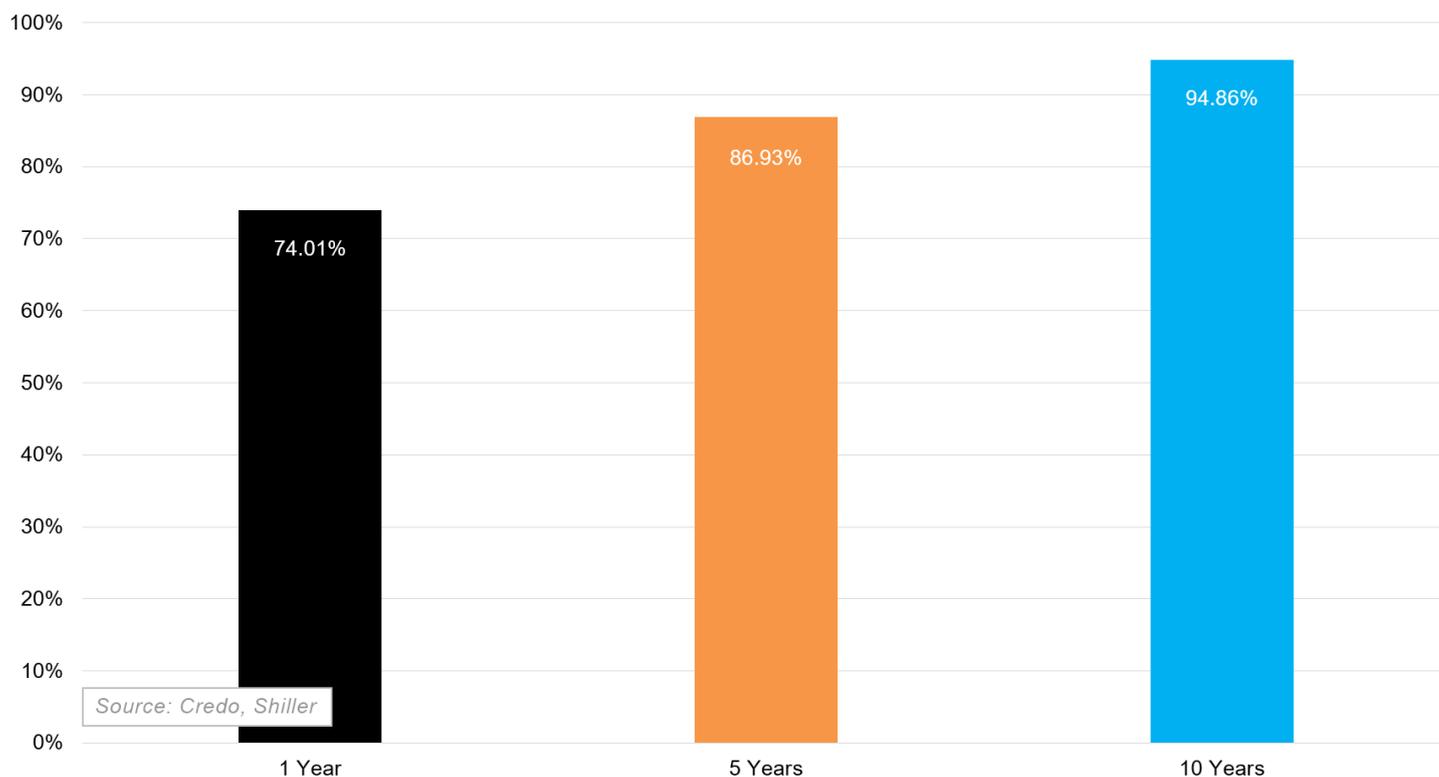


# The opportunity cost of anxiety

*Ainsley To, CFA - Research Analyst - 28 June 2017*

Investing, as with any activity that involves some form of risk taking, comes with a degree of anxiety. And whether your concerns are geopolitical, economic, demographic, and/or valuation related, it seems there are plenty of reasons to be anxious about investing in markets today. But instead of diving head first into the details of today's macro environment, it is worth considering what Daniel Kahneman called "the outside view". What has been the distribution of outcomes for all investors over time? And what can long term data tell us about expectations for equity investors who have been through a variety of macro environments?

Probability of a positive return based on holding period



There are many angles to look at rewards in the equity market, including real returns (adjusted for inflation) or the risk premium (excess of equity returns above the risk free rate). Since investors' sensitivities are often regarding actual gains and losses, in the following analysis I will focus on nominal returns for the sake of simplicity. That said the conclusions are broadly similar when looking at real returns or risk premiums.

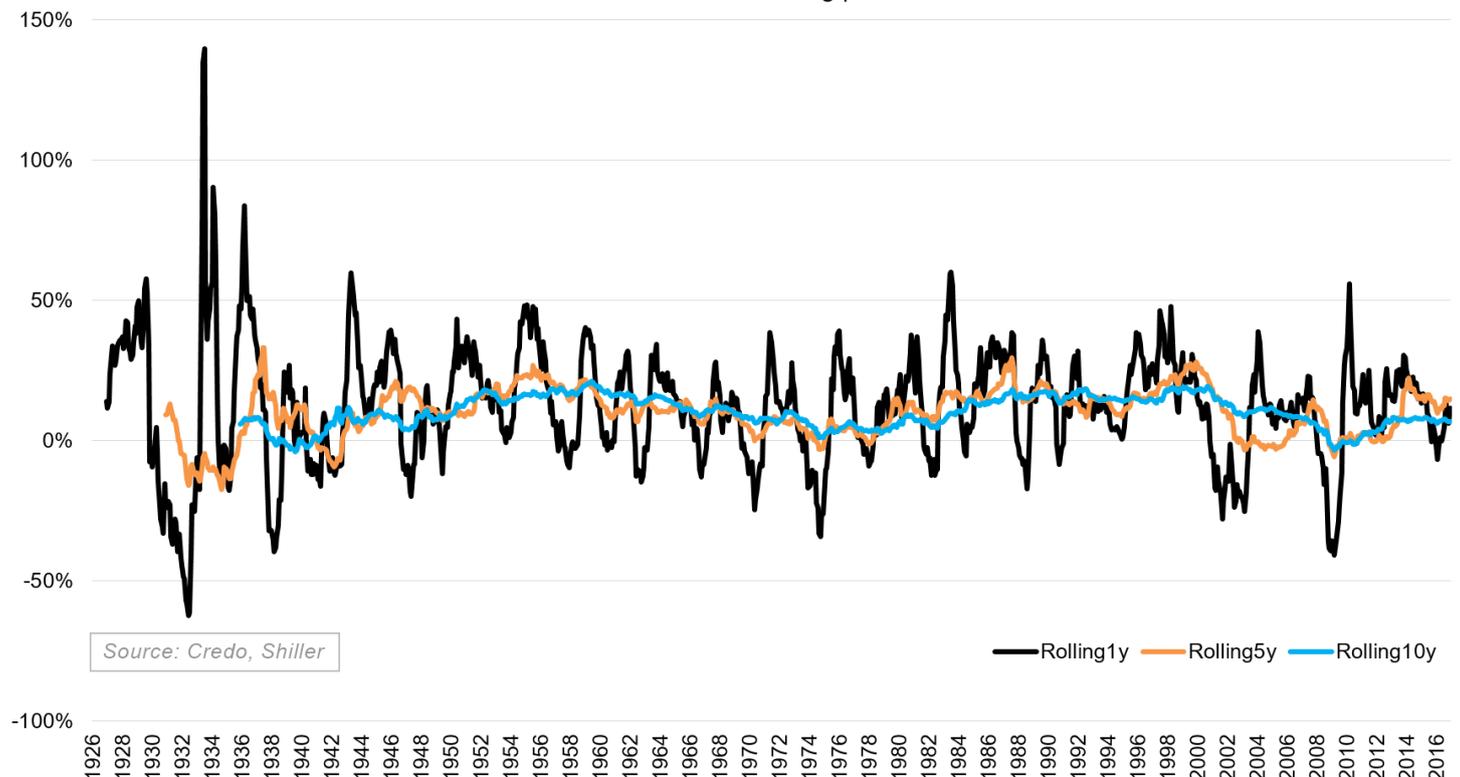
Using nominal equity returns since 1926, the bar chart above shows the likelihood of achieving a positive return if you invested on any given month in the last 90 years, for different holding periods. A shorter term investor who held his position for 1 year achieved a positive return 74% of the time. The probability of losing money decreases with time horizon, such that with a holding period of 10 years you achieved a positive return 95% of the time. Investors have historically been rewarded for holding equity risk (we can refer to this reward as the risk premium). ▶▶

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Despite the risk premium being positive over time, it fluctuates around this positive mean - as you would expect, otherwise it wouldn't be called "risky"! The chart below shows the magnitude of returns for different holding period. If you are holding equities for 1 year (in black), the dispersion of outcomes you achieve can vary widely – there have been some great 12 month periods to be in equities where you could have made over 130% and some terrible periods where you could have lost in excess of -60%. However as you increase your holding period, the dispersion around this positive risk premium decreases – the best case scenario for an investor with a 10 year horizon (blue line) was 21% a year and the worst was -4% a year. Having a longer time horizon reduces the noise around the risk premium, another way of saying that whilst you miss some of large wins, you also avoid some of horrific losses.

Annualised Returns for different holding periods - 1926-2017



The potential big wins with a short time horizon might be appealing if you are looking to get rich, as long as you're prepared for the real possibility that you might also get poor! However if you are looking to stay rich, then having a longer time horizon improves your odds dramatically.

## Risk depends on your reference point

Whilst we have looked at the likely losses over a whole investment horizon, it is worth considering the path that your assets take during the journey. Drawdowns are the losses from a previous peak, or how much you lost from the all-time high. This is relevant for investors as an idea of the **worst** case scenario e.g. if you were so unlucky as to buy at the peak, what losses could you have experienced and how long would it have taken you to recover?

Drawdowns vary depending on the frequency of data you use – when using monthly data equities are in some form of drawdown 67% of the time e.g. during two thirds of your holding period, you are probably not going to be making all-time highs. And even though you would have made many multiples of your capital from investing in equities over the long term, the worst drawdown periods along the way have been extremely painful. ▶

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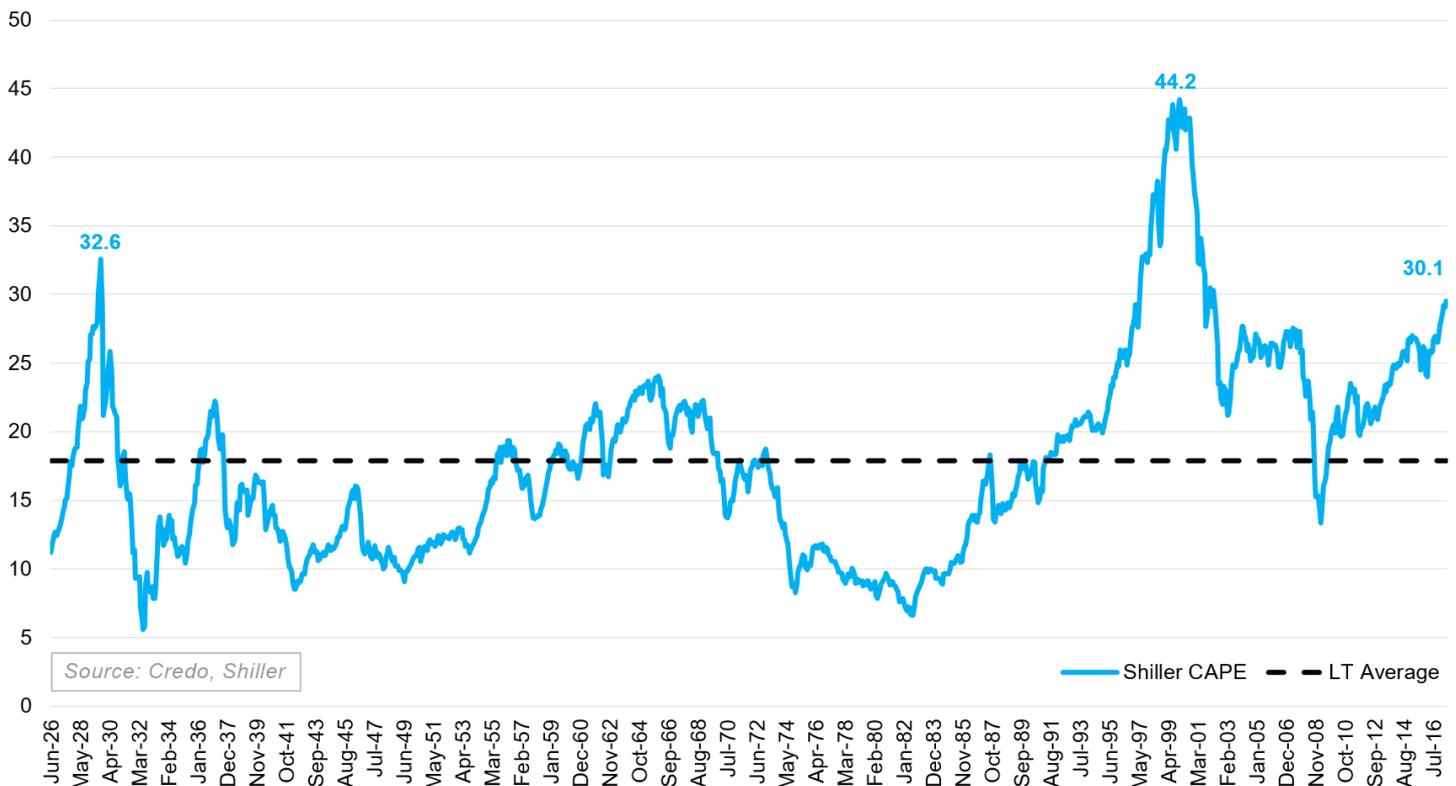
The worst possible time in history to buy equities was at on the onset of the Great Depression in 1929 – the unfortunate investor getting into the market then would have lost as much as 80% down to the trough in mid-1932, and it would have taken until 1944 for them to recover back their initial capital. The second worst time would have been just before the recent financial crisis – had you invested in October 2007 you would have experienced a 50% loss down to where the market bottomed in Mar 09 and taken over 3 years before you reached a new high in July 2012. However it is worth emphasizing these are the **worst** scenarios over 90 years of history and they are also extreme outliers across the range of possibilities. If we look at all the cycles since 1926, then the median time to recover from a drawdown has only been 3 months. So whilst it is far more fashionable to focus on the worst case scenario when making any investment decisions, one should also not lose sight of the most likely outcome which is probably going to be far more relevant for them.

## This time it's different?

When faced with long term evidence it is human nature to suggest that this time is different. Chrono-centricity is the human tendency to believe our generation is the one that sits on the cusp of history. That the changes of our time are unique and our circumstances are different to the generations that came before us. Of course, since change is the only permanent feature of human history, this belief is a truism. This time is always different.

There are many measures of stock market valuation, all with their own advantages and flaws. One more popular measure is the Shiller CAPE ratio, which uses current prices and an average of inflation adjusted earnings over the past 10 years. I've shown below the CAPE ratio since 1926 (Professor Shiller has data since 1870, but I've used 1926 due to some quirks in the way the data was collated prior to this period. Nonetheless if you included the older data, the picture is broadly the same). ▶▶

Shiller CAPE - 1926-2017

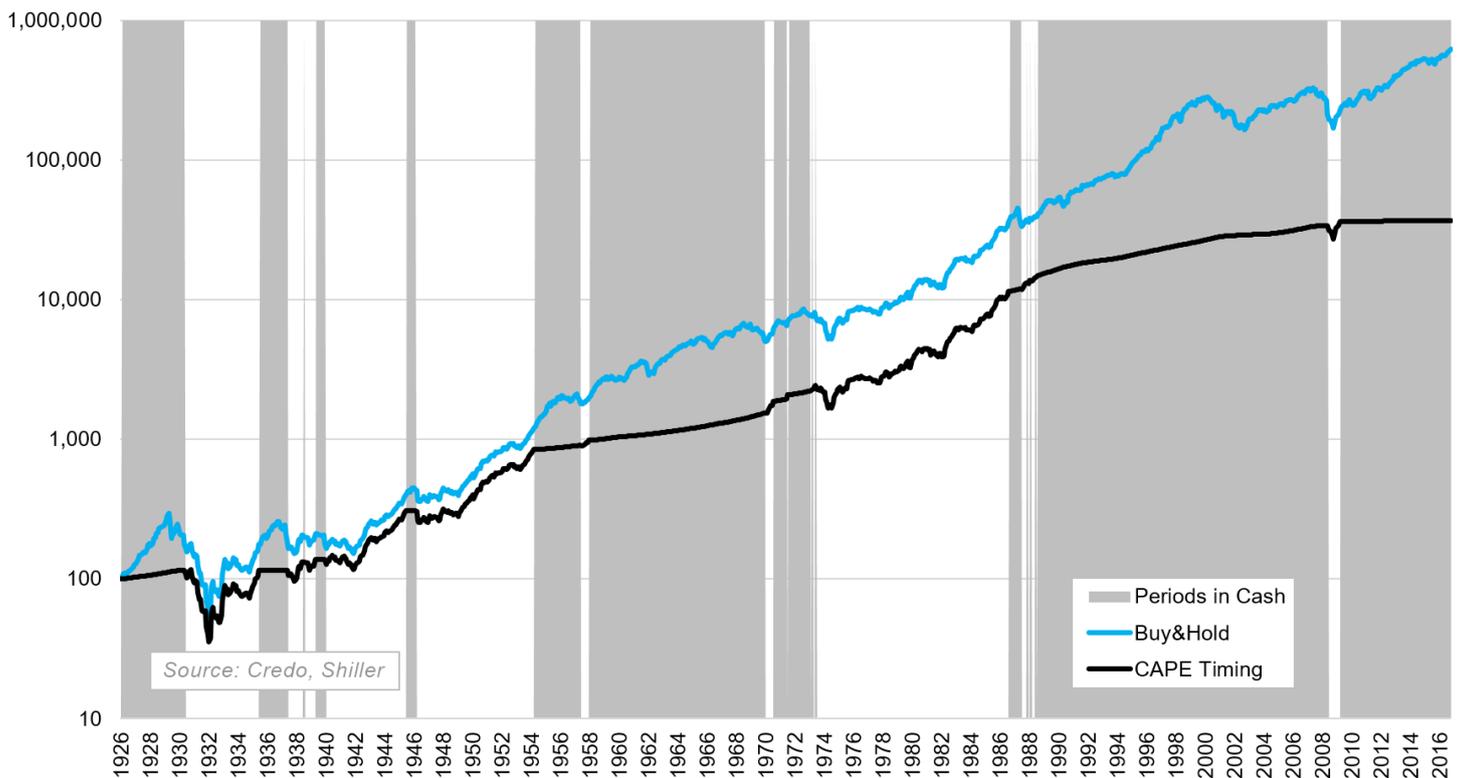


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Today is only the third time in history the ratio breached 30. The first time this happened was a period referred to above in 1929, and soon after the US entered the Great Depression and markets collapsed. The second time was during the early stages of the Tech Bubble in 1997, and the market went on to gain another 80% before it peaked. So is the fact that the market is expensive relative to history useful for investors who are looking to time the market? A simple way to test this is comparing the results of a Buy&Hold investor to that of a strategy that uses CAPE as an indicator for entry and exit. The black line below is invested when the market is cheaper than its long term average and goes to cash when the market is more expensive (these periods when the strategy is out of the market are highlighted in grey).

Buy&Hold vs Market timing using CAPE - 1926-2017



Over the long term, market valuations have not been useful as a timing indicator. Even though you might miss some bear markets, you underperform a Buy&Hold investor over time. By sitting in cash when the market was expensive, you miss out on the equity risk premium, which has been positive even during periods of above average valuations. A great illustration of this has been the most recent period – as you can see from the chart, CAPE would have only given you one clear buy signal in the last 30 years! Yet despite expensive valuations and some large crashes such as in 2008, equity returns have continued to be positive during this period. As the saying goes, “Buy and Hold is the worst investment strategy apart from all the others”.

However even though valuation measures such as the CAPE ratio have not been useful for market timing, it has had an impressive record as a guideline for future returns. Using the same data, the table below groups historic CAPE ratios into deciles and looks at the maximum, average, and minimum future 10 year returns that were realised for each level of starting CAPE. ▶▶

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Decile	Starting CAPE Range	Maximum 10 yr forward return	Average 10 yr forward return	Minimum 10 yr forward return
1	5.57 to 9.73	21.17%	15.16%	4.75%
2	9.73 to 11.26	20.94%	15.15%	4.33%
3	11.26 to 12.67	18.67%	13.88%	5.40%
4	12.67 to 14.91	19.30%	12.38%	2.64%
5	14.91 to 16.94	19.02%	10.71%	-0.01%
6	16.94 to 18.77	18.53%	9.22%	-1.08%
7	18.77 to 21.00	13.68%	8.25%	-1.61%
8	21.00 to 23.25	11.36%	4.51%	-2.57%
9	23.25 to 26.49	10.11%	6.24%	-1.74%
10	<b>26.49 to 44.20</b>	8.54%	2.58%	-4.02%

In the past when valuations have been at current levels (CAPE was 30 at the time of writing), investors have indeed realised much lower returns than one would normally expect. How you use this information will be a function of what type of investor you are.

## “Don’t be a bottom picker”

The anxiety of lower yields on bonds and potentially lower returns on equities can be paralysing. However there is no evidence that sitting out and hoping for a crash to time your entry has been a successful approach – and even if the market was to enter a significant drawdown in the near future, assuming you will have the perfect timing to pick the bottom and the emotional fortitude to actually execute is somewhat unrealistic in our opinion. We prefer to stay invested with lower expectations, in the knowledge that whilst drawdowns are inevitable, the winning strategy as evidenced by a century of human history is to be optimistic. ■

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