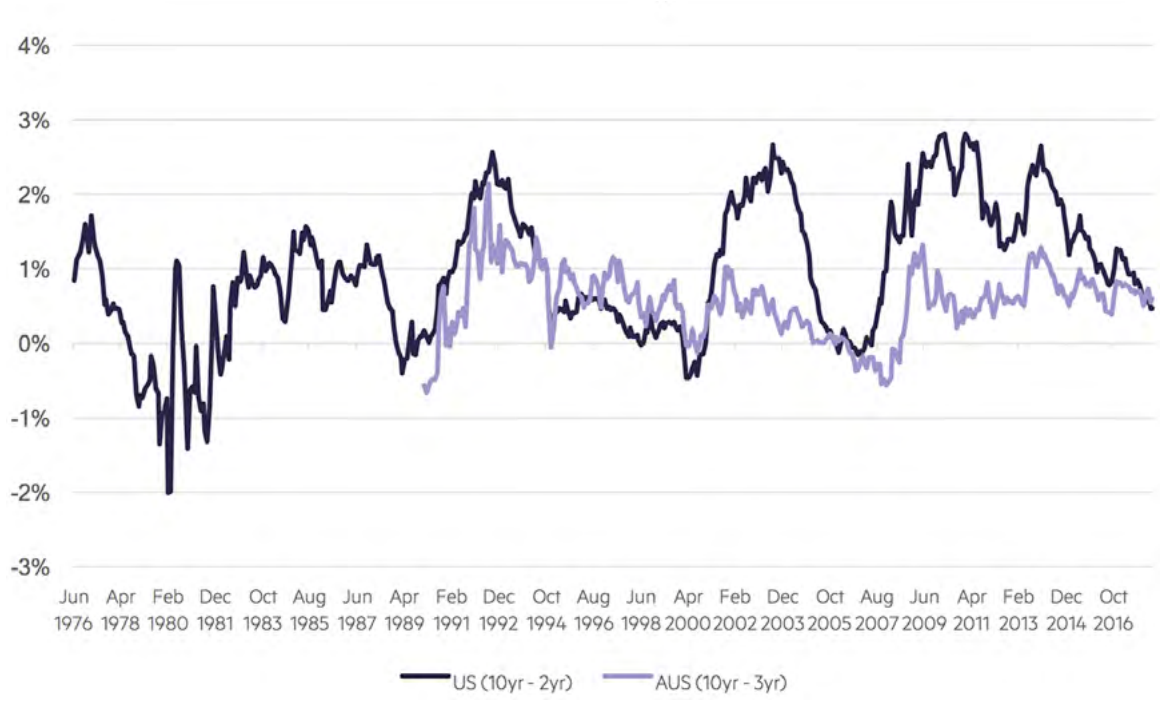
Yield curves and factor investing

Governments have been borrowing money from private citizens for centuries. Although not the first, the UK and the US are two examples: in the late 1600s, the Bank of England was formed to help fund the war effort against France, and the US government issued debt in 1789 to help pay for the American Revolutionary War. Today, in addition to military expenses, governments borrow to fund, support and enable broader society. In developed economies, the likelihood that governments will repay their debt is high, leading investors to treat government debt as having the lowest risk of all asset classes. Given its low risk nature, investor expectations for the broader economy are then captured in the different interest rates for government bonds with different lifetimes, or terms to maturity. Because interest rates are almost always positive, holding a government bond for a longer should be more profitable for an investor - longer terms to maturity should have a higher yield than shorter terms to maturity.

US and Australian yield curves



Source: Platypus, Bloomberg

Subtracting the yield on government debt with 2 year maturity from the yield on debt with 10 year maturity (for US government debt) produces the line, or yield curve, shown above. We do the same thing for Australian government debt, but use the more liquid 3 year bond. When the yield of shorter term government debt goes above longer term debt, the yield curve becomes negative, or inverts. Over the last 30 years in the US, an inverted yield curve has often occurred before the broader economy has entered a recession:

US recessions	US yield curve inverted
Jan 1980 - July 1980	Aug 1978
July 1981 - Nov 1982	Sep 1980
July 1990 - Mar 1991	Jan 1989
Mar 2001 - Nov 2001	Feb 2000
Dec 2007- June 2009	Dec 2005

Source: Platypus, Bloomberg

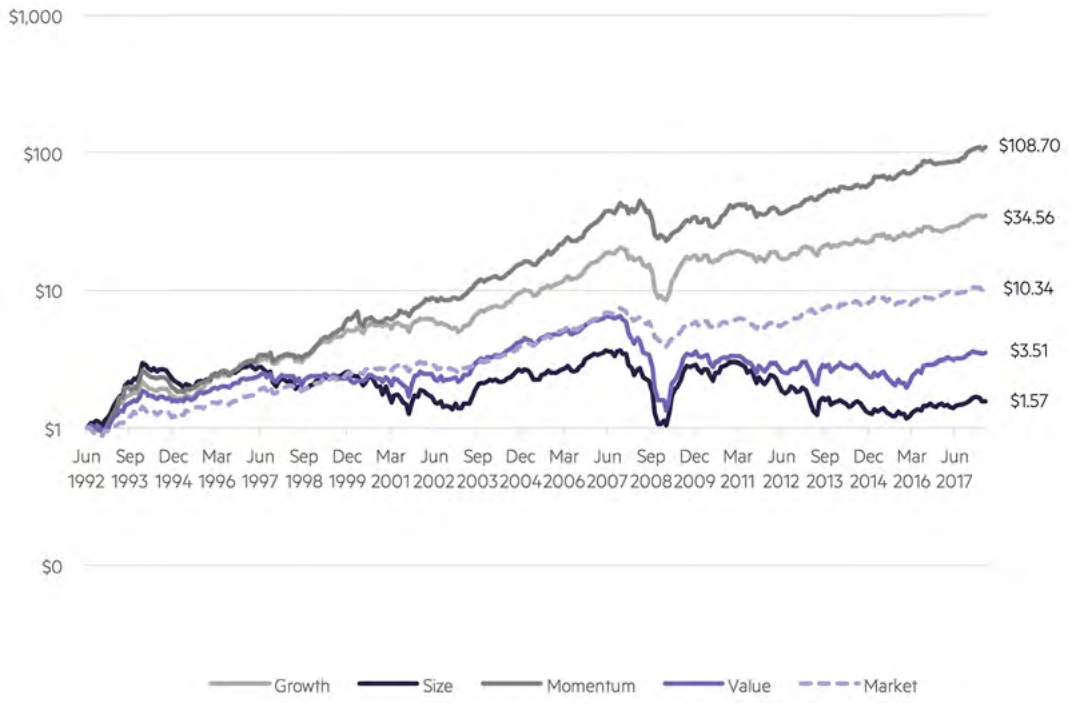
In the case of Australia, the yield curve was significantly inverted at Feb 1990 (the beginning of our data series)before the recession that occurred from Sept 1990 to Sept 1991. There were three false signals after that, with the most recent two coinciding with the end of the Technology bubble in Apr 2000 and the Global Financial Crisis in 2008. Over the time period depicted, the US and Australian yield curves are about 44% correlated,meaning rates are more closely linked to domestic economic activity than the two equity markets, whose monthly returns are nearly 90% correlated since the early 1990s.

What does well when the yield curve flattens?

Presently, the yield curves in both countries are flattening. Government bond investors are becoming more nervous about the future economic prospects for each country. For investors in Australian equities, we can look back and see what did well last time this happened. We want to emphasise that our results are specific to Australian equities. Just because, for example, value might have done better at these points for US equities does not mean that this automatically applies to Australian equities, or other equity markets around the globe. Numerous innovations have originated in the US, including many related to financial markets. However,investors need to be careful when applying these ideas to different markets. A momentum investor in Japan would have very different returns from a momentum investor in Australia over the past three decades (see our recent note for more information **https://www.platypusassetmanagement.com.au/news/indexing-and-factor-investing**

We construct portfolios based on size, value (using low price to book as proxy), momentum, and growth (using return on equity), and look at the returns of these portfolios through the cycle. The portfolios are constructed with every stock having the same weight, and are rebalanced monthly. We refer to portfolios constructed in this way as ‘factor’ portfolios.

Factor returns, including dividends



Source: Platypus, FactSet, IRESS

Investing in cheap, small stocks in Australia has returned less for investors than the index, while investing in high quality, growth stocks and stocks with strong price momentum has been much more profitable than index investing.

In order to measure the performance of these factors at different points in the cycle, we define a flattening yield curve as one in which the 10yr – 3yr yield today is less than the 10yr – 3yr yield twelve months ago. For steepening yield curves, the reverse is true. For each month, we calculate the next twelve month returns of each factor and the index, and take the average of all these data points. Since June 1993, there are 175observations, of which 175 months were classed as flattening. We make no distinction between inverted or not- we are simply looking at the trend in the yields.

	Growth	Size	Momentum	Value	Market
Steepening	17.1%	6.7%	18.5%	13.2%	11.5%
Flattening	13.5%	-0.9%	19.8%	2.2%	8.9%
Average	17.0%	6.1%	22.4%	8.6%	10.9%

Source: Platypus, FactSet, IRESS

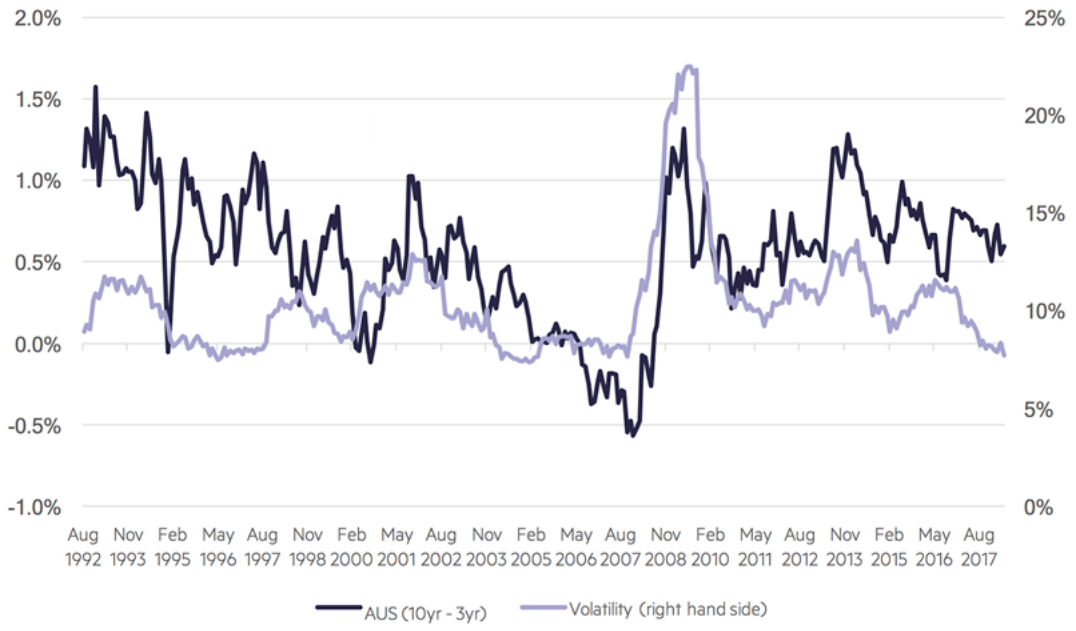
There are a number of interesting observations. Of the four factors, the next twelve months return of the momentum strategy is on average higher when the yield curve is flattening than when it is steepening. This is somewhat counterintuitive – momentum is often seen as a pro-cyclical strategy. One possible explanation is that the yield curve flattens in the middle to end stages of a bull market. Momentum works particularly well in these environments, allowing investors in the strategy to keep their winners running.

For all other factors, including the market, the reverse is true. Another point to note is that the returns to the growth strategy are more stable than the value strategy. In environments when the yield curve is flattening,value underperforms by 6.7%, while growth outperforms. Rotating to value in Australian equities makes more sense when the yield curve is steepening. We are not presently in this environment.

Are the yield curve and equity market volatility related?

We measure the volatility of the index as the average of the standard deviation of the past 12 month returns of each stock in the ASX 300. These results apply to Australian equities and the Australian yield curve – different markets will produce different results.

Yield curve and equity market volatility



Source: Platypus, FactSet, IRESS

Over this period, the yield curve and equity market volatility are 31% correlated. The evidence does not support the idea that as the yield curve flattens, volatility increases. If anything the evidence supports the reverse – volatility increases, and the yield curve then steepens after the fact. This aligns with central bank responses to stressed environments, where short term interest rates are cut to stimulate economic activity.

Looking forward

The pressure on short term rates both overseas and domestically is to the upside, and as this happens there is a probability that the yield curve will flatten. Knowing the likely impact of this on your Australian equity portfolio is useful. Specifically for Australian equities, value underperforms growth more significantly when the yield curve is flattening than when it is steepening.

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