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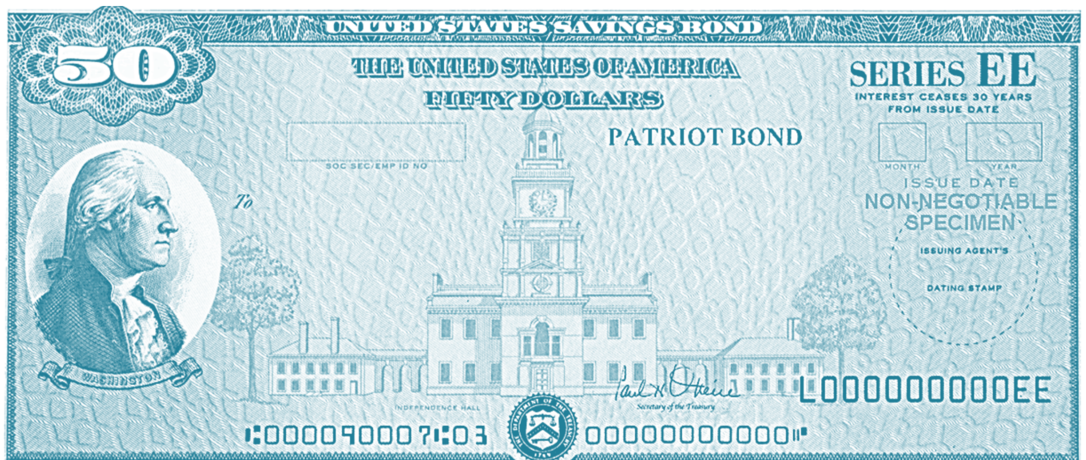
WHY RISING US BOND YIELDS SHOULD BE GOOD FOR US SHARES IN THIS CYCLE



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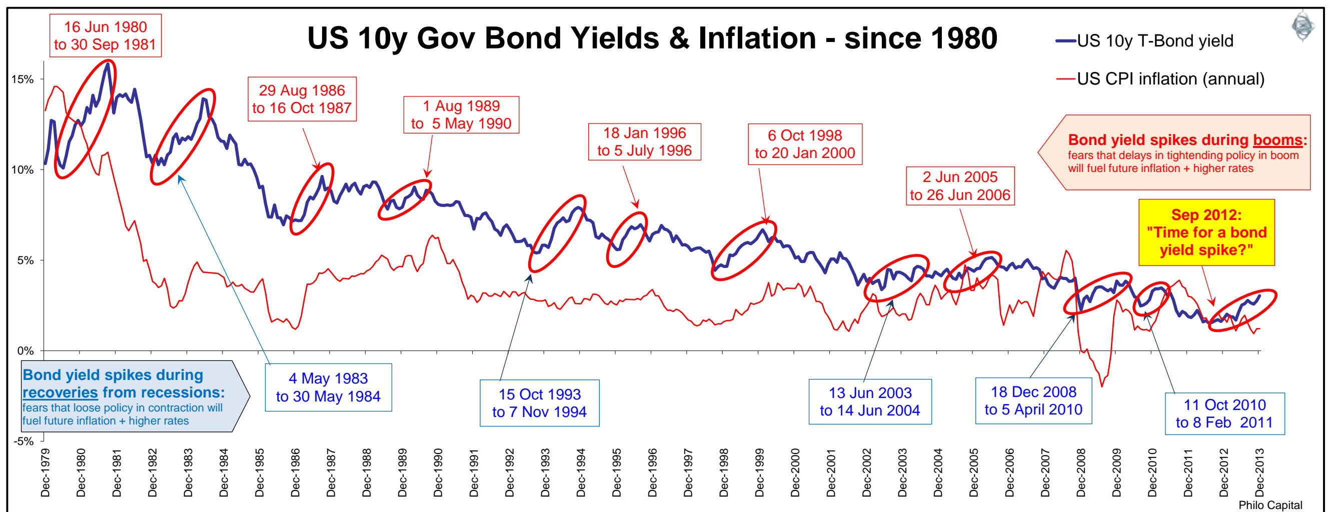
Why rising US Bond yields should be good for US shares in this cycle

There is a widely held belief, supported by theory, that rising bond yields should be bad for share prices. But is this true in real life?

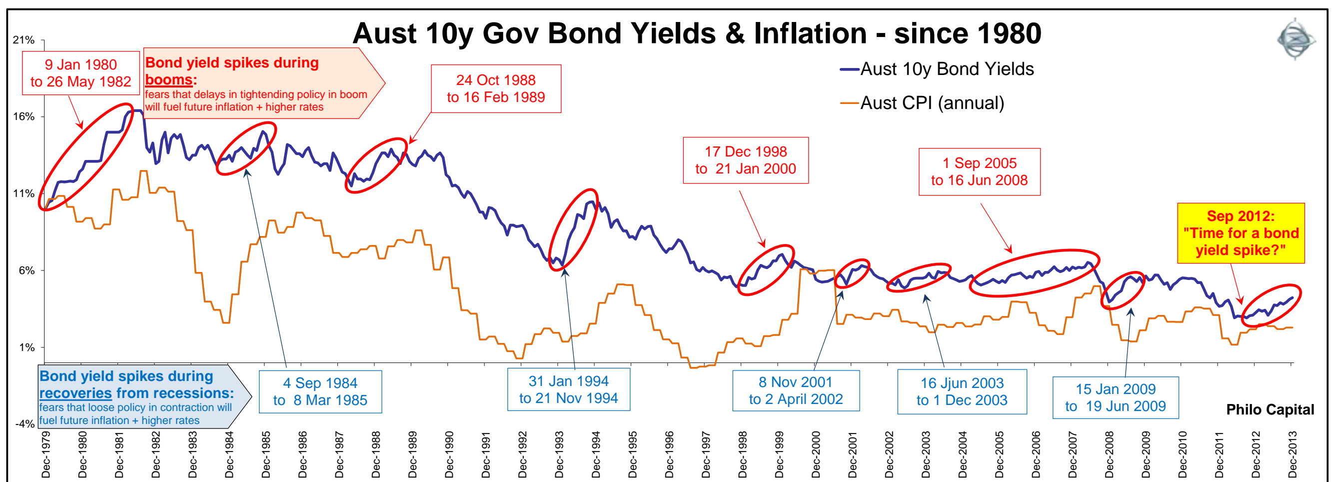
In our report "Time for a Bond Yield Spike?" in September 2012 we made a case for expecting a spike in government bond yields in the US and in Australia. This view supported our under-weighting of global and Australian bonds in portfolios, and over-weighting of global and Australian shares.

Globally, bond yields did indeed spike upward since the lows reached in the September quarter of 2012. This has resulted in poor and/or negative returns in virtually all sectors of the bond market globally as well as in Australia. Over the same period stock markets have soared in Australia, the US and around the world while bond yields rose.

Following is our September 2012 chart of US 10y Treasury bond yield spikes and CPI inflation, updated to the present:



Similar picture for Australia:



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In the US the 10y T-bond yield low of 1.43% reached on 25 July 2012 turned out to be the bottom for this cycle. US yields then spiked up to a fraction above 3% by January 2014, a rise of 1.6% so far. In Australia the 10 year yield low of 2.70% reached on the same day in July 2012 also turned out to be the bottom for the Australian cycle, and yields then spiked up to above 4.3% in early January 2014, a rise of 1.6% so far.

Bond yields and share prices

There is a widely held fear that rising bond yields are bad for share prices.

This fear is supported by theory. The notion that the intrinsic of fundamental value of an asset should be determined, or at least influenced, by the net present value of expected future cash flows discounted at a discount rate based on the yield on long term "risk-free" bonds, has been central to finance theory since Graham and Dodd's "*Security Analysis*" (1934), John Burr Williams "T*he Theory of Investment Value*" (1938), and Myron Gordon's dividend discount model in "*Dividends, Earnings and Stock Prices*" (1959).

In addition, the idea that risk assets should be priced at a premium above long term risk free yields started at least as far back as John Stuart Mill (1848, "*Principles of Political Economy*", Book 2 Ch 16). It underpins Markowitz's mean-variance model of portfolio choice ("*Portfolio Selection*", 1952), and forms the basis of the Capital Asset Pricing Model (Sharpe, Treynor, Lintner, Mossin in the 1960s).

Every stockbroker and security analyst today uses valuation models driven by discount rates based on long term government bond yields. The implication is that, all else being equal, a rise in government bond yields should result in a fall in asset values.

The problem of course is that all else is never equal. Rising bond yields are usually the result of rising expectations of future interest rates and/or rising expectations of future inflation. The factors that drive these expectations of rising future interest rates and/or future inflation are very often also driving expectations of increased economic activity which, to varying degrees, may be expected to flow through to higher company revenues, profits and dividends. As a result, the relationship between government bond yields and share prices is more complex than it first seems.

This paper studies all 27 bond yield spikes in the US market since the 2nd World War and their impacts on share prices. A separate paper assesses the Australian market.

Conclusions:

1. Bond yield spikes on the whole have had _no consistent impact_ on, or statistical relationship with, share prices in the US market - either in the rising inflation phase (1946-1981) or in the disinflation phase (post-1981).
    - Around half of the US bond yield spikes since 1946 were accompanied by _rising nominal_ share prices during the yield spike. (57% during the 1946-1981 rising inflation phase, 62% during the post 1981 disinflation phase, and 59% overall).
    - Around half of the bond yield spikes since 1946 were accompanied by _rising real_ share prices during the yield spike. (43% during the 1946-1981 rising inflation phase, 54% during the post 1981 disinflation phase, and 48% overall)

    This is shown in the following pair of charts that plot changes in bond yields during bond yield spikes versus nominal share price moves during the yield spike (left chart), and versus real share price moves during the yield spike (right chart). They show no clear relationship between the magnitude of the yield spike and share price returns during the spike:

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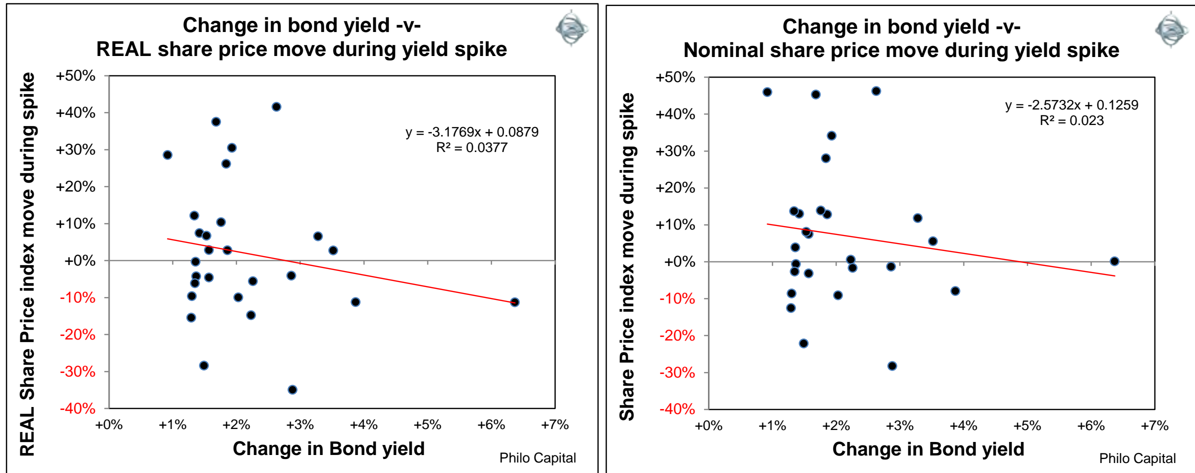
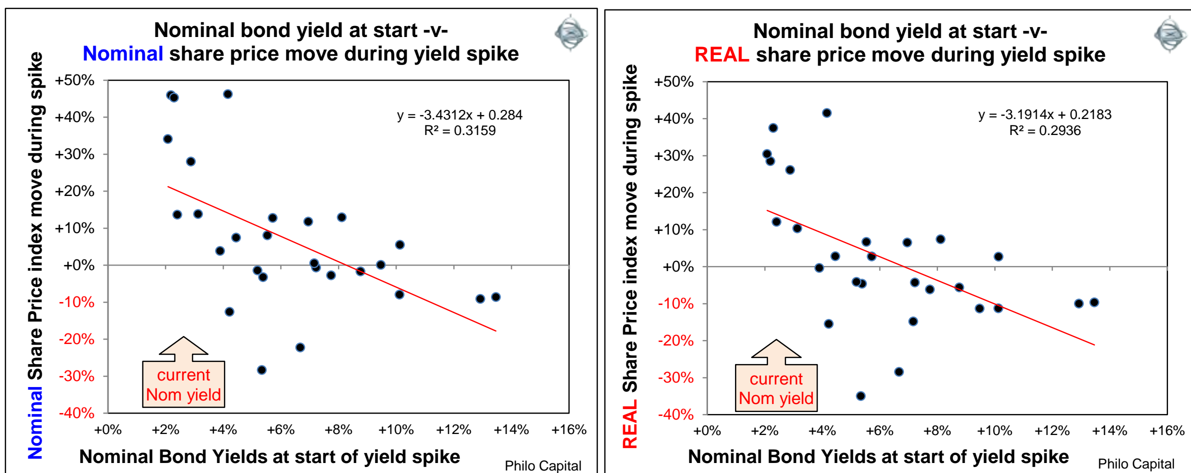


2. What <u>does</u> make a difference to share price returns during bond yield spikes is the level of <u>*nominal bond yields at the start*</u> of the yield spike:

   - <u>*all*</u> of the bond yield spikes that started when nominal bond yields were <u>*low*</u> were accompanied by <u>*high*</u> nominal and real returns from shares during the spike; and
   - <u>*all*</u> of the bond yield spikes that started when nominal bond yields were <u>*high*</u> were accompanied by <u>*low*</u> nominal and real returns from shares during the spike.

This pattern has been consistent in both the rising inflation phase and also in the disinflation phase.

The next pair of charts shows this moderately strong negative relationship between the nominal bond yield at the start of the yield spike versus <u>*nominal*</u> share price moves during the yield spike (left chart), and versus <u>*real*</u> share price moves during the yield spike (right chart):



<u>Current yield spike</u>: When the current bond yield spike started in July 2012, the nominal bond yield at the start was an extremely low 1.43%. In <u>*all*</u> prior yield spikes since 1946 that started with nominal yields at very <u>*low*</u> levels, share prices have <u>*risen*</u> strongly in both nominal and real terms during the bond yield spike.

This finding provided support for our stance of being bullish on US shares in portfolios from last year at the same time as we were warning of a bond yield spike. Even now (end of December 2013), bond yields are still very low at 3%.

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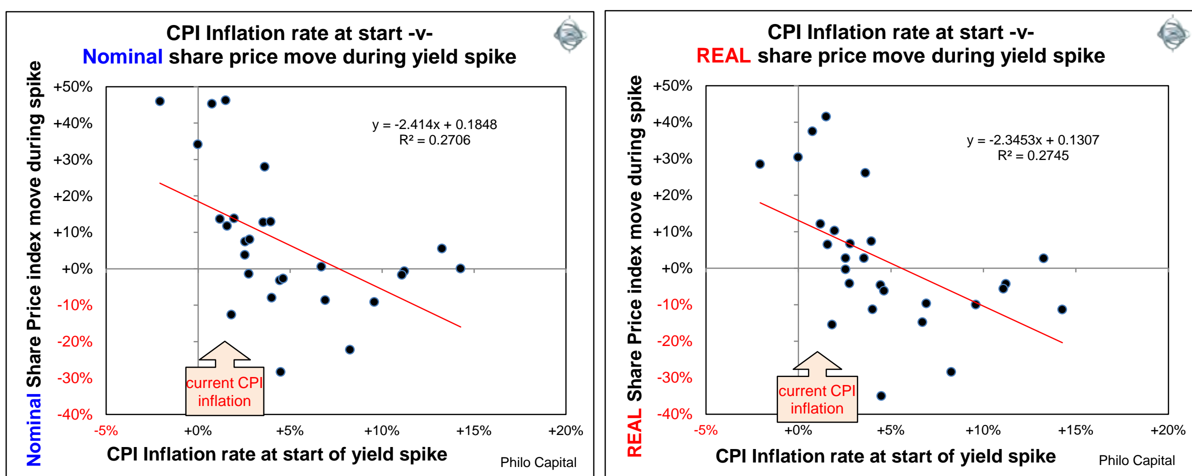
3. Another factor that does make a difference to share price returns during bond yield spikes is the rate of CPI inflation at the start of the yield spike:

   - *all* of the bond yield spikes that started when CPI inflation was *low* were accompanied by *high* nominal and real returns from shares during the yield spike, and
   - *all* of the bond yield spikes that started when CPI inflation was *high* were accompanied by *low* nominal and real returns from shares during the yield spike.

   This pattern has also been consistent in both the rising inflation phase and the disinflation phase.

   The next pair of charts shows this moderately strong negative relationship between the CPI inflation rate nominal bond yield at the start of the yield spike and *nominal* (left chart) and *real* (right chart) share price moves during the yield spike:



   Current yield spike: When the current bond yield spike started in July 2012, the CPI inflation rate was a very low 1.47%. In prior yield spikes since 1946 that started with CPI inflation rates at very *low* levels, share prices have *risen* strongly in both nominal and real terms during the bond yield spike.

   This also provided support for our stance of being bullish on US shares at the same time as we were warning of a bond yield spike. Even now (December 2013), the US CPI inflation rate is still below 1.5%.

4. There have been no consistent relationships between share price returns during bond yield spikes and either:

   - *Real bond yields* at the start of the yield spike - no consistent pattern in either inflationary phase
   - *Dividend yields* at the start of the yield spike - opposite patterns during each inflationary phase (see next)
   - *Price/earnings ratios* at the start of the yield spike - opposite patterns during each inflationary phase

5. These last two measures - dividend yields and price/earnings ratios - are broad relative pricing measures for the market. The findings here are that the issue of whether the market is broadly over-priced or under-priced at the start of a bond yield spike has different impacts on share prices during the yield spike, depending on which structural inflation phase the market was in at the time.

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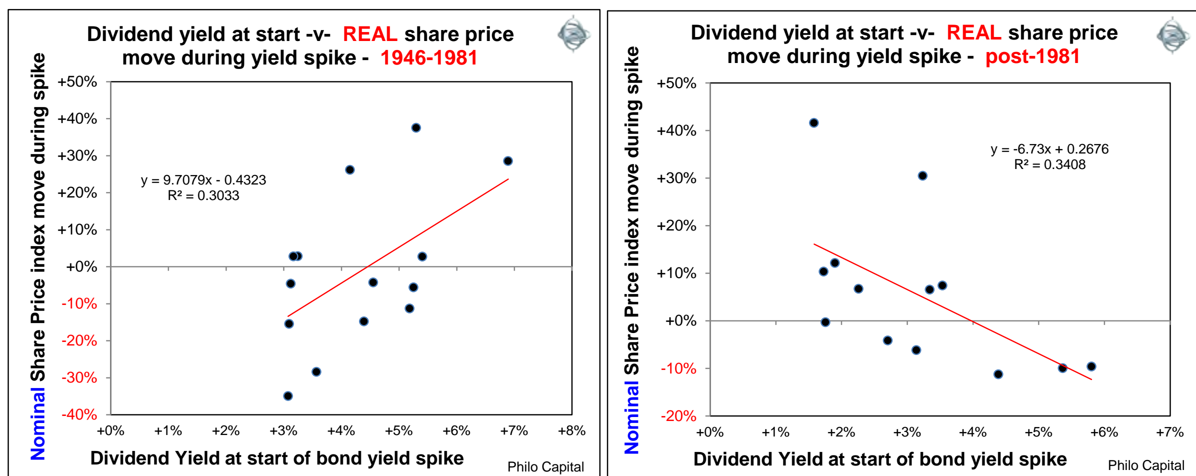
6. In the case of dividend yields at the start of bond yield spikes, there are distinctly different patterns during the 1946-1981 rising inflation period and during the post-1981 disinflation period:

   - In the 1946-1981 rising inflation phase (left chart below) the relationship was positive. Bond yield spikes that started when dividend yields were *low* (ie when the market was broadly *over*-priced) were accompanied by *low* real returns from shares during the yield spikes, and bond yield spikes that started when dividend yields were *high* (ie when the market was broadly *under*-priced) were accompanied by *high* real returns from shares during the yield spikes. This outcome is intuitive.
   - However in the post 1981 disinflation phase (right chart below) the relationship was negative - ie the opposite of what it was during the rising inflation phase. Bond yield spikes that started when dividend yields were *low* (ie when the market was broadly *over*-priced) were accompanied by *high* real returns from shares during the yield spikes, and bond yield spikes that started when dividend yields were *high* (ie when the market was broadly *under*-priced) were accompanied by *low* real returns from shares during the yield spikes. This seems counter-intuitive.

   This is seen in the next pair of charts:



   Current bond yield spike: at the start of the current spike in July 2012 the trailing dividend yield on the S&P500 index was a relatively low 2.0% - well below the median trailing dividend yield since WW2 of 3.2% (and it is still at 1.9% at end of December 2013). So the outlook for shares in the current bond yield spike depends on whether we are still in the secular disinflation phase or in the first stage of the next multi-decade rising inflation phase:

   - If we are currently still in the post-1981 disinflation phase (ie if we expect inflation to go even lower to say below 1% in the next few years), then the current low dividend yield is bullish for shares.
   - However if in fact we turn out to be in the start of the next multi-decade rising inflation phase, the current low dividend would be bearish for shares on this measure. So, without the benefit of hindsight as to what structural phase we are in, dividend yields are of no help here.

7. It is the same pattern with price/earnings ratios - ie opposite relationships in each inflationary phase.

   - The relationship was mildly negative during the rising inflation phase - ie high PERs (shares relatively over-priced) were accompanied by low returns from shares during the yield spike, and

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low PERs (shares relatively under-priced) were accompanied by high returns from shares. This seems intuitive.

- However the relationship was mildly positive in the disinflation phase - high PERs (shares relatively over-priced) were accompanied by high returns from shares, and low PERs (shares relatively under-priced) were accompanied by low returns from shares during the yield spike. This is counter-intuitive.
- Current bond yield spike: at the start of the current spike in July 2012 the trailing price/earnings ratio on the S&P500 index was a relatively low 15.6 - lower than the median trailing PER since WW2 of 16.3%, and the post-1980 median PER of 18 (but it is higher now at 19.6 as at end of December 2013).
- Consequently, as with dividend yields, without the benefit of hindsight as to which multi-decade structural regime we are currently in, the current price/earnings ratio is no guide to equity returns during the yield spike.

Conclusion:

Given current prevailing conditions in the market, there are some reasonably strong indications that share returns are likely to be favourable during the current bond yield spike.

Specifically:

- Rising bond yields that start when nominal bond yields are low (which was the case at the start of the current bond yield spike, and is still true now) have consistently been accompanied by *high* nominal and real returns from shares during past bond yield spikes. This has been the case through all types of market conditions and inflationary environments during the post-Second World War era.
- Rising bond yields that start when the CPI inflation rate is low (which was the case at the start of the current bond yield spike, and is still true now) have consistently been accompanied by *high* nominal and real returns from shares during past bond yield spikes. This has also been the case through all types of market conditions and inflationary environments during the post-Second World War era.

At least it provides no warnings of poor returns, as poor returns have occurred when nominal bond yields and/or CPI inflation rates are high during the yield spikes, and neither is the case at present.

The S&P500 index of US stocks has indeed risen by 34% since the end of July 2012 when bond yields bottomed at the start of the current yield spike. This is consistent with the patterns over the past seven decades through a wide variety of inflationary conditions, and this provides support for our relative bullish stance on US shares over the period, in the face of rising bond yields.

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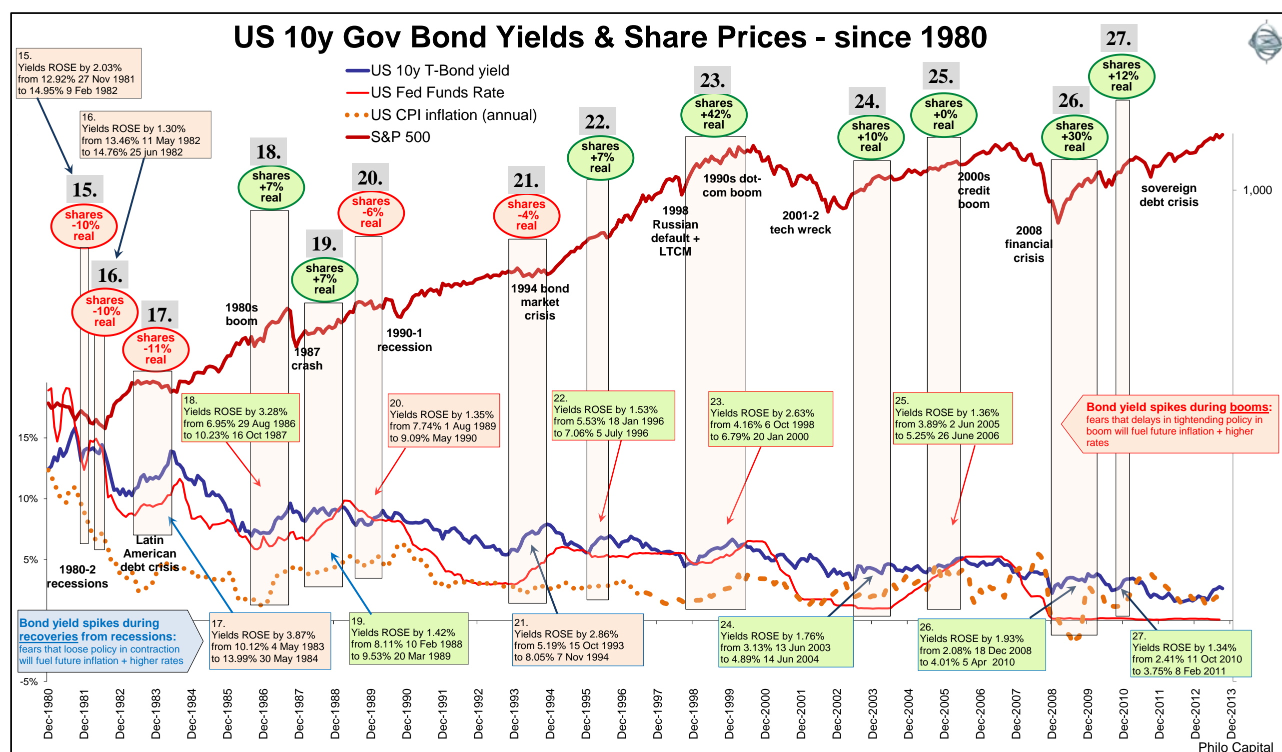
US Bond yield spikes and US shares - disinflation phase: since 1981

The chart below covers the US market during the disinflation phase since 1981. It shows the 13 spikes in US 10 year bond yields (numbered 15 to 27) together with share prices (S&P500 index), annual CPI inflation rate, and the effective Fed Funds rate as the main short term policy interest rate:



Key highlights include:

- Most (8 out of 13) bond yield spikes since 1981 were accompanied by positive nominal share price returns, and most (7 out of 13) were accompanied by positive real share price returns.
- Median nominal share price return during the 13 spikes was 12%, highest was 46% (#23) and lowest was -9% (#15).
- Median real share price return during the 13 spikes was 7%, highest was 42% (#23) and lowest was -11% (#17).
- The 5 bond yield spikes that were accompanied by negative share returns were relatively minor (median was -8%, and worst was -9%).
- However the positive returns were substantial during yield spikes, as many occurred during bull runs for shares when rising inflation expectations during economic booms caused bond yields to rise. (6 out of the 8 spikes with positive share prices had double digit share price rises, and 2 were above 30% share price gains).
- Several of the yield spikes that were accompanied by positive share price gains were when share prices were over-valued at the start (ie high PER and/or low dividend yield):

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- #23 (5 Oct 1998 to 20 Jan 2000, at the height of the “dot-com” boom), when the market PER was 27 and dividend yield was 1.6% at the start, but shares still rose 46% while bond yields rose +2.63% during the spike.
- #24 (13 Jun 2003 to 14 Jun 2004, in the recovery from the 2001-2 “tech wreck” recession), when the market PER was 28 and dividend yield was 1.6% at the start, but shares still rose 14% while bond yields rose 1.76% during the spike.
- #26 (18 Dec 2008 to 5 Apr 2010, from the bottom of the 2008 financial crisis two months after the Lehman bankruptcy), when the market trailing PER was 59 (due to losses in Citi, AIG, Ford, Celgene, Time Warner, etc), but shares still rose 34% while bond yields rose 1.93% during the spike.

- Conversely, three bond yield spikes that were accompanied by negative share prices were when shares were relatively cheap at the start:
  - #15 (27 Nov 1981 to 9 Feb 1982, in the depths of the Volcker recessions to kill off inflation), when the market PER was 8 and dividend yield was 5.4% at the start, but shares still lost 9% during the spike
  - #16 (11 May 1982 to 25 June 1982), when the market PER was 8 and dividend yield was 5.8% at the start, but shares still lost 10% during the spike
- The great so-called “bear market” of 1994 (#21) was hardly a bear market for shares. The S&P500 index was down just 1.4% during the period that bond yields rose by 2.86% between 15 October 1993 and 7 November 1994.

Details of each of these bond yield spikes are included at the end of this report.

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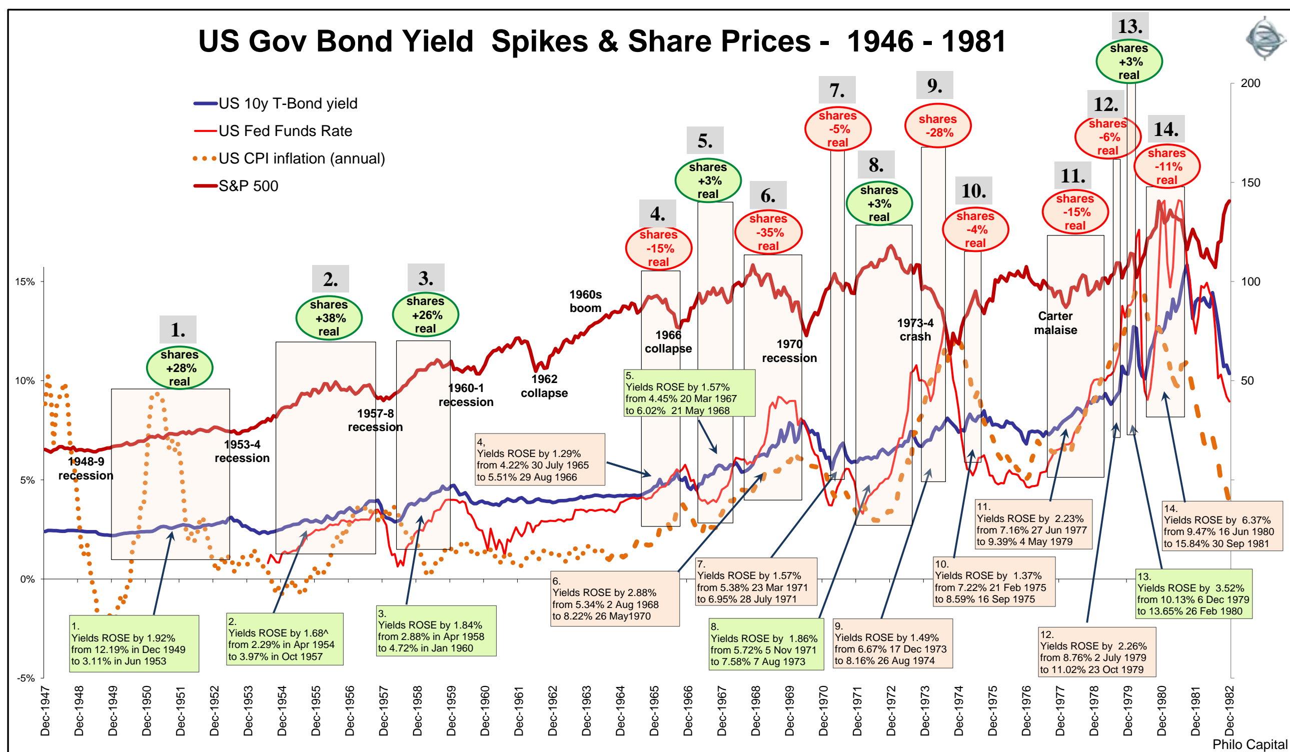
US Bond yield spikes and US shares - rising inflation phase: 1946 to 1981

If we look back further to the rising inflation phase from the end of the 2nd World War to 1981 we see a different pattern. In the disinflation phase in the above chart (since 1981) the periods of rising bond yields were relatively short because the overall trend in bond yields was down. But in the rising inflation phase (1946 to 1981), periods of rising bond yields were relatively long because the overall trend in yields was up as inflation rose through the 1960s to the end of the 1970s.

The next chart covers the US market during the 1946-1981 rising inflation phase. It shows the 14 spikes in US 10 year bond yields (numbered 1 to 14) together with share prices (S&P500 index), annual CPI inflation rate, and the Fed Funds rate:



Key highlights include:

- Most (8 out of 14) bond yield spikes in the 1946-1981 period in the US were accompanied by positive *nominal* shares price returns from US shares - similar to the experience in the disinflation phase.
- However only 6 of the 14 bond yield spikes during this period were accompanied by positive real shares price returns from US shares - due to the high inflation rates from the late 1960s.
- The median *nominal* share price move during bond yield spikes in the rising inflation phase was nil, much lower than the 12% median nominal share price gain during bond yield spikes the disinflation phase.
- The median *real* share price move during bond yield spikes in the rising inflation phase was a real loss of -5%, much lower than the 7% median real share price gain during bond yield spikes in the disinflation phase.

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- There were still a number of very high nominal and real price gains during bond yield spikes during the 1946-1981 rising inflation phase, including:
  - #1 (Dec 1949 to June 1953, during the Korean war and leading up to the 1953-4 recession) - nominal share price gain of 46% (real gain of 29%) while bond yields rose by 0.92%
  - #2 (April 1954 to Oct 1957, during the 1950s boom before the 1957-8 recession) - nominal share price gain of 45% (real gain of 38%) while bond yields rose by 1.68%
  - #3 (30 April 1958 to Jan 1960, prior to the 1960-1 recession) - nominal share price gain of 28% (real gain of 26%) while bond yields rose by 1.84%
- These were all when both inflation and bond yields were low at the start of the yield spikes - like the conditions today.
- Unlike in the post 1981 disinflation period, the 1946-1981 rising inflation phase produced some very adverse outcomes for shares during bond yield spikes, including:
  - #6 (2 Aug 1968 to 26 May 1970, when the 1965-70 rising inflation cycle peaked and the Fed Funds rate was raised to above 9%, leading into the 1970 recession) - nominal share price fall of 28% (real fall of 35%) while bond yields rose by 2.88%
  - #9 (17 Dec 1973 to 26 Aug 1974, when the Fed funds rate was raised to 10.8% to tackle inflation above 10%, leading to the 1973-4 crash) - nominal price share price fall of 22% (real fall of 28%) while bond yields rose by 1.49%
  - Both of these were when inflation and bond yields were relatively high at the start of the yield spikes - unlike the conditions today.

Current situation:

Inflation:

- The annual US CPI inflation rate at the start of the current yield spike (25 July 2012) was 1.5%, which is relatively low (median post-War inflation rate has been 3.1%, and 1.5% inflation is in the lowest quintile). This would tend to suggest relatively *high* returns on shares during the ensuing yield spike. (Inflation has since remained low during the current yield spike)
- At least this provides no warnings of poor returns from shares, as poor returns from shares consistently occur when inflation rates are high during the yield spikes, unlike the present conditions.

Nominal bond yields:

- The yield on 10y US T-bonds at the start of the spike was 1.43%, an extremely low level (median post-War yield has been 5.16%, and a yield of 1.43% is in the lowest 1% of all post-War yields). This would also suggest relatively *high* nominal and real returns on shares during the ensuing yield spike.
- Since the start of the current spike, yields have risen to 2.6%, which is still in the lowest 2% of all post-War yields.
- This also provides no warnings of poor returns from shares, as poor returns from shares consistently occur when nominal yields are relatively high during the yield spikes, unlike the present conditions.

The table on the following page shows details of all 27 post-War bond yield spikes in the US market:

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27 bond yield spikes since WW2 - US market

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	A	B	C	D	E	F	G	H	I	J
	Start	Period of yield spike (months)	10y T-Bond yield at start	Change in Yield during spike	CPI inflation rate at start	Real bond yield at start	Nominal Share Price Return during spike	Real share price return during spike	PER at start	Div Yield at start
1946 - 1981 Rising inflation phase:										
1	Dec-1949	42.0	2.19%	+0.92%	-2.07%	4.26%	+45.9%	+28.5%	7.1	6.9%
2	Apr-1954	42.1	2.29%	+1.68%	0.75%	1.54%	+45.3%	+37.5%	10.7	5.3%
3	Apr-1958	21.1	2.88%	+1.84%	3.62%	-0.74%	+28.0%	+26.1%	13.8	4.1%
4	30 Jul 1965	13.0	4.22%	+1.29%	1.81%	2.41%	-12.6%	-15.4%	17.4	3.1%
5	20 Mar 1967	14.1	4.45%	+1.57%	2.55%	1.90%	+7.5%	+2.8%	16.4	3.2%
6	2 Aug 1968	21.8	5.34%	+2.88%	4.48%	0.86%	-28.3%	-35.0%	17.4	3.1%
7	23 Mar 1971	4.2	5.38%	+1.57%	4.44%	0.94%	-3.2%	-4.6%	19.1	3.1%
8	5 Nov 1971	21.1	5.72%	+1.86%	3.54%	2.18%	+12.8%	+2.8%	17.6	3.2%
9	17 Dec 1973	8.3	6.67%	+1.49%	8.25%	-1.58%	-22.2%	-28.4%	11.6	3.6%
10	21 Feb 1975	6.8	7.22%	+1.37%	11.21%	-3.99%	-0.6%	-4.3%	9.3	4.6%
11	28 Jun 1977	22.2	7.16%	+2.23%	6.70%	0.46%	+0.5%	-14.8%	9.5	4.4%
12	2 Jul 1979	3.7	8.76%	+2.26%	11.08%	-2.32%	-1.7%	-5.6%	7.3	5.3%
13	6 Dec 1979	2.7	10.13%	+3.52%	13.25%	-3.12%	+5.5%	+2.7%	7.0	5.4%
14	16 Jun 1980	15.5	9.47%	+6.37%	14.27%	-4.80%	+0.1%	-11.3%	7.7	5.2%
Since 1981 Disinflation phase:										
15	27 Nov 1981	2.4	12.92%	+2.03%	9.58%	3.34%	-9.1%	-10.0%	8.0	5.4%
16	11 May 1982	1.5	13.46%	+1.30%	6.91%	6.55%	-8.6%	-9.6%	8.1	5.8%
17	4 May 1983	12.9	10.12%	+3.87%	4.00%	6.12%	-7.9%	-11.2%	12.6	4.4%
18	29 Aug 1986	13.6	6.95%	+3.28%	1.58%	5.37%	+11.8%	+6.5%	16.6	3.3%
19	10 Feb 1988	13.3	8.11%	+1.42%	3.94%	4.17%	+13.0%	+7.4%	14.0	3.5%
20	1 Aug 1989	9.0	7.74%	+1.35%	4.62%	3.12%	-2.7%	-6.2%	13.4	3.1%
21	15 Oct 1993	12.8	5.19%	+2.86%	2.75%	2.44%	-1.4%	-4.1%	22.2	2.7%
22	18 Jan 1996	5.6	5.53%	+1.53%	2.79%	2.74%	+8.1%	+6.7%	18.1	2.3%
23	5 Oct 1998	15.5	4.16%	+2.63%	1.49%	2.67%	+46.2%	+41.6%	26.8	1.6%
24	13 Jun 2003	12.1	3.13%	+1.76%	1.95%	1.18%	+13.8%	+10.3%	28.4	1.6%
25	2 Jun 2005	12.8	3.89%	+1.36%	2.54%	1.35%	+3.8%	-0.3%	18.9	1.8%
26	18 Dec 2008	15.6	2.08%	+1.93%	-0.02%	2.10%	+34.1%	+30.4%	59.0	3.2%
27	11 Oct 2010	3.9	2.41%	+1.34%	1.18%	1.23%	+13.7%	+12.1%	15.7	1.9%
Current-> 28	25 Jul 2012		1.43%		1.80%	-0.37%			15.6	2.0%

MEDIANS:

	B	C	D	E	F	G	H	I	J
Rising inflation phase: 1946 - 1980	14.8	5.55%	+1.76%	4.46%	+0.66%	+0.31%	-4.46%	11.2	4.3%
Disinflation phase: 1946 - 1980	12.8	5.36%	+1.76%	2.65%	2.71%	+8.09%	+6.52%	16.1	2.9%
Overall since 1946	12.9	5.46%	+1.76%	3.58%	1.72%	+3.84%	-0.33%	14.8	3.3%

Consistent relationships

% of share price gains during bond yield spikes:

Opposite relationships

Correlations to NOMINAL share price moves during spike:

	B	C	D	E	F	G	H	I	J
Rising inflation phase: 1946 - 1981		-0.53	-0.21	-0.46	0.35			-0.31	0.63
Disinflation phase: since1981		-0.69	0.01	-0.71	-0.41			0.70	-0.59
						57%	43%		
Whole period since 1946		-0.56	-0.15	-0.52	0.14			0.31	0.03
n =	27	*** 1%	-	*** 1%	-			-	-

Correlations to REAL share price moves during spike:

	B	C	D	E	F	G	H	I	J
Rising inflation phase: 1946 - 1981		-0.54	-0.26	-0.43	0.29			-0.24	0.55
Disinflation phase: since1981		-0.68	-0.02	-0.69	-0.43			0.70	-0.58
						62%	54%		
Whole period since 1946		-0.54	-0.19	-0.52	0.16			0.37	-0.05
n =	27	*** 1%	-	*** 1%	-	59%	48%	* 10%	-

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