ECONOMIC ANALYSIS

Are Equity Prices Overvalued?

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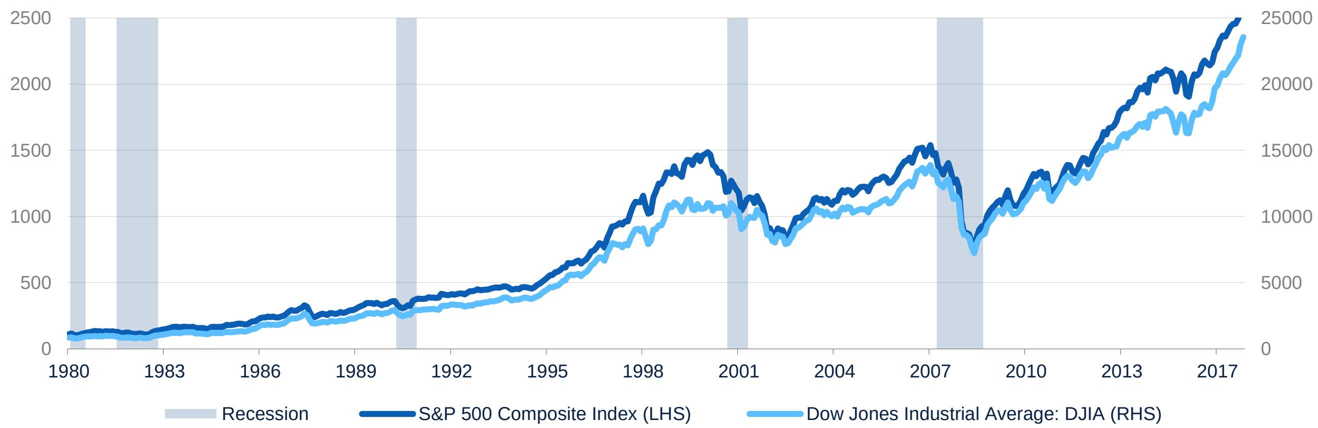
- **The stock market is not significantly overpriced after controlling the effect of imminent corporate tax cuts**
- **No visible credit bubble for domestic debt**
- **The deleveraging of households and financial institutions is effective**

It has been ten years since the previous recession. With the stock market's substantial growth for the last few years (Figure 1), investors are increasingly more concerned about the credit bubbles that could trigger another market meltdown. In this brief, we look at the stock market valuation and domestic debt, and try to provide an assessment of the risk of credit bubbles in the economy.

Figure 1. S&P 500 and Dow Jones Industrial Average



Source: Haver & NBER

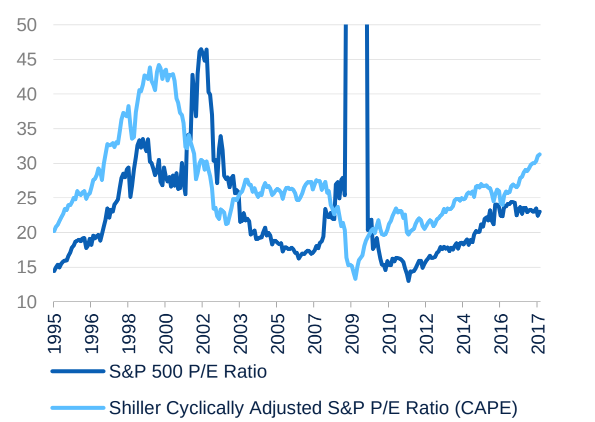
The stock market: P/E ratio is high, but not too high

Theoretically, the P/E ratio of an individual stock tells us its market value compared to the company's earnings. In other words, it shows the valuation of the stock. If one stock's P/E is exceptionally high relative to its historical data and peers in the same industry, it is considered as overpriced. Therefore, if we calculate the average P/E of all stocks in the market, we may have an indicator for the market valuation.

One of the challenges of using the P/E to gauge the market is that macroeconomic variables can significantly alter the ratio and thus make it difficult for investors to separate the effect of market valuation from business cycle fluctuations. For example, expectation of high inflation will lead to high stock prices and thus high market P/E. Also, tight monetary policies with high interest rates may increase the discount factor, which will reduce stock prices and lead to a lower market P/E ratio. Therefore, high P/E does not necessarily imply market overvaluation. To control effects from business cycles, Robert Shiller developed the Cyclically Adjusted P/E (also called CAPE or Shiller's P/E). It uses 10-year moving average of earnings to smooth out the cyclical fluctuation and eliminate the swing caused by business cycle. Figure 2 shows the P/E ratio for S&P 500 and the less volatile, cyclically adjusted P/E based on Shiller's formula. We can see that the original P/E and the CAPE differ significantly for the values during the Great Recession. As most companies' profitability was heavily hit in the stressed environment, the market P/E was artificially high and suggested an overvaluation during the recession. On the other hand, as CAPE uses a 10-year moving average of earnings, it removed the cyclical part of the market, and thus implied an undervaluation of the market. Obviously, CAPE proved to be a better guidance of the market valuation, as firms with sound fundamentals have shown strong growth after the recession.

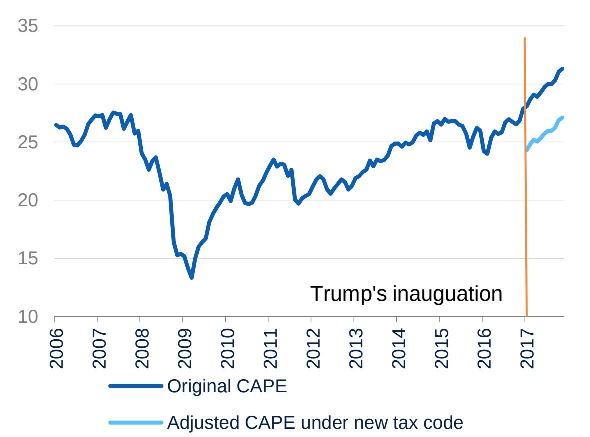
So is the high CAPE ratio a flashing warning light for the equity market? Instead of interpreting the rising trend of the series as a substantial evidence for the existence of credit bubble, we should consider a structural change that could potentially result in higher P/E ratios in a rational market: the fiscal reform that targets lower corporate tax rates.

Figure 2. S&P 500 P/E Ratios



Source: Robert Shiller & Haver

Figure 3. Adjusted Shiller P/E under new tax code



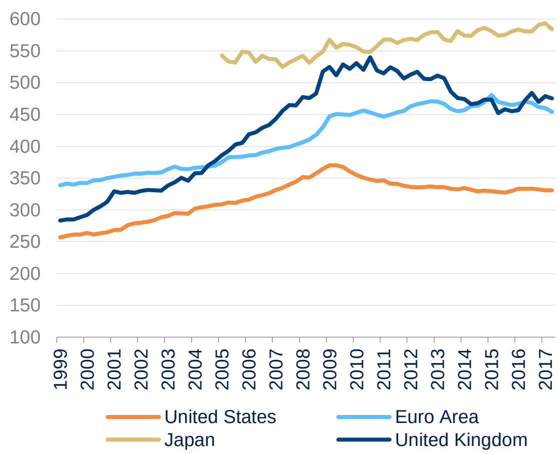
Source: Robert Shiller, Haver and BBVA Research

The election of Trump in last November considerably raised the prospect of a fiscal reform that would cut corporate tax payment. As numerous empirical studies have shown, the market is driven by expectations. Therefore, even before the votes of the final bill, the hope of tax cuts would be translated into an increase of future earnings. In an efficient market, such expectation will boost stock prices to partly reflect the market valuation under new tax rates, even before the bill becomes effective. As a result, the CAPE will increase, since the expectation of tax cuts only affect current prices, not current earnings. To measure the effect of the fiscal reform, we constructed a hypothetical CAPE ratio under the assumption that an immediate tax cut had been instituted since Trump's inauguration. Figure 3 shows our adjusted CAPE under the new tax cut. We can find that the effect of tax cuts is indeed powerful, and the current market valuation just reached the level around 2015 without surpassing the pre-crisis CAPE ratio.

No visible bubble in domestic debt

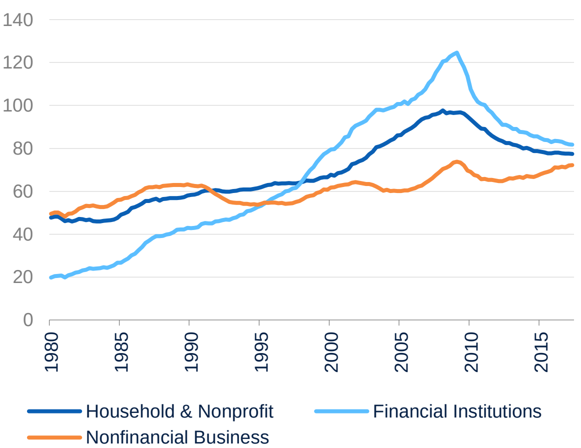
Another popular measure to detect credit bubbles is the level of domestic debt. As Reinhart and Rogoff (2009) have noted[1], massive domestic debt buildups can be the starting point of an economic crisis, as risks will be propagated through financial centers and fluctuations of commodity prices. Figure 4 shows the domestic debt to GDP for the U.S. and other advanced economies. We can see that the U.S. has a significantly lower debt to GDP ratio than other advanced economies. Moreover, since the 1980's, the debt to GDP ratio has shown a persistent increasing trend until 2007. The downward trend after the recession indicates that the deleveraging policy has made a long-run impact on the debt structure for the U.S. economy. Therefore, the aggregate level of domestic debt does not present an alarming sign of credit bubbles.

Figure 4. Domestic debt as a percentage of GDP
%



Source: Haver

Figure 5. Sectoral debt as a percentage of GDP
%



Source: Haver

We further show domestic debt in different sectors in Figure 5. We can see that debt built up at a fast pace before 2010 in the financial sector. However, the deleveraging effort has made significant progress, as the series still has a downward trend, and the current level of debt for financial institutions is similar to early 2000's. Moreover, we can see a credit boom for households before the recession, as the debt to GDP ratio sharply increased after 2000, which eventually triggered the sub-prime crisis. Although the deleveraging of households is not as substantial as financial institutions, the recent stabilization of the series does not show any warning sign either.

1: Reinhart, C. M., & Rogoff, K. (2009). This time is different. *Eight Centuries of Financial Folly, Princeton University, Princeton and Oxford*.

Bottom Line

In this brief, we try to find evidence of credit bubble by checking the stock market and domestic debt. For the equity market, as the expected and actual passing of corporate tax cut can boost the Cyclically Adjusted P/E (CAPE) before the effective date of the fiscal reform, we show that the market valuation has not surpassed its 2007 level. The stock market can probably enter the bubble territory if the current increasing trend continues. However, today's market is not significantly overvalued yet. Moreover, data of domestic debt shows that the deleveraging after the Great Recession is effective, and the U.S. is in a better position than other advanced economies. For now, domestic debt should not be a concern for investors.