



Market comment: bear market coming up?

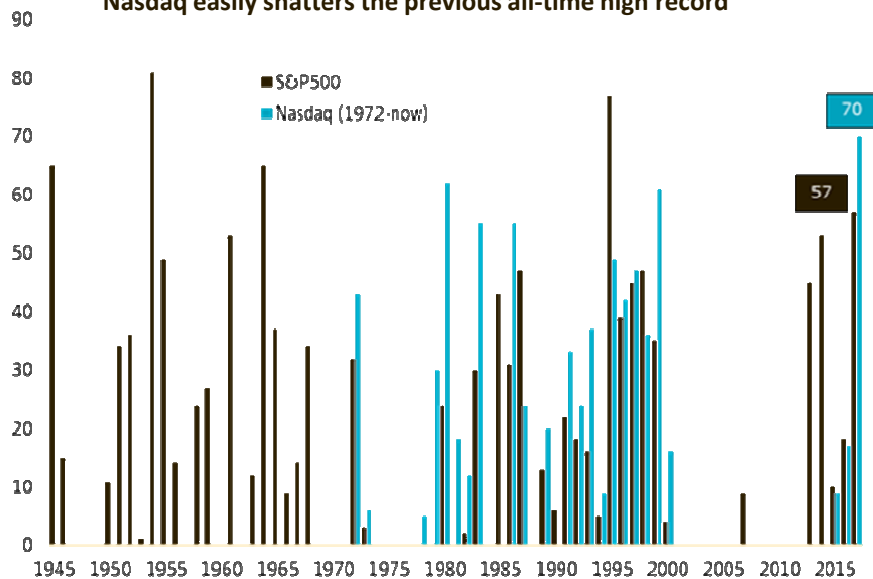
December 2017

Bear market coming up?

Another month, another new all-time high for the US stock markets. The expectation that the Republicans would – finally – be able to muster enough unity to push the tax reform through Congress resulted in a new wave of all-time highs for the various US stock indices, ranging from the S&P 500 to the Willshire 5000. All-time highs for everyone! During 2017, the S&P 500 has now managed to close at a fresh all-time high 57 times this year (good for a number five spot in the post-World War II era), while the Nasdaq has now secured 70 new all-time high closes, shattering the 1999 record of 61.

It is not just US stocks that are on the rise though: concerns of an upcoming correction are also spreading with each all-time high reached. Reading through the various outlooks published by the major banks and institutions, the central theme is one of cautious optimism, with a clear emphasis on the caution part. The valuation of US stocks has reached lofty levels, while credit spreads have

Nasdaq easily shatters the previous all-time high record



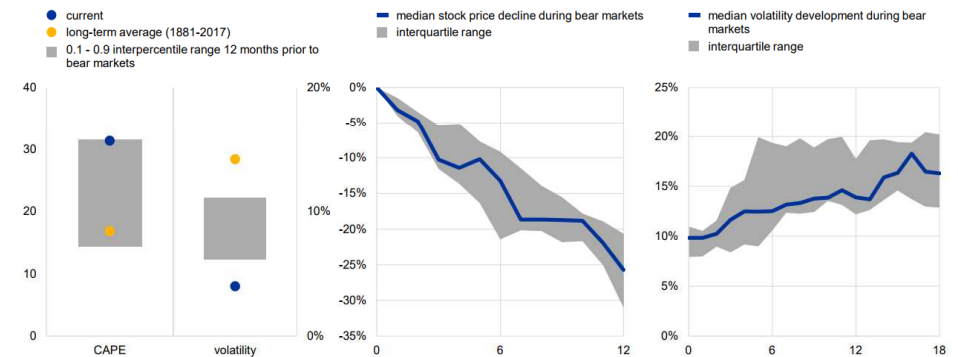
Source: Bloomberg & Robeco

Chart 5

Periods of low stock market volatility may incentivise higher risk-taking, possibly leading to stock market corrections and elevated volatility

Stock market valuations and volatility levels in the year preceding 13 US bear markets since 1881 (left panel); stock price developments and volatility movements during the 13 bear markets (middle and right panels)

(left panel: US CAPE ratio levels and annualised stock market volatility; middle panel: 12-month cumulative US stock price developments in percentages; right panel: 18-month development in US stock market volatility, annualised volatility)



Sources: R. Shiller's homepage and ECB calculations.

Notes: The 13 bear markets identified by Shiller are: 1892, 1895, 1902, 1906, 1916, 1929, 1934, 1937, 1946, 1961, 1987, 2000 and 2007 (for details, see R. Shiller's 22 September 2017 column). The dataset only allows for monthly computations. Thus, the volatilities shown in the left and right panels are computed based on the (annualised) standard deviation of monthly returns over a one-year period. This is the reason why the right panel has been extended to 18 months compared with 12 months for the middle panel.

Source: <https://www.ecb.europa.eu/pub/pdf/other/ecb.financialstabilityreview201711.en.pdf>

declined, regardless of the underlying deterioration of credit quality and overall leverage. Not surprisingly, more and more analysts are contemplating if, when and how the current rally in the risky parts of the US financial markets will come to an end.

The recently published Financial Stability Review can act as a case in point. It flagged the high valuation of the US stock market, warning that a correction in the US market would also pose a risk for the (much more cheaply priced) European stock markets. The charts below are taken from the report and they give an ominous-looking view of valuation, volatility and bear markets.

It is an interesting set of charts (see previous page). The two charts on the right show what happens during an average bear market, which is defined as a correction of at least 20%. Not surprisingly given this definition, stocks decline by more than 20%, while volatility increases. The more interesting bit is the chart on the left, which looks at the valuation and volatility at the time of the start of the previous bear market. The left bar of that chart shows the historical valuation that prevailed in 80% of the previous US bear markets, looking at the Shiller PE (a.k.a. the Cyclical Adjusted Price earnings ratio). The current valuation – depicted by the blue dot – appears to be at the top of that range, which sort of seems to suggest that we are due for a pullback. The reversal seems to be true with respect to the right bar, which shows the realized volatility, which is currently below the lowest level in 80% of previous bear markets.

In itself, we are not that convinced by the chart. As it turns out, there is a good reason why the chart only shows the 0.1 to 0.9 interpercentile range. Adding the remaining 10% on either side would have extended the left bar to a 12-43 range, which would have put the blue dot somewhere in the middle. Something similar would have occurred with the volatility chart, although the current volatility of 4% would still be an outlier. Looking at the title above the chart, we do not think that the ECB is very convinced either: “Periods of low stock market volatility **may** incentivize higher risk-taking, **possibly** leading to stock market” (our emphasis). That can hardly be seen as a bold claim of anything.

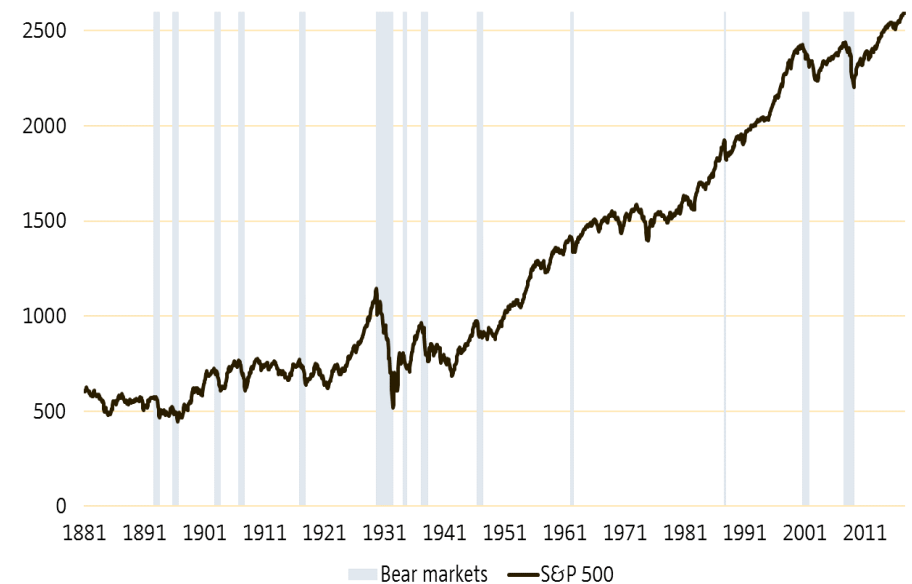
The chart raises an interesting question though. The fact that high valuation increases the risk of a correction is probably not a shocking statement to make, but does low volatility add something to the mix as an early warning signal? We understand that a low volatile trading environment for a prolonged period can theoretically lead to excessive risk taking (Minsky’s argument), but is this something that can be used to predict a market correction as well?

Bear markets - the basics.

If you want to take a crack at predicting bear markets, you first need to have a clear idea of how to define one. A 20% correction from the previous peak sounds simple, but it raises a number of questions. Strictly interpreted, it means that the Nikkei index has been in a bear market for over 27 years. Although no one will claim that the Nikkei has been a solid investment for sure,

it does not do justice to the six 20%+ drawdowns that the index has experienced since the 1990s. Some sort of a time restriction should be imposed to ‘retire’ an old peak which has never been surpassed since. Another consideration may be that of inflation: the Bovespa rose more than 1,000% in 1994, while inflation was as high as 5,000%. Most investors would qualify that as a bear market.

The 13 US bear markets identified by Shiller



Source: Shiller & Robeco

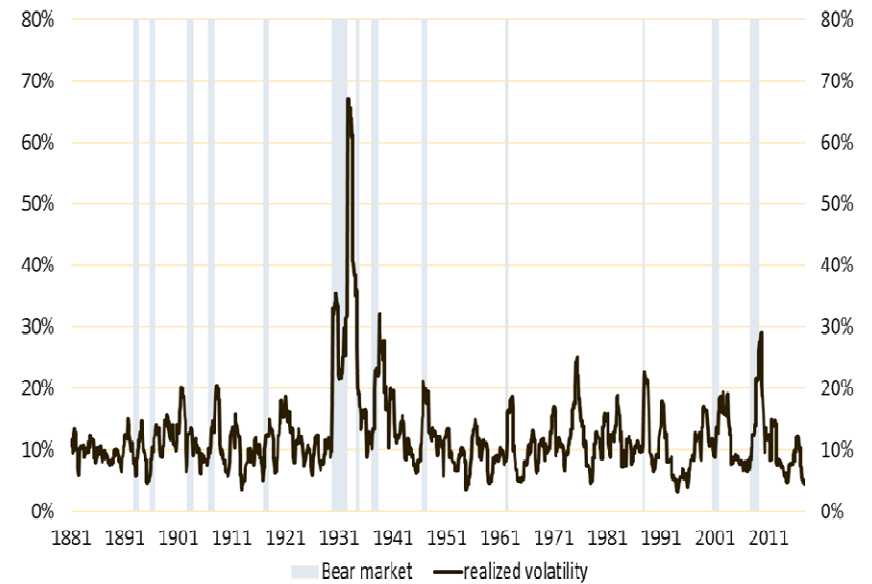
Rather than invent our own definition, we stick to the one used by the ECB in constructing its chart. This definition is the one that was introduced by Robert Shiller in a blog post ([The US stock market looks like it did before most of the previous 13 bear markets](#)) that he wrote in September, which runs as follows: “The peak before a bear market, per my definition, was the most recent 12-month high, and there should be some month in the subsequent year that is 20% lower.” Using this rule he ends up with 13 bear markets since 1881, as can be seen in the chart above. Although this addresses the Nikkei timing issue,

the rule that a 20% correction needs to take place within 12 months means that you are filtering out the bear markets that take a bit longer to develop. Additionally, whereas Shiller uses real prices in the construction of his famous Cyclical Adjusted Price Earnings ratio (CAPE, or Shiller PE), he sticks to a nominal approach here. As a result, the 1970s and 1980s are ‘bear-free’, even though there have been some pretty nasty corrections during that timeframe. Shiller himself acknowledges this as well: “A couple of notorious stock market collapses — in 1968-70 and in 1973-74 — are not on the list, because they were more protracted and gradual.” One final point of criticism is that Shiller uses monthly averages, which means that a number of bear markets have been averaged out: sharp declines followed by sharp rebounds do not register. It should therefore be noted that we are looking at a subset of bear markets.

Is volatility a good leading indicator?

So how does volatility register in the periods just prior to a bear market? Reading Shiller’s blog, one might get the idea that this might act as an early warning: “stock price volatility was lower than average in the year leading up to the peak month preceding the 13 previous US bear markets” Although this is numerically correct, it does not appear to hold much predictive power. The average annualized volatility in the 12 months leading up to the start of the bear market was 12.1%, which is indeed lower than the longer-run average of 14.1%. However, this average is greatly boosted by the extreme volatility seen in the 1930s, as can be seen in the chart below. If we exclude this time period, annualized average volatility drops to 12.2%, broadly in line with the pre-bear market volatility seen over the 13 bear markets. The chart also clearly shows that record low volatility is by no means a reliable early warning signal for spotting bear markets. Looking at the top 10 list of periods of record low volatility, only once (in 1895) did it precede a bear market: in the other nine cases there was no bear market sell-off. All in all, on a standalone basis, this does not appear to be a useful tool with which to flag a bear market.

Volatility does not act as a good early warning signal on a standalone basis



Source: Robeco & Bloomberg

So what if we look at the combination of valuation *and* volatility? In order to assess this, we have constructed a 10-by-10 table, showing the average forward 12-month return, based on different starting values of valuation and volatility. In order to do this, we have grouped the data in 10 groups for valuation (cheap to expensive, on the vertical axis) as well as 10 groups of volatility (from low to high, on the horizontal axes). The right-hand column shows the returns for the 10 valuation groups (irrespective of volatility), while the bottom row shows the returns for the 10 volatility groups (irrespective of valuation). It should be pointed out that dissecting the data in this way leads to an uneven distribution of observations over the various cells in the table: some of these averages are based on just three observations, while others are based on more than 40. The results should therefore be treated with some caution.

The valuation volatility matrix for 12-months forward returns

		VOLATILITY											
		low	10%	20%	30%	40%	50%	60%	70%	80%	90%		high
VALUATION	cheap	10%	10%	3%	22%	13%	1%	14%	13%	20%	7%	46%	15%
	20%	5%	2%	15%	15%	19%	12%	13%	10%	13%	14%	13%	
	30%	1%	-1%	-1%	15%	17%	11%	7%	2%	19%	4%	8%	
	40%	-10%	-2%	-4%	5%	13%	0%	25%	20%	-3%	10%	7%	
	50%	26%	0%	-13%	-5%	11%	13%	19%	23%	0%	-2%	1%	
	60%	0%	3%	0%	8%	0%	-1%	5%	17%	13%	-17%	5%	
	70%	5%	-12%	-6%	-1%	14%	-2%	9%	4%	9%	-43%	1%	
	80%	7%	11%	8%	0%	3%	14%	8%	6%	22%	11%	8%	
	90%	10%	1%	10%	9%	9%	-1%	-5%	3%	10%	-26%	7%	
	expensive	100%	8%	0%	8%	6%	-21%	-6%	11%	9%	3%	-24%	6%
		7%	0%	4%	7%	11%	5%	10%	10%	9%	8%		

Source: Shiller & Robeco

Having said that, *if* the combination of low volatility and high valuations have historically spelt trouble, one would expect the returns of the bottom left of this table to be on average lower than the rest of the tables (red circle). As it happens, this is the part of the table which has a relatively high number of observations, which adds to the credibility of the results. Looking at the table, there does not appear to be a particular low point in that part of the matrix. If there is any pattern that can be seen from this table, it is that the combination of high valuation and high volatility leads to below-average returns. Based on our earlier observation that the 1930s exhibited an unusually high volatility, this outcome is mostly dominated by the developments in the Great Depression, which was of course not a very stock-friendly timeframe. A final observation is that returns were sub-optimal in the second and third decile of the volatility spectrum (second and third columns). However, this average disguises a high level of variation of the underlying results, so whether we can draw any conclusion based on this outcome is questionable.

All in all, we do not think that there is much predictive value to be had by looking at the combination of valuation and volatility. Of course, we agree with the ECB and Shiller that the current valuation of US stocks is a cause of concern, but whether that means that we are heading for a correction anytime soon remains to be seen. In fact, doing the same analyses but then looking at three-months forward returns only strengthens the conclusion that valuation (be it in combination with volatility or without it) is never a good timing mechanism. The experience of the late 1990s only proves the point: sure, stocks were too expensive in 1998, but the rally lasted until 2000 before the correction finally came. The current rally has been very much momentum and liquidity driven, and so far we see little signs that this is about to end. We therefore continue to be long on stocks, but with a tight stop loss in place.

The valuation volatility matrix for 3-months forward returns

		VOLATILITY											
		low	10%	20%	30%	40%	50%	60%	70%	80%	90%		high
VALUATION	cheap	10%	10%	8%	7%	-4%	-1%	-1%	2%	4%	1%	9%	2%
	20%	-5%	-1%	5%	5%	5%	2%	2%	0%	6%	1%	3%	
	30%	-8%	3%	1%	0%	5%	1%	2%	-1%	1%	3%	1%	
	40%	-5%	-2%	3%	6%	3%	1%	3%	1%	-1%	3%	2%	
	50%	6%	-1%	-1%	4%	0%	6%	3%	15%	3%	-2%	1%	
	60%	2%	1%	0%	0%	-2%	0%	2%	4%	3%	-4%	0%	
	70%	1%	-3%	-4%	-1%	2%	1%	5%	4%	2%	-11%	0%	
	80%	2%	2%	2%	1%	2%	7%	7%	4%	5%	4%	2%	
	90%	4%	3%	-2%	2%	-5%	1%	2%	1%	2%	0%	2%	
	expensive	100%	2%	1%	1%	-3%	-7%	1%	4%	6%	0%	-2%	1%
		2%	1%	0%	2%	2%	1%	3%	3%	3%	0%		

Source: Shiller & Robeco

Portfolio

Multi-asset allocation is always a choice between the various asset classes, but once everything has become expensive, it really turns into a choice of which asset looks the least ugly. Ultimately, if all valuations have moved into bubble territory, cash may turn out to be this choice: a guaranteed negative nominal return, with no upside except for the fact that it is (normally) pretty liquid. You only reach this point in the extreme situation when you are sure that we are heading for a painful and nasty correction, something which by definition is pretty difficult to predict.

We do not think that we have come to that point just yet. Sure, most assets are expensive, and have become even more expensive over the past two months. But with the world economy gaining momentum, the US Republicans close to securing their tax deal, and liquidity still ample, we do not expect this to be logical correction moment. With that in mind, we think that risky assets still offer a better risk/return trade-off, especially as European bond yields have drifted lower again. Within risky assets we prefer equities over high yield, as the latter is less liquid, while the underlying risk profile of the broader market has steadily deteriorated since the start of the year. This is also the reason why we continue to prefer emerging market debt over high yield: better spreads at a better credit quality. The main drawback (as we have experienced) is the currency volatility, which has been the main bleeder for Eurozone investors this year. Our biggest absolute bet (although not in risk terms) continues to be our short position in government bonds.

	Portfolio	BM	active	previous
Equities Developed Markets	31.0%	25.0%	6.0%	3.0%
Equities Emerging Markets	5.0%	5.0%		0.0%
Real Estate Equities	5.0%	5.0%		
Commodities	5.0%	5.0%		
Core Gov Bonds 1-10	12.0%	20.0%	-8.0%	-6.0%
Core Gov Bonds 10+	7.5%	7.5%		
Investment Grade Corp Bonds	20.0%	20.0%	0.0%	0.0%
High Yield Corp Bonds	3.0%	5.0%	-2.0%	-1.0%
Emerging Market Bonds LC	9.0%	5.0%	4.0%	4.0%
Cash	2.5%	2.5%		0.0%
EUR/USD	-3.0%	0.0%	-3.0%	0.0%
EUR/JPY	3.0%	0.0%	3.0%	1.0%
EUR/GBP	0.0%	0.0%		0.0%
EUR CASH	0.0%	0.0%		-1.0%

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