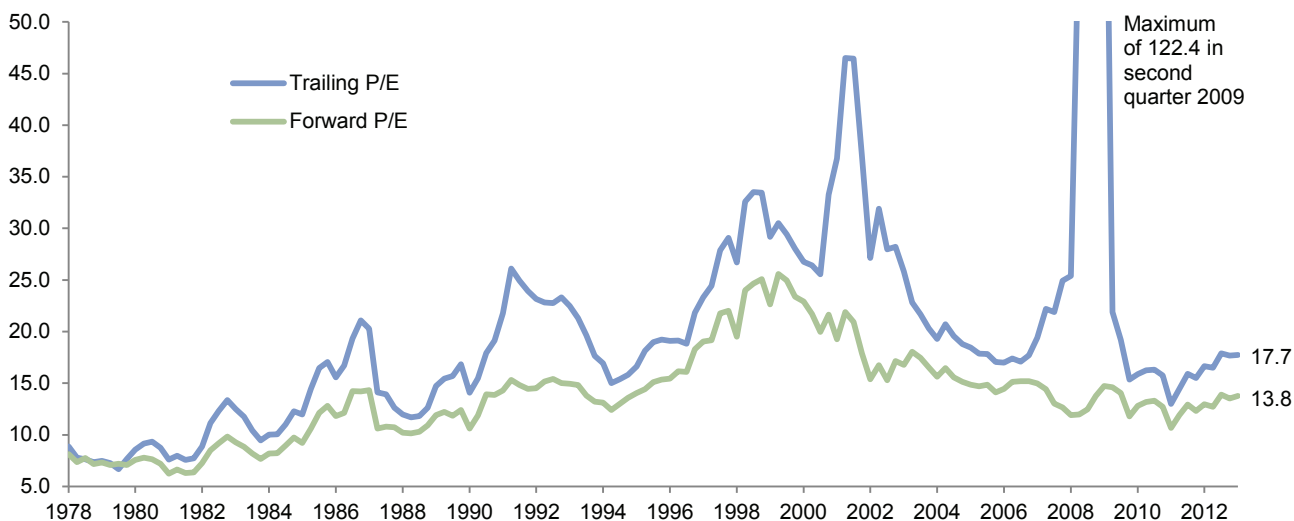
### High Earnings and Record Margins: A Dangerous Backdrop for Simple P/E Ratios

Despite the crucial flaws of some popular valuation measures, commentators continue to cite them in their market outlooks. Today’s trailing P/E of 17.7 and forward P/E of 13.8 on the S&P 500, for example, hardly seem demanding (Figure 1). They are similar to the values of the early 1990s and lower than those in most of the years since then. As many long-term investors are aware, however, the problem with the trailing P/E, forward P/E, and similar measures lies with the “E.” Earnings are typically measured over a 12-month time horizon despite their tendency to move in cycles considerably longer than one year. This mismatch means that, at a given price, stocks look cheap when earnings are high and likely to fall, and expensive when earnings are low and likely to rise.

<sup>1</sup> See our *Summary Views on Asset Allocation* for our most recent advice, as well as our October 2013 Market Commentary *European Equities: Time to Focus on the Micro*, and our *Asset Class Views* on Europe ex U.K., U.K., and emerging markets equities for more details on valuations in those regions.

### Figure 1. Simple P/E Ratios Are Reasonable Today

Trailing and Forward S&P 500 Price-Earnings Ratios • Third Quarter 1978 – Third Quarter 2013



Source: Standard & Poor's.

Notes: Trailing data use reported earnings; forward data use operating earnings. Trailing reported earnings data are preliminary for third quarter 2013.

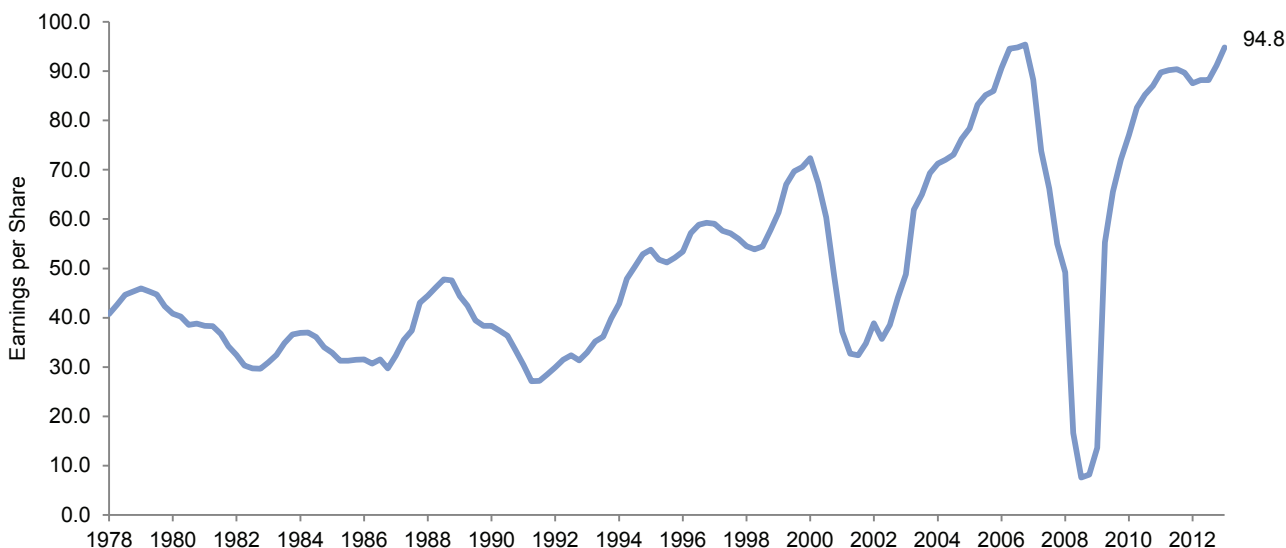
Simple P/E ratios have by no means done a poor job explaining fluctuations in long-term market performance. Indeed, during the postwar era, trailing P/Es have explained roughly one-third of the variance in ten-year real subsequent returns.<sup>2</sup> More anecdotally, an investor that bought in at the relatively low 7.9 P/E in January 1982 or abandoned the market at the lofty 33.5 P/E in June 1999 could have taken comfort in using the trailing P/E as a guide.

<sup>2</sup> The proportion of variance explained is also known as the  $R^2$ , a measure of the goodness of fit of a linear regression.  $R^2$  statistics that come from regressing rolling long-term returns (the dependent variable) on starting valuations (the independent variable), should be interpreted with caution. They can be large due to the tricky statistical properties of rolling returns and starting valuations, both of which contain overlapping data and thus move slowly from month to month. We use a handful of such  $R^2$  statistics in this paper to highlight the broad historical association of some measures of starting valuations with long-term returns, and not to make statistical inferences about market predictability.

Nonetheless, problems with simple P/Es abound. Directionally wrong trends are one. From mid-year 2003 to mid-year 2007, for example, the trailing P/E ratio fell from 28.2 to 17.7 as earnings skyrocketed faster than prices. The forward P/E, which some investors emphasize to introduce a layer of human judgment, erred in the same direction. Not only does it, too, measure earnings over an inadequate time horizon, but aggregate analyst “judgment” often translates more accurately to “optimism” or “extrapolation.” False negatives at earnings troughs are another problem with simple P/Es. The market was technically “expensive” at the end of 1991 (with a 26.1 trailing P/E) and in March 2009 (116.3), entry points that served a buy-and-hold investor well. While the forward P/E has not been subject to the same spikes, its signals were likewise hard to interpret at these extremes.

**Figure 2. Elevated Earnings Raise the “E” in the P/E Denominator**

Trailing Real Reported Earnings for the S&P 500 • Third Quarter 1978 – Third Quarter 2013

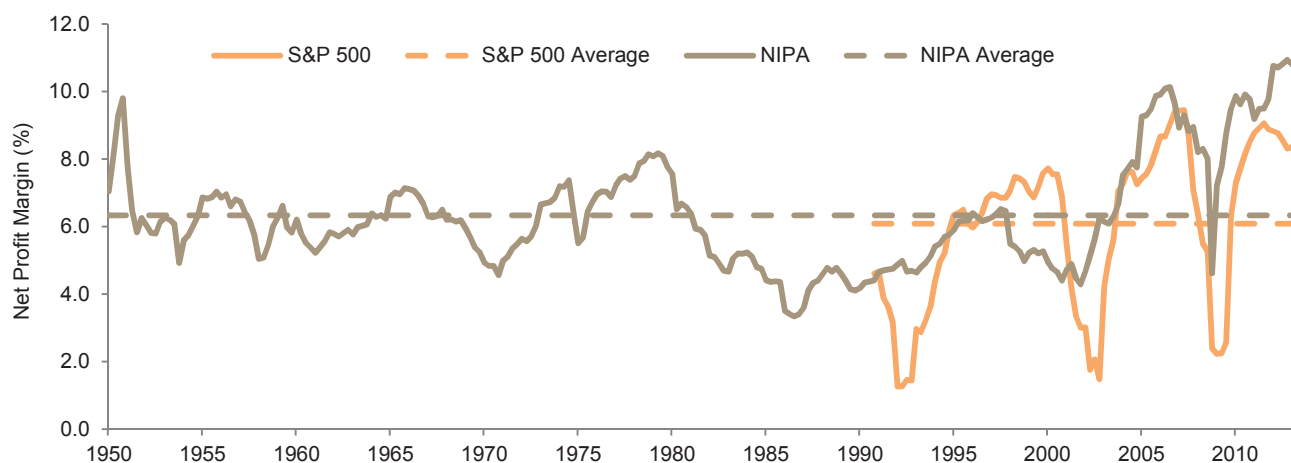


Sources: Standard & Poor's and Thomson Reuters Datastream.

Notes: CPI-U data are as of September 30, 2013. Earnings data are preliminary for third quarter 2013.

**Figure 3. Record Margins Will Constrain Earnings Expansion**

S&P 500 Net Profit Margin and U.S. NIPA Profit Margin • First Quarter 1950 – Second Quarter 2013



Sources: Standard & Poor's, Standard & Poor's Compustat, and Thomson Reuters Datastream.

Notes: Data are quarterly. The S&P 500 margin data begin in fourth quarter 1990 and represent net reported profits as a percentage of the index members' sales. The National Income and Product Accounts (NIPA) profit margin measures earnings at the economy-wide level and not just among listed companies. The NIPA margin is calculated as profits after tax (without further adjustments, as reported on Table 1.12, Line 45 of the accounts) as a percentage of U.S. GDP.

As the trailing real earnings series in Figure 2 shows, U.S. profits appear to be again nearing fresh cyclical highs thanks to both a recovering economy and record profit margins (Figure 3). Although bullish analysts say that margins could stay near record highs due to factors ranging from high foreign sales and low interest rates to the increased size of the tech sector, margins will eventually head back closer to their historical averages.<sup>3</sup> Taken together, elevated earnings and high profitability increase the risk that simple P/Es will provide misleading advice about the market's value—much as they did in the mid-2000s.

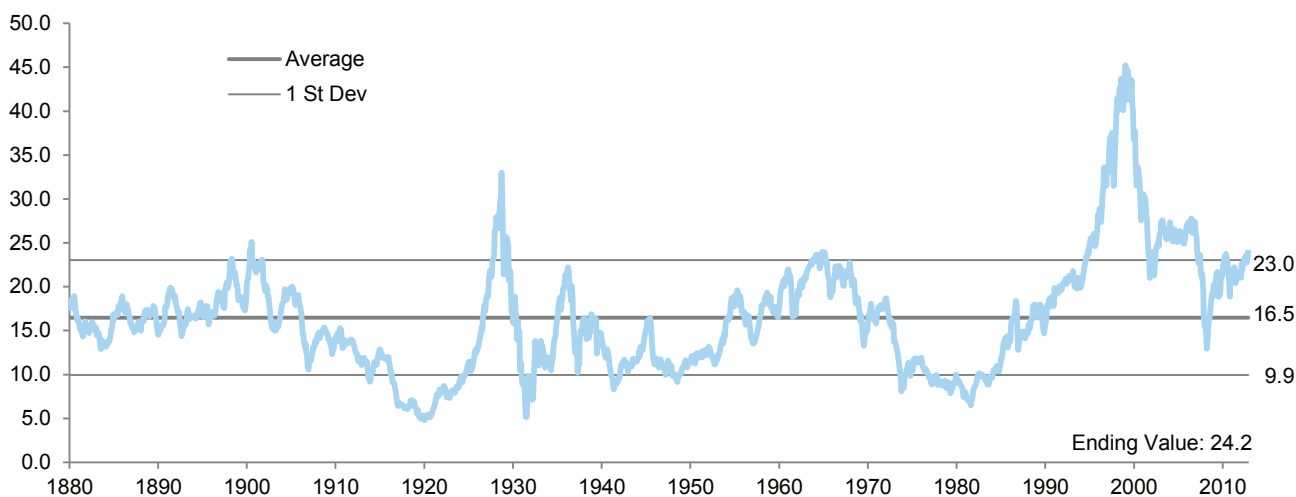
<sup>3</sup> We commented extensively on today's high profit margins in our August 2011 Market Commentary *Can U.S. Corporate Profit Margins Continue to Defy Gravity?*

## The Increased Importance of Normalizing Earnings

Cyclically adjusted P/E (CAPE) ratios, also known as normalized P/E ratios, adjust earnings for the business cycle. The most famous version of a CAPE, the Shiller P/E, is shown in Figure 4. The Shiller P/E measures the real price of the S&P 500 relative to a rolling ten-year average of the index's inflation-adjusted reported earnings. Our composite P/E ratio, also a normalized metric, is shown in Figure 5. Based on the MSCI USA Index, our composite P/E uses an average of three cyclically adjusted earnings measures: the rolling ten-year average found in the Shiller P/E; an estimate based on the trend of earnings per share (EPS) growth over the period; and an earnings figure adjusted based on the current level of return on equity (ROE) relative to its average over the period.

**Figure 4. The Shiller P/E Is 47% Above Average**

S&P 500 Shiller Price-Earnings Ratio • December 31, 1880 – October 31, 2013

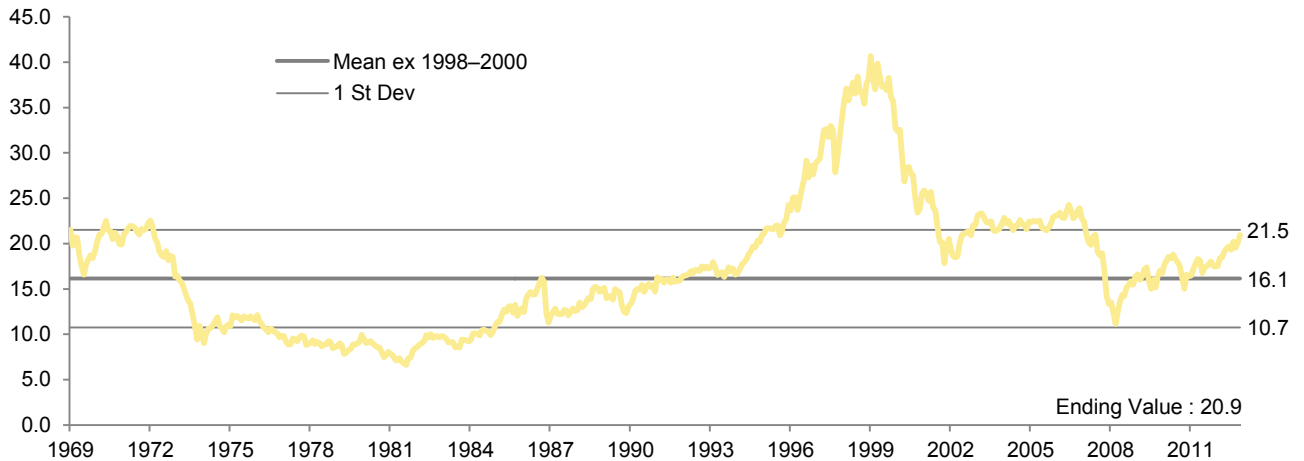


Sources: Robert J. Shiller, Standard & Poor's, and Thomson Reuters Datastream.

Notes: Data are interpolated monthly using quarterly earnings. Shiller price-earnings ratios for the S&P 500 Index are calculated by dividing the current index value by the rolling ten-year average of inflation-adjusted earnings. Earnings data are preliminary for September and October 2013. CPI-U data are through September 30, 2013.

**Figure 5. Our Composite P/E Is 30% Above Its Bubble-Adjusted Average**

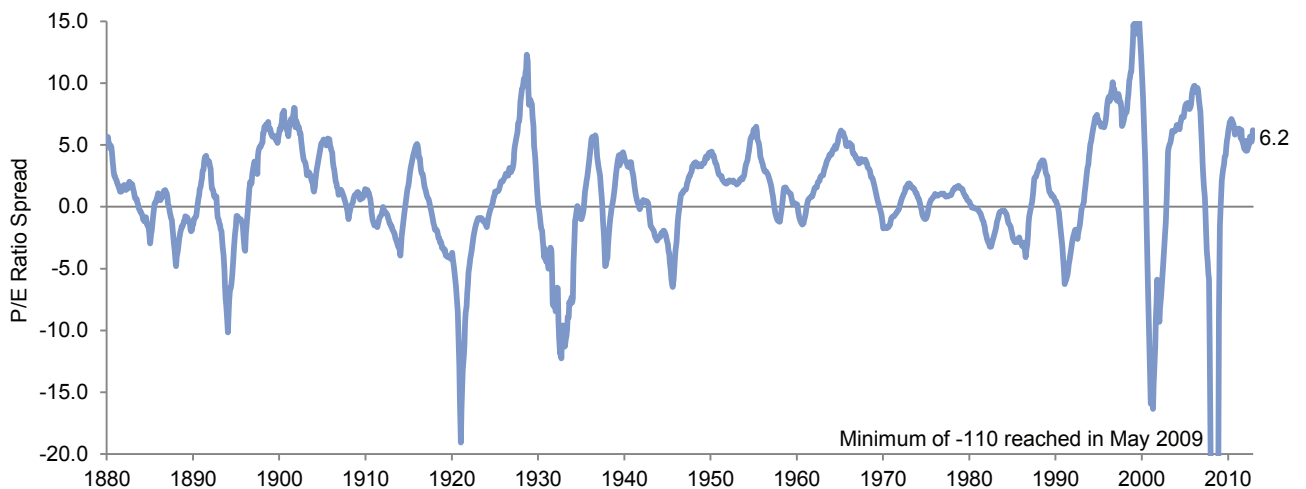
MSCI U.S. Composite Normalized Price-Earnings Ratio • December 31, 1969 – October 31, 2013



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties. Notes: The composite normalized price-earnings (P/E) ratio is calculated by dividing the inflation-adjusted index price by the simple average of three normalized earnings metrics: ten-year average real earnings (i.e., Shiller earnings), trend-line earnings, and return on equity-adjusted earnings. We have removed the bubble years 1998–2000 from our mean and standard deviation calculations. Data are adjusted to September 30, 2013, dollars.

**Figure 6. Recent Earnings Volatility Has Increased the Difference Between Trailing and Shiller P/E Ratios**

Historical Spread Between S&P 500 Trailing and Shiller Price-Earnings Ratios • December 31, 1880 – October 31, 2013



Sources: Robert J. Shiller, Standard & Poor's, and Thomson Reuters Datastream. Notes: Data are interpolated monthly using quarterly earnings. Shiller price-earnings ratios for the S&P 500 Index are calculated by dividing the current index value by the rolling ten-year average or median of inflation-adjusted earnings. Earnings data are preliminary for September and October 2013. CPI-U data are through September 30, 2013.

Over the last 20 years, the cyclical adjustments embedded in normalized P/E ratios have become increasingly vital. As measured by reported index earnings, the booms and busts since the early 1990s have reached a scale not seen since the Great Depression. These steep cycles have, in turn, led to more marked divergence between the simple trailing P/Es and normalized P/Es (Figure 6). As a result, the relative effectiveness of CAPE ratios at explaining subsequent returns has improved. While movements in the trailing P/E and normalized P/E ratios accounted for comparable proportions of the variance in five-year real returns from 1946 to 1990, changes in the CAPE ratios have been remarkably more explanatory since that time, much as they were before World War II (Figure 7). The dot-com boom and bust launched normalized P/E ratios back into the spotlight despite Benjamin Graham and David Dodd's proposal in *Security Analysis* almost 80 years ago to make a similar cyclical adjustment.

### Figure 7. Normalizing Earnings Measures Has Become More Important Since 1990

R-Squares: Five-Year Real S&P 500 Returns vs. Starting P/E Ratios • As of October 31, 2013

	Simple P/E Ratios		Normalized P/E Ratios	
	TTM	Forward	Shiller	Comp
1880–1945	0.02		0.27	
1946–1989	0.31		0.27	
1990–Present	0.10	0.39	0.50	0.52

Sources: Robert J. Shiller, Standard & Poor's, and Thomson Reuters Datastream.

Notes: Calculations use monthly data. The Cambridge Associates composite normalized price-earnings ratio from 1990 to present is calculated using our standard methodology, which relies on MSCI earnings from December 1969 to October 2013.

## The Shiller P/E: Great at Predicting the Past, But What About the Future?

Among widely cited valuation metrics, the Shiller P/E has been the most effective at explaining the variance of the ten-year returns of the U.S. market, and among the better ones at the less fruitful endeavor of explaining movements in one-year returns.<sup>4</sup> At 24.2, the Shiller P/E is now 47% higher than its average since December 1880—a level typically associated with low to negative real returns over subsequent years (Figure 8), and higher than over 90% of the time. Nonetheless, the current level is not much more than half the level of the December 1999 peak of 45.2.

### Too Bearish?

There are several common criticisms of the Shiller P/E, all of which argue that the ratio's implied return forecasts are too bearish. The complaints have been addressed at length in other sources,<sup>5</sup> but chief among the gripes is the inclusion of catastrophic events in the rolling earnings average—most recently the major drop in earnings in 2008. Critics allege, for instance, that including AIG's reported losses of \$99 billion that year understates the future profit potential of the U.S. economy. Aside from the dubious notion that the future is unlikely to hold additional earnings collapses, the biggest problem with this complaint is that the average also includes years of artificially inflated profits that go hand-in-hand with the

<sup>4</sup> See, for example, Joseph Davis, Roger Aliaga-Diaz, and Charles J. Thomas, "Forecasting Stock Returns: What Signals Matter, and What Do They Say Now?," Vanguard, October 2012.

<sup>5</sup> For a good discussion of some criticisms, see Clifford S. Asness, "An Old Friend: The Stock Market's Shiller P/E," AQR Capital Management, November 2012.



**Figure 8. The Shiller P/E Outlook Is Grim, But Not Yet Disastrous**

S&amp;P 500 Shiller Price-Earnings Ratio Deciles and Average Subsequent Real AACRs • December 31, 1880 – October 31, 2013

Decile	Shiller P/E Decile Ranges		Avg Subsequent Real AACR (%)			
	Low	High	One Yr	Five Yr	Ten Yr	
1	4.8	9.1	17.4	15.5	11.6	
2	9.1	11.0	14.1	10.0	9.9	
3	11.0	12.4	9.7	6.9	8.4	
4	12.4	14.3	11.7	5.8	5.6	
5	14.4	15.9	9.7	5.4	6.2	
6	15.9	17.2	4.9	5.9	6.3	
7	17.3	18.8	3.6	4.8	5.3	
8	18.8	20.9	4.7	6.3	4.4	
9	20.9	23.8	2.2	3.6	1.8	
<b>10</b>	<b>23.9</b>	<b>45.2</b>	<b>2.3</b>	<b>-0.6</b>	<b>0.9</b>	Current P/E = 24.2

Sources: Robert J. Shiller, Standard &amp; Poor's, and Thomson Reuters Datastream.

Notes: Decile calculations use monthly data through October 2012, thus some starting price-earnings (P/E) ratios do not have data for the subsequent five- and ten-year return periods. Shiller P/E ratios for the S&amp;P 500 Index are calculated by dividing the current index value by the rolling ten-year average of inflation-adjusted earnings.

busts. No investor should omit 2008 results while relying on earnings reported during the leverage-induced boom of 2005–07. If we exclude AIG's 2008 write-downs, what are we to do with the \$72 billion in income AIG reported over the previous five years? Investors can ultimately take heart that the debate surrounding this point is not as consequential as it seems. Calculating the Shiller P/E using rolling median, rather than mean, earnings—a measure insensitive to the depth of the trough in 2009—still places today's P/E in the top decile of the reconstructed history. Even omitting 2008 results altogether does not substantively change the picture today.

A more serious complaint about the Shiller P/E is that it has spent only 15 months since 1990 below its long-run average. How relevant can such a pessimistic metric be? While the movements in the ratio since 1990 have been well correlated with variations in realized returns,

those movements have been around a very high average of 25.3. As a result, return forecasts based on the past association of valuations and returns have persistently underestimated realized returns since the early 1980s. This extended period of downward-biased forecasts has caused investors to worry that “mean reversion” in valuation multiples might imply moving to a “mean” higher than the observed post-1880 average. These worries are highlighted by the significant difference between the average Shiller P/E before 1946 (14.6) and since (18.3).

We think that concerns about the relevance of the Shiller's long-run average have merit. On the one hand, we have always been, and continue to be, deeply skeptical of any claims that “old” valuation methods and data histories do not apply, and are wary of claims that “this time is different.” On the other hand, assuming that the most conservative or pessimistic valuation approach is automatically the most useful is

similarly naïve. Valuation conclusions based on a single, long-run average P/E are vulnerable to secular shifts in several key variables, including changes in the methodology for measuring earnings, index construction, earnings growth, and the average required return on equity. We consider each influence in turn.

### Apples-and-Oranges Earnings

A key worry about the relevance of the Shiller P/E's long-run average concerns the way in which earnings are measured. Accounting standards have changed dramatically over time. Nineteenth century American industrial firms published little information about their financial health. Some major railroads, for example, managed to raise money without issuing annual reports or other disclosures that are taken for granted today. Moreover, to the extent that disclosures were available, financial statement conventions were radically different. Efforts to report income and expenditure on an accrual basis were mixed, and investors before the 1920s focused largely on the balance sheet. It was only the post-1929 bust that led to the establishment of several fundamental tenets behind today's financial statements, including the term "generally accepted accounting principles" (GAAP). Changes in accounting rules and their implementation have continued steadily since then. Formal guidance for reporting EPS, for example, appeared only in the 1960s. Evidence also suggests that, on average, accounting conservatism—that is, the broad principle of understating rather than overstating net income and assets when differing interpretations are possible—has been on the rise in the United States since the 1970s.<sup>6,7</sup>

<sup>6</sup> Dan Givoly and Carla Hayn, "Rising Conservatism: Implications for Financial Analysis," *Financial Analysts Journal* 58, no. 1 (January/February 2002).

<sup>7</sup> Ross L. Watts, "Conservatism in Accounting Part II: Evidence and Research Opportunities," *Accounting Horizons* 17, no. 4 (December 2003).

The evolution toward ever-stricter financial reporting standards raises the question of what was considered "profit" in earlier years, especially before World War II. While the more extensive use of cash basis accounting might have made it more difficult to engage in "creative" bookkeeping, listed companies have a dismal track record in preparing financial results according to their own principles—the pro forma earnings presented during the dot-com bubble, which were invariably higher than earnings reported under GAAP, come to mind. In a pessimistic scenario, companies' earnings before World War II might have been lower had they been reported under today's standards, a change that would have raised the average Shiller P/E.

Some of the most recent discussion about earnings measures<sup>8</sup> has focused on the way accounting rules have influenced asset write-downs during the last two recessions, especially during the collapse in asset prices in 2008. In 1993, in an attempt to prevent a recurrence of the savings and loan crisis, regulators expanded fair value accounting rules and required financial institutions to carry more securities at current market values on their balance sheets. While it is doubtful that these mark-to-market rules punished earnings unfairly during the global financial crisis,<sup>9</sup> worries that the write-downs are suppressing earnings after the crisis appear better founded. Accounting rules prevent many financial instruments that have been impaired—i.e., that have had their values revised downward due to probable losses—from being marked back up in value when prices increase. As a result, while falling asset prices

<sup>8</sup> See, for example, Jeremy Siegel "Don't Put Faith in Cape Crusaders," *Financial Times*, August 19, 2013.

<sup>9</sup> Christian Laux and Christian Leuz, "Did Fair-Value Accounting Contribute to the Financial Crisis?," *Journal of Economic Perspectives* 24, no. 1 (2010).

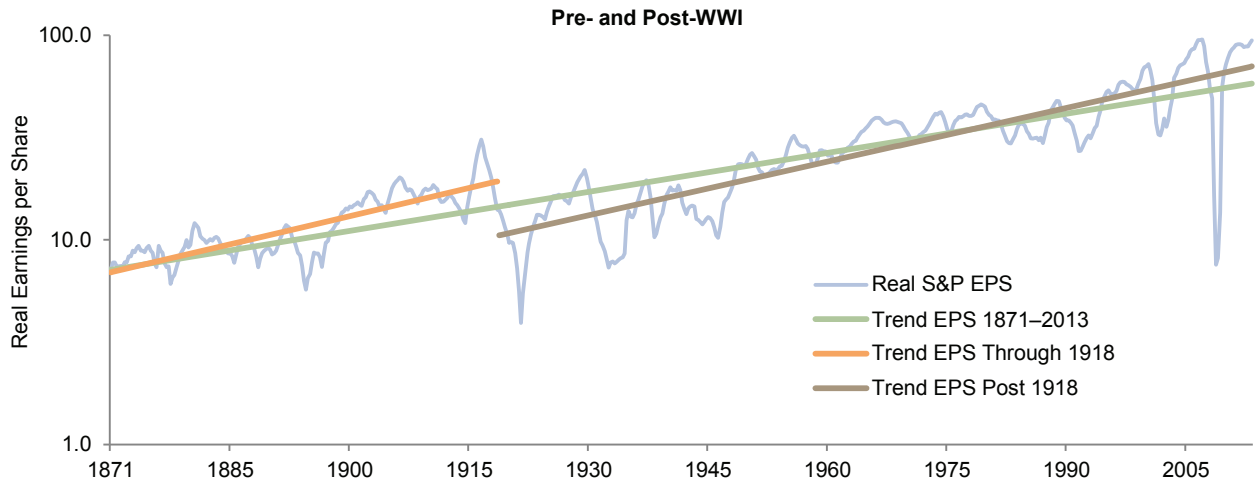
punished corporate earnings during the crisis, rising asset prices since that time may have had comparatively little impact on the owners' reported earnings unless the impaired assets were sold and the gains realized. This, in turn, means that the market's expensiveness following recovery from a historic financial bust may be overstated. Unfortunately, the net impact of this effect on reported earnings today is unclear.

### Other Variables That Can Shift the Average P/E

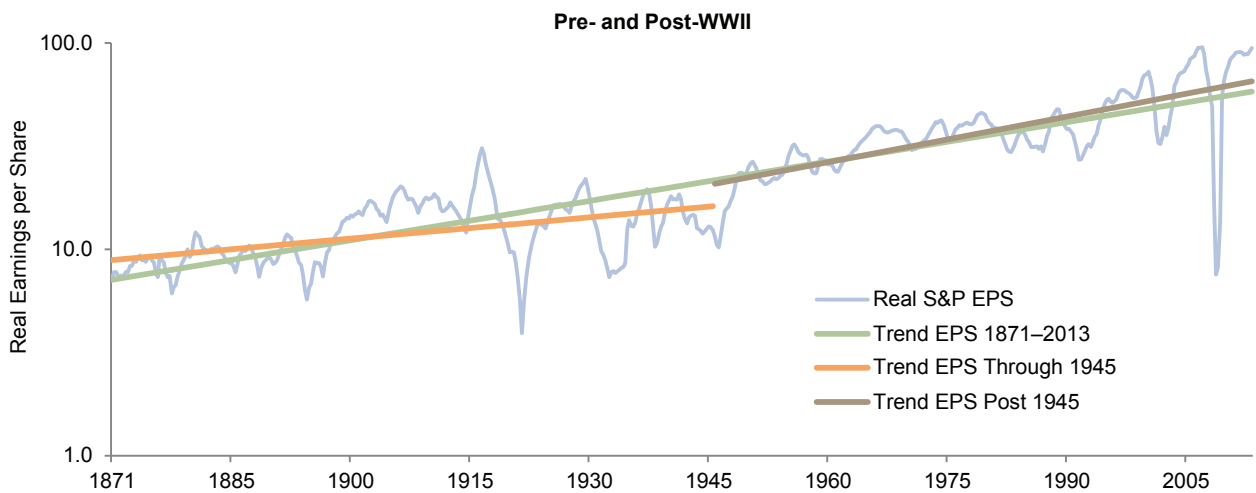
Factors other than accounting that impact judgment about a "fair value" Shiller P/E have also changed over time. They include the following items:

- ◆ **Index Construction.** The composition of any market index changes over time as sectors rise and fall in economic importance and constituents are added and removed, affecting the market's "equilibrium" multiple. In the case of the data underlying the Shiller P/E, the changes have been dramatic. The S&P 500 only began in 1957; the data from 1918 until that date consist of a composite that incorporates just 90 industrial, railroad, and utility stocks. (The earliest part of the series, from 1871 to 1917, reflects work done by the Cowles Commission in the 1930s to measure broad U.S. stock market performance.) Many investors may also be unaware that the S&P 500 did not include financial stocks until 1976, and the number of stocks in each sector was fixed until 1988. While the overall effect of these changes is ambiguous, the shifts in the data raise the uncertainty of comparing today's valuations to those of the distant past.
- ◆ **Earnings Growth.** Bulls note that companies pay out less in dividends than they did in the past, raising the average rate of EPS growth and thus justifying a higher average multiple. It is true that payout ratios have fallen and share buybacks have increased over time. It is also true that trend EPS growth since World War II has been nearly a full percentage point higher than the equivalent measure from 1871 to 1945. Nonetheless, the trend measurement is time-period dependent. For example, breaking trend EPS growth into the periods before and after World War I instead of World War II results in similar trend growth in both the earlier and later periods (Figure 9). Investors should decide whether they are comfortable assuming that isolating the rapid, largely peaceful growth of the post-1945 era creates the most representative template for the future.
- ◆ **Required Return on Equity.** Another reason that valuations may have been lower in earlier years is that investors demanded a structurally higher equity risk premium. There are plausible reasons why the required return might have been higher, including, but not limited to: uncertainty caused by lack of accounting regulations; less liquidity in securities markets; and more frequent deflationary contractions in the absence of a central bank before 1913. Alternatively, perhaps the different average valuation levels simply reflected the extreme circumstances in each time: two world wars and a crippling global depression in the earlier period, and an equity bubble of historic proportions in the later one!

**Figure 9. Trend EPS Growth Is Time Period Dependent**  
 S&P Long-Run Real EPS Trends • First Quarter 1871 – Third Quarter 2013



	Pre WWI	Post WWI	Full Period
Annual EPS Growth Trend Estimate	2.1%	2.0%	1.5%
Realized Annual EPS Growth	1.4%	2.0%	1.8%



	Pre WWII	Post WWII	Full Period
Annual EPS Growth Trend Estimate	0.8%	1.7%	1.5%
Realized Annual EPS Growth	0.7%	3.0%	1.8%

Sources: Robert J. Shiller, Standard & Poor's, Standard & Poor's Compustat, and Thomson Reuters Datastream.

Notes: Data are quarterly. Data are adjusted to September 2013 dollars. Earnings data are preliminary for third quarter 2013. The trend growth estimate for each time period is based on linear regression analysis of the natural logarithm of real earnings per share (EPS). The goal is to estimate the steady rate of earnings growth over time that best fits the past fluctuations in earnings. The realized EPS growth for each time period measures the annualized rate required to grow earnings from the level observed at the first data point of the period to the level observed at the last.

## Our Composite Normalized Valuations: Less Bearish Based on More Recent History

Our valuation assessment of the U.S. stock market is slightly less bearish than an analysis based on the Shiller P/E alone. We do, however, view the market as overvalued. More precisely, as Figure 5 shows, our composite valuation is 0.9 standard deviation (or 30%) above its adjusted average and on the line between the seventh and eighth deciles of composite P/E ratios since 1969—a level again consistent with low, single-digit returns (Figure 10).<sup>10</sup> Nonetheless, the current valuation is still

<sup>10</sup> Similarly, our base-case scenario for ten-year real returns in the United States, which assumes that normalized valuations return to average over the forecast horizon, is a relatively meager 1.4% per annum. Our return projections for the United States and other equity markets also make assumptions about inflation, earnings

clear of the 1.5 standard deviation threshold we typically use to recommend that investors find a different asset class altogether.

As mentioned earlier, there are two key differences between our composite P/E measure and Shiller's: our use of MSCI data instead of S&P data and our use of three different normalized earnings measures.

### MSCI USA: Passive, Consistent, and Comparable

We use the MSCI USA Index, which offers several advantages over the S&P 500. One is MSCI's more purely passive representation of the U.S. large-cap market. Inclusion in the MSCI index does not require passing an implicit fundamental screen, such as S&P's "financial viability" criterion, that influences the composition of the universe. The second

growth, and dividend payout ratios not discussed in detail here.

### Figure 10. Our Composite P/E Suggests Lackluster Returns

MSCI U.S. Composite Price-Earnings Ratio Deciles and Average Subsequent Real AACRs • January 31, 1970 – October 31, 2013

Decile	Composite P/E Decile Ranges		Avg Subsequent Real AACR (%)			
	Low	High	One Yr	Five Yr	Ten Yr	
1	6.6	9.1	11.8	11.1	9.9	
2	9.1	10.4	5.7	7.2	8.3	
3	10.4	12.5	9.0	2.5	7.5	
4	12.5	14.9	10.5	7.7	11.9	
5	15.0	16.5	3.2	9.2	8.2	
6	16.5	18.3	12.3	17.1	6.0	
<b>7</b>	<b>18.3</b>	<b>20.9</b>	<b>2.1</b>	<b>2.7</b>	<b>1.1</b>	Current P/E = 20.9
8	21.0	22.3	6.8	-0.7	-0.4	
9	22.3	25.8	-2.3	-0.3	1.6	
10	26.1	40.7	2.6	-3.8	-1.7	

Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: Decile calculations use monthly data through October 2012, thus some starting price-earnings (P/E) ratios do not have data for the subsequent five- and ten-year return periods. The composite normalized P/E is calculated by dividing the inflation-adjusted index price by the simple average of three normalized earnings metrics: ten-year average real earnings (i.e., Shiller earnings), trend-line earnings, and return on equity-adjusted earnings. CPI-U data are through September 30, 2013.

advantage is a methodology for constructing indices and reporting fundamental data (such as earnings) that is consistent across both time and the other regions and countries we track. Ultimately, the differences are minor in terms of assessing the value of the U.S. market. The MSCI index covers approximately 100 more stocks, and has moved closely in tandem with the S&P since 1969, with tracking error of just 1.1%. That said, investors should be aware that the S&P's tighter eligibility criteria have helped it outperform by 1.3% per annum since the two indices' common inception.

The main disadvantage with the MSCI index is its shorter history, which begins only on December 31, 1969. On this issue, we take comfort in knowing that the United States has seen pronounced bull and bear markets in the 43-plus years since the inception of the index. The shorter history also rather conveniently renders irrelevant most of the questions about accounting issues, earnings growth, and required return that linger around the longer S&P series. Nonetheless, the MSCI index covers a period during which the market's average Shiller P/E was 17% above its longer-run average, creating an implicit risk that our composite average P/E is too high. This is mitigated partly by our exclusion of the extreme valuations in the bubble years of 1998-2000. While debatable, our decision to exclude this time period eliminates an influential contributor to the general elevation of valuations since 1969. Without these data, the market overvaluation in the post 1969-period relative to the longer-term Shiller P/E is only 8%.

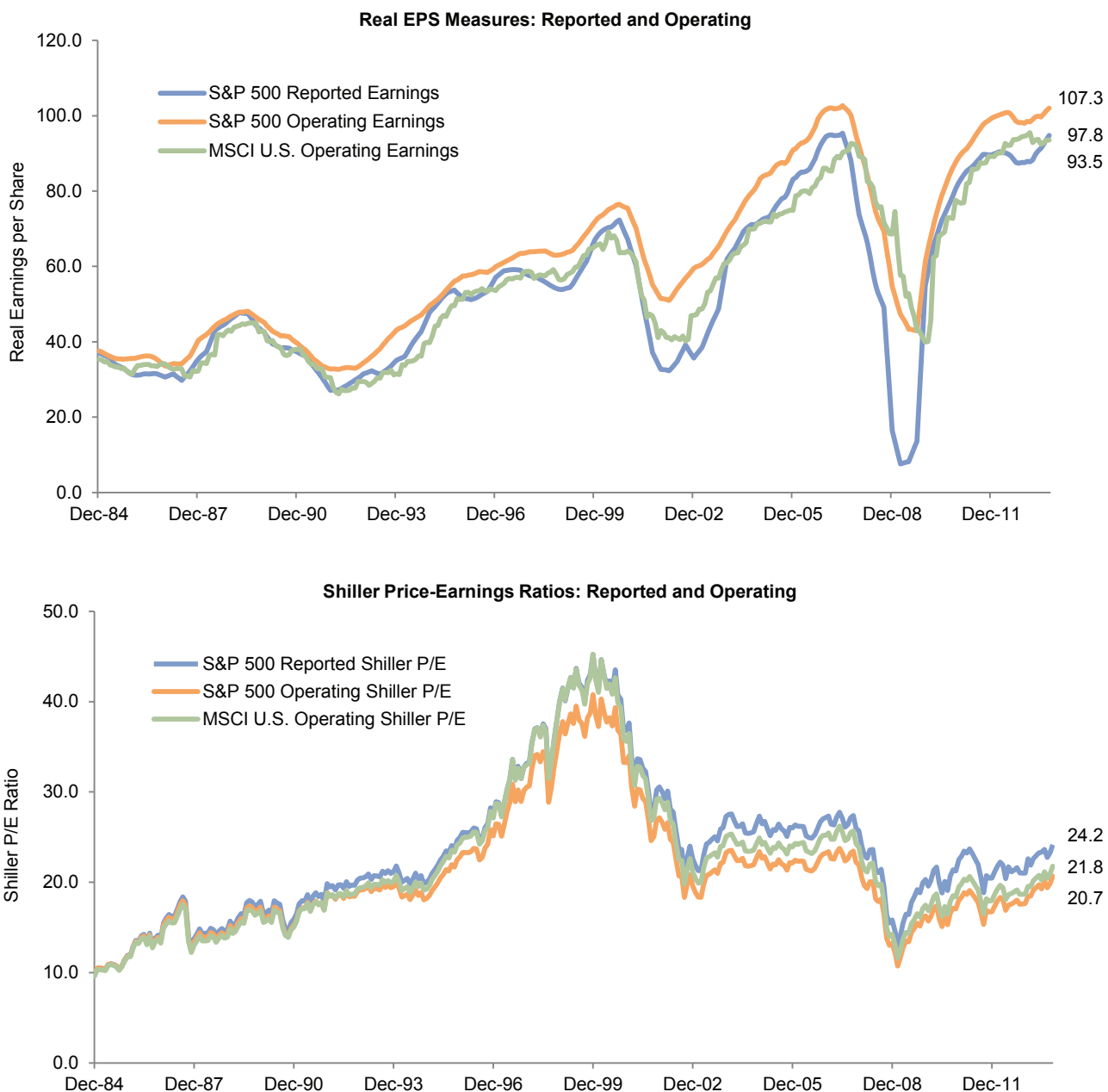
A notable feature of MSCI's methodology is that earnings are calculated only on an operating basis; MSCI does not make reported earnings available. Operating earnings exclude so-called one-time events and aim to measure

earnings derived from sources that are expected to persist in the future. The primary flaw of operating earnings is that they are upward-biased. On average, companies consider bad news to be "unusual" and consider good news to be the result of management's invariably excellent decision making. This tendency also lowers P/E ratios calculated using operating earnings as compared to those calculated with reported earnings (Figure 11). That said, upward bias does not impede our ability to make inferences about the U.S. market's valuation relative to its own history and the market's valuation relative to other markets. We are generally making apples-to-apples comparisons. Moreover, using operating earnings eliminates some of the accounting issues critics have identified with the Shiller P/E, since some irreversible write-downs, like impairments of goodwill, are only included "below the line" in reported earnings. Finally, as shown in Figure 11, although S&P also offers operating earnings data after 1984, we find that MSCI appears to make exclusions from reported earnings that are less asymmetric than S&P's exclusions, meaning that the data are "better behaved."



**Figure 11. Less Volatile Operating Earnings Are Likely Upward-Biased, But Allow Comparisons**

December 31, 1984 – October 31, 2013



Sources: MSCI Inc., Robert J. Shiller, Standard & Poor's, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: S&P data are interpolated monthly using quarterly earnings. Shiller price-earnings ratios are calculated by dividing the current index value by the rolling ten-year average of inflation-adjusted earnings. S&P earnings data are preliminary for September and October 2013. CPI-U data are through September 30, 2013. Operating earnings data begin December 1984. Shiller data for operating earnings are a blend of operating and reported earnings for periods that include earnings data prior to December 1984.

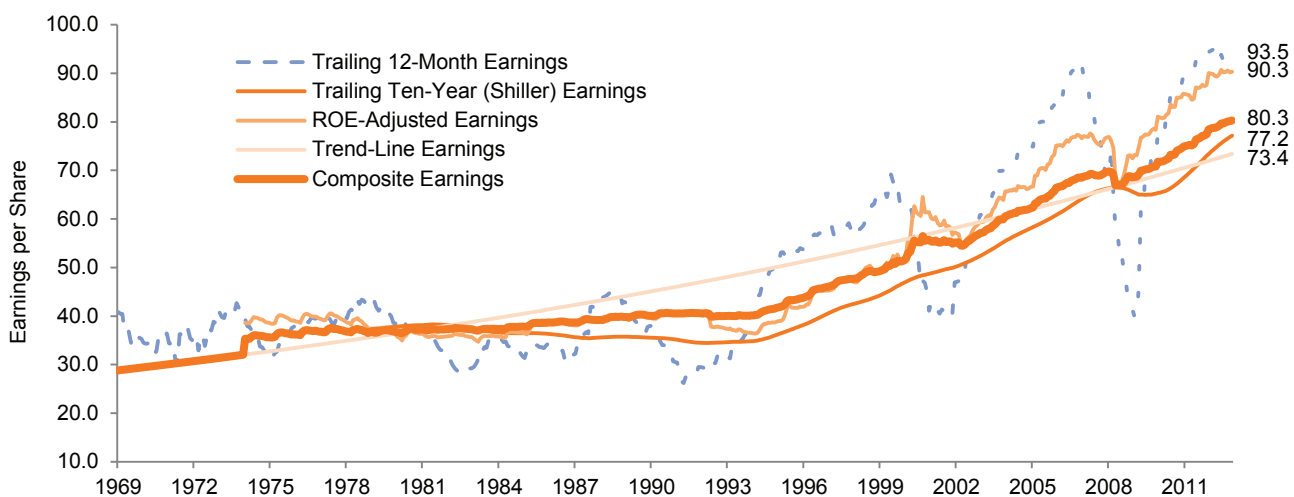
### Three Normalized Earnings Metrics Instead of One

To normalized earnings, we use an average of three inflation-adjusted measures, shown over time in Figure 12. The spirit of each measure is similar: namely, estimating a sustainable level of earnings based on past history.

- ◆ **Ten-Year Average Earnings.** We average the past ten years of trailing earnings in a manner identical to that of the Shiller P/E. Historically, the choice of time horizon (say, seven versus ten years) has not been especially influential. The key criterion of the trailing average is to choose a window that tends to incorporate at least one full earnings cycle.
- ◆ **Trend Earnings.** Using linear regression, we estimate a trend line of real EPS growth over the full period of analysis, which is 2.2% per annum over 43 years of MSCI USA data. Actual trend earnings growth higher (lower) than this number will cause an elevated trend P/E ratio to overstate (understate) the potential for below-average returns. As seen in Figure 9 using S&P data, the EPS trend estimate can differ from realized growth across the period; the latter is much more sensitive to the start- and endpoints than the regression-estimated trend.
- ◆ **ROE-Adjusted Earnings.** We calculate the average ROE over the full period, which has been 14% for the United States. We then multiply trailing 12-month earnings in each month by the ratio of the average ROE to the trailing 12-month ROE. This calculation adjusts current earnings for the tendency of ROE to revert to a long-run average. In other words, index EPS is discounted when ROE is high and likely to fall, and boosted when ROE is depressed and likely to rise. As with the trend calculation, a long-run average higher (lower) than the historical

**Figure 12. We Normalize Earnings Three Ways to Form a Composite**

MSCI U.S. Earnings Metrics • December 31, 1969 – October 31, 2013



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: Data are monthly. Composite earnings reflect the average of Shiller, return on equity (ROE)-adjusted, and trend-line earnings, which have been adjusted to September 2013 dollars. ROE-adjusted earnings data begin December 1974, Shiller earnings data begin November 1979.



average will overstate (understate) the potential for below-average returns.

Using three metrics has a notable advantage. While none of our chosen measures is perfect, the combination prevents overreliance on any single one, and helps us understand the source of current valuation levels. The primary disadvantage of our approach is the reliance on hindsight.<sup>11</sup> As new earnings data are added to the long-run series, the estimated growth trend and average ROE are updated. This means that the composite P/E measured at one point in time tends not to be identical when measured again in the future. With 43 years of data, however, the changes are extremely slow. Neither the trend regression nor the average ROE is especially sensitive to new data points. We believe that incorporating new information as it arrives is the best possible alternative.

<sup>11</sup> London Business School professors Elroy Dimson, Paul Marsh, and Mike Staunton discuss the problem of hindsight bias as part of their examination of long-term valuation ratios in a chapter entitled “Mean Reversion” included in the *Credit Suisse Global Investment Returns Yearbook 2013* (February 2013).

## Testing the Sensitivity of Our Valuation Assessment

How can we address the many shortcomings of comparing today’s valuation against a single, average P/E ratio? If we use the S&P data, we are relying on a time series with early years marked by unreliable accounting and/or a higher risk premium; a middle period of unprecedented growth; and a final 20 years in which previously excluded financial companies contributed to historic booms and busts, and whose reported earnings may understate recent economic gains. If we use the MSCI data, the time series begins only in 1969, but we gain consistent index construction and reduce the potentially pessimistic influence of recent accounting changes.

To compare today’s valuation levels to past history using either data series, we can adjust three key variables: the time period we analyze; the methodology we use to measure valuations; and the average or “fair” valuation against which we benchmark today’s measurement. In Figure 13, we manipulate each of these parameters to test the sensitivity of our current valuation assessment to the changes.

The first set of adjustments tackles the problem of comparing the more conservative GAAP earnings from the past 30-odd years to the less reliably measured profits during the first 50 (Figure 13: Analysis 1). One way around this conundrum is to use S&P’s standardized measure of operating earnings—for which the data start in 1984—rather than reported earnings over this latest time period. Since operating earnings are upward biased, but also less affected by recent accounting changes, this adjustment may provide a lower bound to a “fair” long-term average P/E. As the figure shows, the average Shiller P/E adjusted

using operating earnings since 1984 would be 15.9—not much lower than the actual average of 16.5. The current P/E ratio, however, would fall more substantially (to 20.7 instead of 24.2), and today's valuation level would drop to 30% above average instead of 47%.

Our second adjustment is simpler—use only postwar data, assigning zero relevance to valuation multiples observed during periods with few accounting standards, lower growth, and other structural issues. In this case, the average Shiller P/E using reported earnings is 18.3, and today's overvaluation is 32% (Figure 13: Analysis 2). Incorporating the post-1984 operating earnings series causes the overvaluation to drop to 20%, though the case for making this substitution is far weaker over the shorter time period. Applying our composite valuation methodology to the same post-1945 S&P data yields similar results. The impact of the dot-com bubble on postwar valuations is also evident in the table.

We shorten the time period of analysis even further in our third analysis, applying the Shiller and C|A composite methodologies to post-1969 MSCI data only. Unsurprisingly, this approach produces the highest average valuations and the lowest level of current overvaluation (Figure 13: Analysis 3). The Shiller P/E measured against the post-1969 mean produces the least expensive outcome today (8% above average). Our composite ratio measured against the bubble-adjusted average—our usual valuation metric—produces a more expensive outcome (30% above average).

These sensitivity tests show that our current valuation metric sits near the middle of a range of reasonably imaginable possibilities. Although we use data only since 1969, our exclusion of the bubble years 1998–2000 serves as a hedge against being misled by the high average valu-

ations of the last four decades. The worst-case scenario for U.S. equities will be if the classic Shiller P/E measured against its long-term median proves to be the best guide to the future. The best-case scenario for U.S. equities is if the post-1969 Shiller P/E compared to its mean—bubble and all—turns out to be a better measure of their return potential. While we see faults with both these extremes, the assumptions required to believe in the latter outcome seem particularly heroic.

Most importantly, the results of these sensitivity tests do not change our overall advice, which is based on two straightforward observations that remain broadly true across the scenarios. First, the U.S. market is richly priced, but it is not expensive enough to recommend a dramatic move to a non-equity asset class. Second, there is meaningfully better value available in other global equity markets.<sup>12</sup>

Our sensitivity tests are intentionally limited in scope. While we think investors would do well to understand the nuances, we prefer to make a simplifying assumption when valuing something as broad as the U.S. large-cap stock market. As we have seen over and over again in capital markets history, the relationships between valuations, returns, and investor behavior tend to remain the same. To bet on fundamental changes in long-run valuation levels or the nature of earnings cycles is to bet against the odds. According to these relatively tried-and-true metrics, the odds are against earning a high real return in U.S. equities over the next decade.

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<sup>12</sup> See our *Summary Views on Asset Allocation* for our most recent advice, as well as our October 2013 Market Commentary *European Equities: Time to Focus on the Micro*, and our *Asset Class Views* on Europe ex U.K., U.K., and emerging markets equities for more details on valuations in those regions.

Figure 13. How Sensitive Are Our Valuation Conclusions to the Inputs?

## Summary of Our Sensitivity Analyses: Range of Outcomes • As of October 31, 2013

Time Period	Why Start Here?	Current P/E	Full Period Average	Current P/E % Above Avg	Current P/E Z-Score	Current P/E Percentile
Since 1880	Beginning of S&P/Shiller Data	20.7 – 24.2	15.8 – 16.5	30% – 51%	0.8 – 1.3	83rd – 90th
Since 1946	Secular Shift After World War II?	19.7 – 24.2	15.4 – 18.3	20% – 41%	0.5 – 1.2	74th – 88th
Since 1969	Beginning of MSCI Data (Op EPS)	20.9 – 21.8	16.1 – 20.1	8% – 30%	0.2 – 0.9	64th – 76th
<b>Range of Outcomes Across All Analyses</b>		<b>19.7 – 24.2</b>	<b>15.4 – 20.1</b>	<b>8% – 51%</b>	<b>0.2 – 1.3</b>	<b>64th – 90th</b>
<b>Current CA Composite Valuation</b>		<b>20.9</b>	<b>16.1</b>	<b>30%</b>	<b>0.9</b>	<b>76th</b>

Methodology	Earnings Series	Current P/E	Full Period Average Type	Average	Current P/E % Above Avg	Current P/E Z-Score	Current P/E Percentile
<b>Analysis 1: Compare Reported/Operating Blend to Reported for Full Period (1880 to Present • S&amp;P 500)</b>							
Shiller	Reported	24.2	Mean	16.5	47%	1.2	90th
			Median	16.0	51%	1.3	90th
	Reported/ Operating Blend	20.7	Mean	15.9	30%	0.8	83rd
			Median	15.8	31%	0.8	83rd
<b>Range of Outcomes</b>		<b>20.7 – 24.2</b>		<b>15.8 – 16.5</b>	<b>30% – 51%</b>	<b>0.8 – 1.3</b>	<b>83rd – 90th</b>

<b>Analysis 2: Compare Earnings Only in Post-WWII Period and Using Two P/E Methodologies (1946 to Present • S&amp;P 500)</b>							
Shiller	Reported	24.2	Mean	18.3	32%	0.8	83rd
			Median	17.8	36%	0.9	83rd
			Mean (ex 1998–2000)	17.3	39%	1.1	87th
	Reported/ Operating Blend	20.7	Mean	17.3	20%	0.5	74th
			Median	17.1	21%	0.5	74th
			Mean (ex 1998–2000)	16.4	26%	0.8	77th
CA Composite	Reported	23.1	Mean	17.2	34%	0.9	84th
			Median	17.2	34%	0.9	84th
			Mean (ex 1998–2000)	16.4	41%	1.2	88th
	Reported/ Operating Blend	19.7	Mean	16.1	23%	0.6	74th
			Median	16.0	23%	0.6	74th
			Mean (ex 1998–2000)	15.4	28%	0.9	78th
<b>Range of Outcomes</b>		<b>19.7 – 24.2</b>		<b>15.4 – 18.3</b>	<b>20% – 41%</b>	<b>0.5 – 1.2</b>	<b>74th – 88th</b>

<b>Analysis 3: Compare Two P/E Methodologies Using MSCI Data (1969 to Present • MSCI U.S.)</b>							
Shiller	MSCI Operating	21.8	Mean	20.1	8%	0.2	64th
			Median	19.3	13%	0.3	64th
			Mean (ex 1998–2000)	18.2	20%	0.6	70th
CA Composite	MSCI Operating	20.9	Mean	17.4	20%	0.5	71st
			Median	16.7	25%	0.6	71st
			Mean (ex 1998–2000)	16.1	30%	0.9	76th
<b>Range of Outcomes</b>		<b>20.9 – 21.8</b>		<b>16.1 – 20.1</b>	<b>8% – 30%</b>	<b>0.2 – 0.9</b>	<b>64th – 76th</b>

Sources: Cambridge Associates LLC, MSCI, Inc., Robert J. Shiller, Standard & Poor's, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: For the middle two tables, data are interpolated monthly using quarterly earnings. Shiller price-earnings (P/E) ratios for the S&P 500 Index are calculated by dividing the current index value by the rolling ten-year average of inflation-adjusted earnings. The composite normalized P/E is calculated by dividing the inflation-adjusted index price by the simple average of three normalized earnings metrics: ten-year average real earnings (i.e., Shiller earnings), trend-line earnings, and return on equity-adjusted earnings. Operating earnings data begin December 1984. The normalized reported/operating blend data uses as reported data from December 1880 through November 1984 and operating earnings-based data from December 1984 to present. Earnings data are preliminary for September and October 2013. CPI-U data are through September 30, 2013. Percentile calculations are based on 0 representing the lowest observation and 100 the highest, and use data through October 2013.

## Conclusion

The Shiller P/E's critics tend to become increasingly vocal just when its signals become the most relevant. Despite their poor timing, they may have a point—there is no shortage of ways to argue that the long-run average Shiller P/E understates a likely ending multiple for U.S. equities over the next several years. Still, investors disregard the Shiller P/E's high level and past association with longer-term returns at their peril.

Our own valuation work, which emphasizes more recent data, confirms that U.S. equity prices are well above average, largely because earnings have raced ahead of their trend growth. The conclusion that the market is expensive holds true almost regardless of the ways in which one tries to “break” the assumptions inherent in using a long-run average P/E. Conversely, deciding that today's market price is undemanding requires an assumption that this time truly is “different.”

Despite lofty equity prices, both the Shiller P/E and our composite valuation ratio are below levels that have signaled some of the sharpest historical downturns. Our expectation is that the market can stray far from “fair value” for a very long time, and indeed may be far away from it most of the time. We typically wait until markets reach 1.5 standard deviations above our adjusted average before declaring them “very overvalued,” or, in other words, recommending that investors seriously consider exiting the asset class altogether if possible. Today, that would require a further 16% rise in prices without an accompanying increase in earnings.

We recommend that investors tilt their portfolios toward those regions where less rosy valuation assumptions are needed to project high single-digit real returns: Europe and emerging markets. ■