

## The Thirty Years War

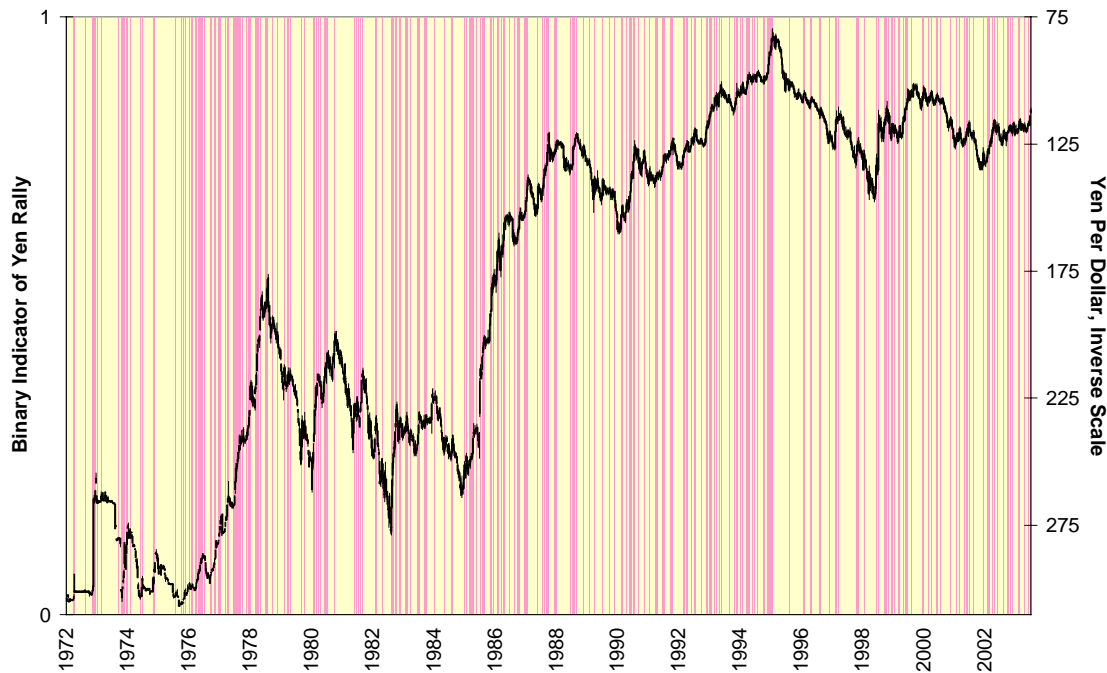
Consider the two shocks hitting U.S. equity markets last week, the big drop in the dollar beginning in Asia on Sunday evening following a G-7 meeting and the quick jump in crude oil prices on Wednesday following an OPEC meeting. Toss the ongoing campaign against terrorism, our wars in Iraq and Afghanistan and the never-ending Israeli-Palestinian fighting, and what do you have? A continuation of thirty years' of market trends dating from the end of the Smithsonian Agreement on foreign exchange rates in February 1973 and the first oil shock following the Yom Kippur War in October 1973.

### Deja Vu All Over Again

The yen has been rallying, often quite powerfully, over much of this period. Over the 1,644 weeks since the Bank of International Settlements in Basel, Switzerland, has been tracking floating exchange rates on an official basis, no fewer than 343 weeks, nearly 21% of the observations meet the following four conditions:

1. A weekly close stronger (lower number in JPY/USD) than the open;
2. A weekly close stronger than the previous week's high;
3. A lower low than the previous week; and
4. A higher high than the previous week

### Yen Rallies Are Quite Common

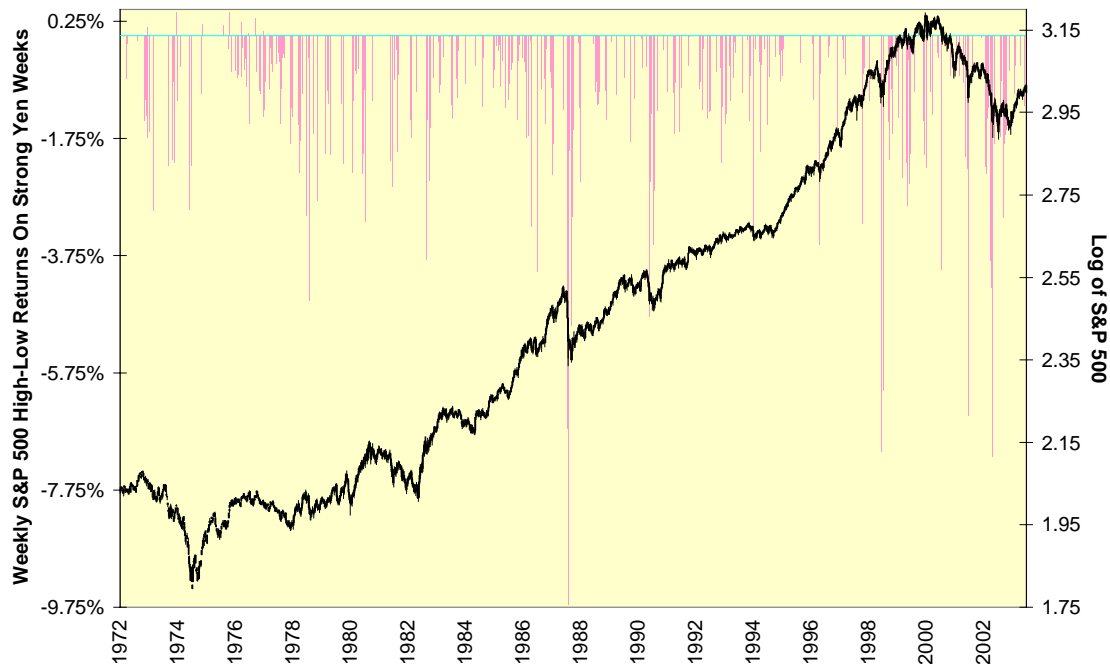


The big periods of yen strength were 1977-1979, 1986-1987 and 1993-1995. Were any of these periods disastrous for U.S. equity markets? On a macro level, the answer is mixed. The late 1970s were a time of high inflation and general economic disarray, and the both the dollar and U.S. stocks performed poorly. Stock rallied strongly against a weak dollar in 1986 and well into 1987 as the weak dollar was created by an accommodative Federal Reserve. Stocks performed well in 1993, went sideways in 1994 as interest rates rose, and then began the late 1990s bubble even as the yen hit its all-time high in March 1995.

A more interesting test may be to see whether any of these strong yen weeks shocked stocks. We can map the weekly return from the previous week's high for the S&P 500 to the current week's S&P 500 low for weeks with an upward yen shock. This measure is calculated as:

$$SP_{ret} = \log(Low_{t0} / High_{t-1})$$

### Yen A Non-Effect For Stocks

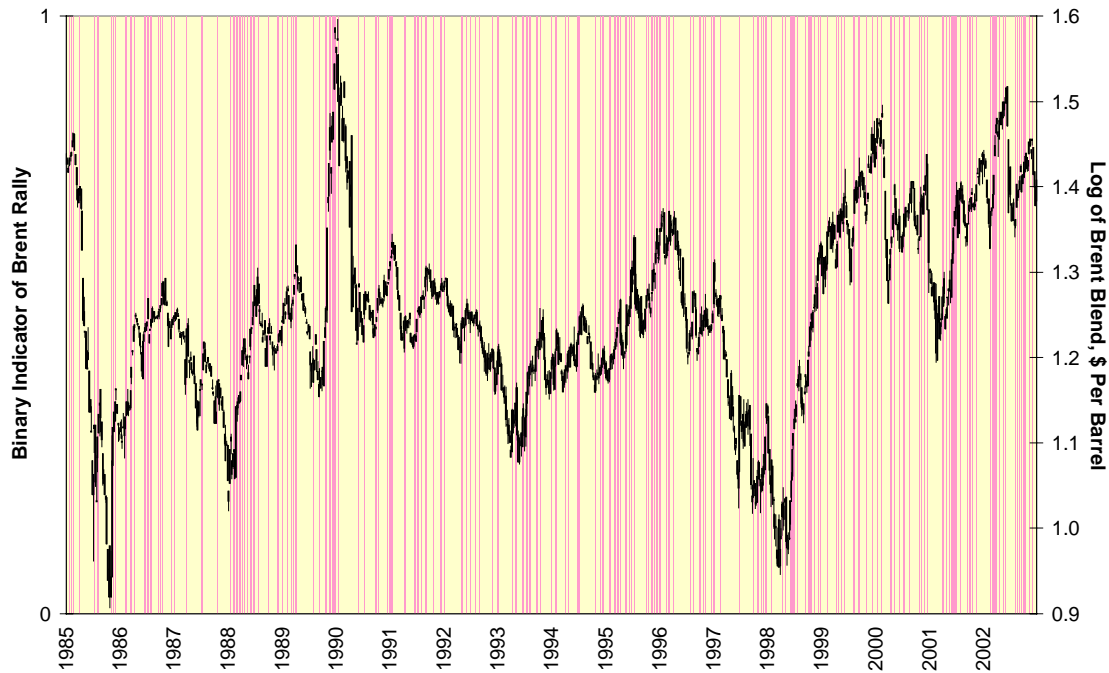


Several strong yen weeks are in fact accompanied by major high-to-low drops in the S&P 500; notable among these are the October 1987 crash, the LTCM crisis of August 1998, and the aftermath of September 11, 2001. But, the average high-to-low drop on these weeks was 1.26% with a standard deviation of 1.24%; the average high-to-low drop on all other weeks was 1.25% with a standard deviation of 1.07%. Statistically, there is an 89.15% probability of the two samples being equal. This means an upward yen shock is not a statistically significant cause of a downward stock shock.

### What About Crude Oil?

The same four-part definition of an upward price shock was applied to crude oil. North Sea Brent Blend was used as the price to avoid the numerous contract discontinuities and price limits associated with futures. Unsurprisingly, crude oil is even more prone to price shocks than is the yen. A total of 253 weeks out of the 938-week sample - crude oil markets did not become actively traded until the mid-1980s - meet the test.

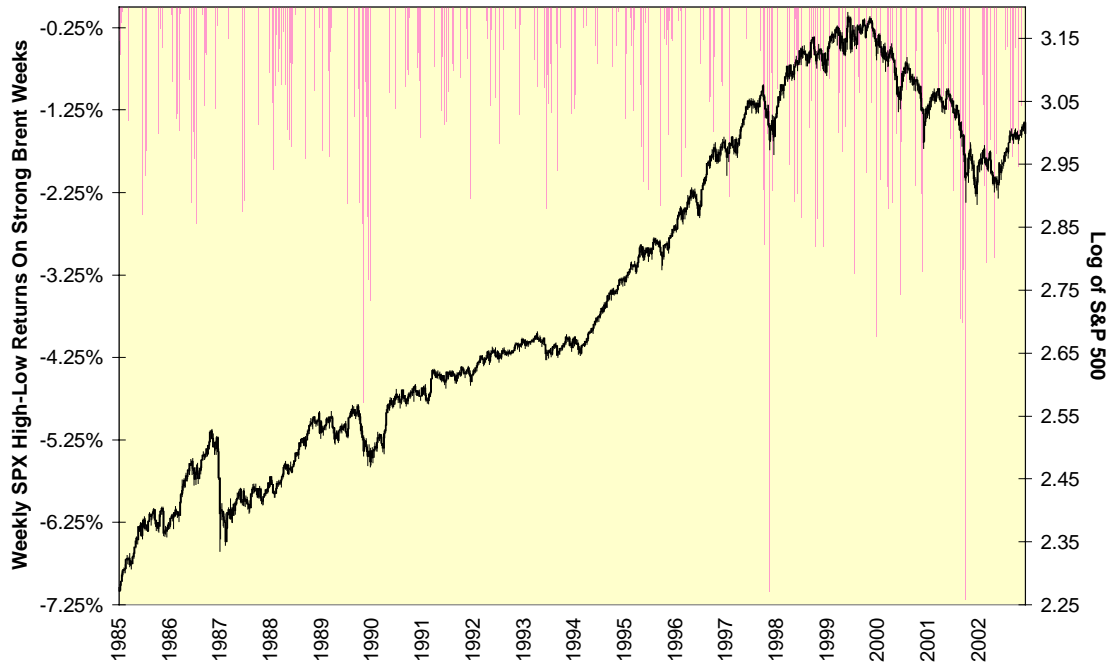
## Crude Oil Rallies Are Very Common



The first two oil shocks of the 1970s, the aforementioned Yom Kippur War and the Iranian Revolution / Iran-Iraq War periods, were associated with bear markets in equities, but they all predated actively traded crude oil markets. The 1990-1991 Persian Gulf War helped precipitate a bear market, but other major crude oil rallies, those of 1986-1987, 1988-1989, and 1999-2000 came in the midst of strong equity markets.

Now let's apply the same test for crude oil as we did for the yen to determine if an upward crude oil shock is associated with a negative stock shock. The average high-to-low drop for stocks on strong crude oil weeks was 1.25% with a standard deviation of 1.04%; the average high-to-low drop on all other weeks was, incredibly, 3.55% with a standard deviation of 1.28%. Statistically, there is only a 44.83% probability of the two samples being equal, with the unexpected results that stocks have a bigger drop from the previous week's high to the current week's low during weeks with upward oil shocks.

## Crude Oil Shocks Not What You Expect For Stocks



### Combining The Shocks

There have been 60 weeks since October 1985 with both an upward yen shock and an upward oil shock, including last week. The average high-to-low drop for stocks on these weeks has been .36% with a standard deviation of 1.48%; for all other weeks without the combined shock, the average high-to-low drop was 4.44% with a standard deviation of 1.20%. Now we are down to a probability of only 26.38% that the two samples are identical, and we are much closer to concluding that we should expect bigger downward ranges in the S&P in weeks without the dual shocks than in weeks therewith.

This conclusion may seem quite counterintuitive. But the day-to-day moves of markets have a far higher noise content than we like to believe. If we back away from the noise to higher timeframes, such as the weekly one used in this analysis or to multiple-week analysis, we should get a far stronger and statistically significant signal content from the data. If the answers thus derived do not conform to our prior beliefs, we have several choices. We can either conform our beliefs to the data, devise new tests or check for spurious correlation.

We have been playing these oil and currency games for 30 years now, and we occasionally have had to take one in the chops but good from these sources. That the U.S. economy and U.S. markets are stronger now than in 1973 ought to stand as evidence that new tests and checks for spurious correlation are unnecessary. It is high time for those who opine daily on the course of markets and tell you why what happened was bound to have happened to either to revise their belief systems or, just once, support their opinions with some facts.