Sell in May, and Go Away?

We're not inclined to automatically buy in to perceived wisdom, and you probably aren't either – especially after the start of the year we all just experienced.

But that shouldn't stop us from exploring market proverbs to see if there a kernel of truth within them. Several folks, for example, have taken stabs at "return seasonality". You know, where stock market returns start getting really lousy after April of any year. You've heard it yourself before; the old "sell in May, and go away" maxim.

So we've gone and pulled down actual total return data on the S&P500 since December of 1939, and done some work; work which you might find interesting.

Eyeballing the table to the right - with the best six months shaded in green, and the worst six months unshaded - it's tough to see much of anything in terms of seasonality.

If we breakdown each of these datapoints, here is the average total return of the SPX (by month) from 1940 through 2021:

January	February	March	April	May	June
1.17%	0.06%	1.45%	1.61%	0.37%	1.07%

July	August	September	October	November	December
1.21%	0.24%	0.04%	1.09%	1.32%	2.36%

The first thing you should notice is that **since 1940** – which was 82 years ago – **every single month has shown an average positive return**.
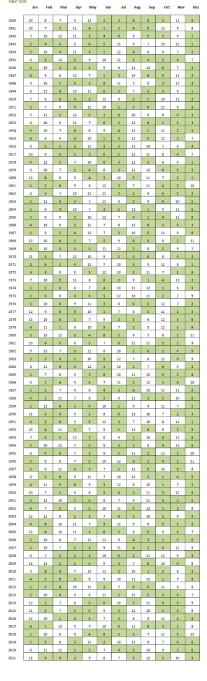
Since *all* of the months are winners, the adage "sell in May and go away" seems like a misnomer at first blush.

However, there were significant differences in "performance" by each month which may or may not be random.

One way to examine this conventional market wisdom is to look beyond the annual returns in any given year, and instead analyze the average returns during the "season" for a period of some years going forward.

In the spirit of Edward Tufte, we found one author[1] a few years back (ten years, in fact) who created an excellent infographic using this method. We had some issues with the author's methodology (he used "volatility-adjusted returns" and we weren't clear why), but the visualization of the data was illuminating.

Ranking of Individual Month Performance
S&P 500

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1940	10	8	7	9	12	1	3	6	4	2	11	5
1941	10	7	3	11	4	1	2	6	5	12	9	8
1942	7	10	12	11	2	4	6	8	5	3	9	1
1943	2	4	3	8	6	5	11	9	7	10	12	1
1944	5	10	4	11	3	1	12	6	8	9	7	2
1945	8	2	12	1	9	10	11	3	4	5	6	7
1946	1	10	3	4	5	9	8	11	12	6	7	2
1947	4	9	8	12	7	1	3	10	6	5	11	2
1948	9	10	1	5	2	6	11	7	8	3	12	4
1949	8	12	4	10	11	6	2	7	3	5	9	1
1950	7	8	6	4	3	12	9	5	1	10	11	2
1951	2	7	9	4	12	10	1	5	6	11	8	3
1952	7	11	2	12	5	1	6	10	9	8	4	3
1953	8	10	9	11	7	6	2	12	4	1	5	3
1954	5	10	7	6	8	9	4	12	1	11	2	7
1955	6	8	9	4	10	1	3	11	5	12	2	7
1956	9	5	1	6	12	3	2	11	10	7	8	4
1957	10	9	3	1	2	6	5	12	11	8	4	7
1958	4	12	5	7	10	6	3	11	2	8	9	1
1959	9	10	7	1	4	8	3	11	12	6	5	2
1960	12	6	8	9	4	3	10	5	11	7	2	1
1961	1	5	6	9	8	12	3	7	11	4	2	10
1962	8	4	7	10	12	11	2	5	9	6	1	3
1963	1	12	4	3	7	11	8	2	9	6	10	5
1964	2	8	4	10	7	3	5	12	1	9	11	6
1965	3	8	9	2	10	12	7	5	1	4	11	6
1966	4	10	9	2	11	7	8	12	6	1	5	3
1967	1	8	2	4	12	7	3	10	5	11	9	6
1968	12	10	4	1	7	5	9	6	3	8	2	11
1969	6	10	3	4	5	11	12	2	8	1	7	9
1970	11	3	7	12	10	9	1	5	6	8	4	2
1971	2	6	3	4	12	7	10	5	9	11	1	8
1972	4	3	9	8	5	12	10	2	11	7	1	6
1973	7	10	5	11	8	6	2	9	1	4	12	3
1974	3	2	6	8	7	4	10	11	12	1	9	5
1975	1	3	8	4	6	5	12	10	11	2	7	9
1976	1	10	4	9	11	3	8	6	5	12	7	2
1977	12	9	6	4	10	1	7	8	5	11	2	3
1978	11	10	4	1	7	9	2	3	8	12	5	6
1979	4	11	1	8	10	5	7	2	9	12	3	6
1980	3	10	12	5	4	6	2	9	7	8	1	11
1981	10	4	3	8	5	7	6	12	11	1	2	9
1982	9	12	7	3	11	8	10	1	6	2	4	5
1983	3	5	4	1	10	2	12	7	8	11	6	9
1984	8	11	4	5	12	3	10	1	7	6	2	4
1985	1	7	8	9	3	6	10	11	12	5	2	4
1986	8	1	4	9	5	7	11	2	12	3	6	10
1987	1	5	7	9	8	4	3	6	10	12	11	2
1988	4	1	11	7	8	2	9	12	3	5	10	6
1989	2	12	6	3	4	10	1	8	9	11	7	5
1990	11	5	4	9	1	8	6	12	10	7	2	3
1991	4	2	6	9	5	12	3	7	10	8	11	1
1992	10	4	11	3	7	9	1	12	6	8	2	5
1993	7	5	3	12	2	8	9	1	10	4	11	6
1994	2	10	12	7	5	9	3	1	8	4	11	6
1995	8	4	6	7	3	9	5	11	2	12	1	10
1996	3	9	8	7	5	10	12	6	2	4	1	11
1997	2	9	11	4	3	7	1	12	5	10	6	8
1998	8	2	6	9	11	7	10	12	3	1	4	5
1999	4	11	5	6	9	3	12	8	10	1	7	2
2000	10	7	1	9	8	3	6	2	11	5	12	4
2001	3	12	10	1	6	8	7	9	11	4	2	5
2002	6	7	3	9	5	10	11	4	12	1	2	8
2003	12	11	8	1	3	7	6	5	10	2	9	4
2004	4	6	10	11	7	3	12	9	8	5	1	2
2005	12	4	10	11	3	6	2	8	5	9	1	7
2006	2	10	8	7	12	11	9	4	3	1	5	6
2007	5	10	7	1	3	9	11	6	2	4	12	8
2008	8	7	5	1	3	10	6	2	11	12	9	4
2009	11	12	2	1	5	9	3	7	6	10	4	8
2010	9	6	4	7	12	11	2	10	1	5	8	3
2011	4	2	6	3	8	9	10	11	12	1	7	5
2012	1	2	4	10	12	3	7	6	5	11	9	8
2013	1	10	4	9	8	11	2	12	5	3	6	7
2014	12	1	7	8	9	6	10	2	11	4	5	3
2015	11	2	7	5	4	9	3	12	10	1	6	8
2016	12	10	1	6	5	7	3	8	9	11	2	4
2017	6	1	12	9	7	10	5	11	4	3	2	8
2018	1	10	9	8	4	6	2	3	7	11	5	12
2019	1	5	8	3	12	2	10	11	9	7	4	6
2020	8	11	12	1	5	7	4	3	10	9	2	6
2021	11	6	4	2	9	8	7	5	12	1	10	3

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[1] *The original link here was http://marketsci.wordpress.com/2012/05/03/sell-in-may-debunked/, and the author implicitly thought the data was too good to be true as well, as it was part of a larger article attempting to debunk the seasonality implicit in the "Sell in May and go away" trading adage. As part of his article, he showed an impressive cumulative outperformance of a trading strategy long from November to April and then neutral from May to October – but suggested that it was backward looking – and that if any investor had simply been long the six best months from over the previous ten or twenty years to that date – there was no outperformance as you "walked the test forward". However, when we choose different "walk-forward" periods, we actually do see some seasonality in the data.*

So we wanted to explore it a little bit further.

A great deal of empirical work has already been done on return anomalies and seasonality, including some suggesting that the "Sell in May" or "Halloween Effect" has been persistent not just in the US, but in the UK – and for over 300 years.[2] However, we have not seen any similar infographics accompanying this kind of work.

And when we rank the months some seasonality does indeed start to emerge. December, for example, has historically been the best month. And May ranks 9th out of 12.

1 Yr Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Ranking	6	11	3	2	9	8	5	10	12	7	4	1

And if we take the returns five years at a time (so, from 1940-1944, 1941-1945…2017-2021), and rank the months, we see this:

5 Yr Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Ranking	5	11	3	2	9	8	6	10	12	7	4	1

And with twenty-year data:

20 Yr Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Ranking	5	11	4	3	9	8	7	10	12	6	2	1

Then, when we then consider the magnitude of the average returns during these seasonal periods, we can make a few interesting observations:

- At least in the period from 1940 through 2021, the gains from buying in late-September and selling in late April have exceeded those from May to September.

- The difference is stark. In the five months from May to September, the average market gain has been 3.0%. In the seven months from October to April, the average market gain has been 9.4%.

- And this one will knock your socks off. **Cumulatively, over the past 82 years, the S&P 500 has seen May to September gains of 658%. The October to April period has experienced gains of over 95,000%.**

The table to the right shows how the seasonality emerges over longer time horizons. Our results use actual returns rather than Sharpe ratios (or other volatility-adjusted metrics), and we haven't done anything special with any factors. In any event, however, we think it is fair to conclude (as many empirical studies already have) that there may be something to this "selling in May and going away" thing, especially over very long time horizons.

Not sure how practical any of this is, but we suggest that if you ever have to be out of the market – and if history is any guide - don't do it from October to April.

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[2] *Are Monthly Seasonals Real? A Three Country Perspective. Jacobsen Yang (2010).*

Seasonality of S&P 500 Total Returns

Ranking of Individual Month Performance (average of 20 years of observations)
S&P 500

Year	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1940 -	1959	6	12	4	7	9	2	3	11	5	8	10	1
1941	1960	7	12	3	6	5	2	4	11	8	9	10	1
1942	1961	6	12	3	7	5	2	4	11	9	8	10	1
1943	1962	7	11	2	6	8	4	3	12	10	9	5	1
1944	1963	8	12	2	6	9	4	3	11	10	7	5	1
1945	1964	7	12	3	5	9	6	2	11	10	8	4	1
1946	1965	5	12	2	6	9	7	3	11	10	8	4	1
1947	1966	8	12	3	7	10	6	2	11	9	5	4	1
1948	1967	6	12	3	5	10	9	2	11	8	7	4	1
1949	1968	7	12	4	5	11	8	2	10	6	9	3	1
1950	1969	6	12	4	5	10	9	2	11	7	8	3	1
1951	1970	8	11	4	5	12	9	2	10	7	6	3	1
1952	1971	9	11	3	5	12	8	4	10	7	6	2	1
1953	1972	8	11	3	5	12	9	4	10	7	6	2	1
1954	1973	7	11	2	5	12	9	3	10	6	8	4	1
1955	1974	7	9	2	5	8	4	10	11	3	6	12	1
1956	1975	6	8	3	4	12	10	7	9	11	2	5	1
1957	1976	4	9	3	5	12	11	7	8	10	2	6	1
1958	1977	3	9	4	6	12	11	7	8	10	2	5	1
1959	1978	5	9	2	3	12	11	7	8	10	4	6	1
1960	1979	3	11	2	5	12	10	8	7	9	6	4	1
1961	1980	1	11	5	4	12	10	7	8	9	6	3	2
1962	1981	3	11	5	4	12	10	7	8	9	6	1	2
1963	1982	3	11	5	1	12	9	10	7	8	2	6	4
1964	1983	2	11	6	1	12	7	10	8	9	4	3	5
1965	1984	5	11	7	1	12	8	10	6	9	3	2	4
1966	1985	3	11	6	1	12	8	10	7	9	5	2	4
1967	1986	5	9	4	3	12	8	10	2	11	6	1	7
1968	1987	2	9	4	6	10	7	11	1	12	8	5	3
1969	1988	1	9	5	7	10	4	11	2	12	8	6	3
1970	1989	1	8	6	7	11	4	9	3	12	10	5	2
1971	1990	1	9	6	4	8	3	11	7	12	10	5	2
1972	1991	1	9	6	4	7	3	11	8	12	10	5	2
1973	1992	1	8	7	4	6	2	9	10	12	11	5	3
1974	1993	1	9	7	5	6	4	11	8	12	10	3	2
1975	1994	1	10	8	4	6	7	9	5	12	11	3	2
1976	1995	1	10	9	5	6	8	7	4	12	11	3	2
1977	1996	3	10	9	5	6	8	7	2	12	11	1	4
1978	1997	1	9	10	4	3	8	6	7	11	12	2	5
1979	1998	1	6	9	5	4	8	7	10	12	11	2	3
1980	1999	1	7	10	5	4	6	9	11	12	8	2	3
1981	2000	2	8	3	6	4	7	11	10	12	9	5	1
1982	2001	1	9	6	3	4	7	11	10	12	8	5	2
1983	2002	1	8	5	6	3	7	10	11	12	9	4	2
1984	2003	2	9	5	6	3	8	10	11	12	7	4	1
1985	2004	3	8	7	6	2	9	10	11	12	5	4	1
1986	2005	3	7	6	5	1	9	10	11	12	8	4	2
1987	2006	2	9	7	5	10	6	12	11	8	4	1	3
1988	2007	6	9	7	5	1	10	8	12	11	3	4	2
1989	2008	7	9	6	3	1	10	8	11	12	5	4	2
1990	2009	8	11	5	3	1	9	7	10	12	6	4	2
1991	2010	8	11	4	2	6	12	7	10	9	5	3	1
1992	2011	8	11	5	1	6	10	7	12	9	2	3	4
1993	2012	7	12	4	1	6	9	8	11	10	2	5	3
1994	2013	7	11	5	1	8	10	6	12	9	3	2	4
1995	2014	8	11	3	1	6	10	7	12	9	4	2	5
1996	2015	9	8	4	2	6	10	7	12	11	3	1	5
1997	2016	10	8	2	1	7	9	6	12	11	3	4	5
1998	2017	10	8	2	3	7	9	6	12	11	1	4	5
1999	2018	10	9	2	1	7	11	6	8	12	3	4	5
2000	2019	10	9	2	1	7	11	5	8	12	4	3	6
2001	2020	9	10	6	1	7	11	3	8	12	4	2	5
2002	2021	10	9	5	1	7	11	3	8	12	4	2	6