QUANTIFYING THE FED'S IMPACT ON THE S&P 500

Click to view as PDF.

CHAIRMAN WAXMAN: *"You found a flaw?"*
MR. GREENSPAN: *"I found a flaw in the model that I perceived is the critical functioning structure that defines how the world works, so to speak."*
CHAIRMAN WAXMAN: *"In other words, you found that your view of the world, your ideology, was not right, it was not working."*
MR. GREENSPAN: *"Precisely. That's precisely the reason I was shocked, because I had been going for 40 years or more with very considerable evidence that it was working exceptionally well."*
- Congressional Hearing on *The Financial Crisis and the Role of Federal Regulators*. October 23, 2008, as relayed by Mike O'Rourke on March 30th, 2016, in *The Closing Print*.

SUMMARY

From the Evergreen Investment Team:

- This month's Guest EVA is based on a recent essay by GMO, a Boston-based investment advisory firm with $118 billion in assets under management. It was written by James Montier and Philip Pilkington who seek to understand why the US stock market has persistently traded at higher valuation levels over the last twenty years than in the prior century. (Note, GMO was co-founded by Jeremy Grantham, so often quoted in past EVAs.)

- Contrary to what some market pundits believe, James and Philip found that the unusually elevated price/earnings ratios since 1995 are not related to low interest rates. Rather, they appear to be linked to a market increasingly influenced by Federal Reserve Open Market Committee (FOMC) meetings. Intriguingly, the higher returns seen around the time of these meetings aren't limited to just those events when the Fed eases monetary policy or elects to stand pat.

- They have deconstructed the famous "Shiller P/E" (also known as the "Cyclically-Adjusted P/E"), attempting to isolate what factors have caused its forecast error. Essentially, the authors believe the Fed has been able to positively influence investors' willingness to assume risk. In other words, the US central bank has successfully stoked the animal spirits of market participants. (Quite possibly by creating a belief that the Fed is all-knowing and all-powerful. The exchange quoted above, between Alan Greenspan and Congressman Henry Waxman, should challenge that mindset.)

- Ironically, one of the Fed's own studies revealed that market returns on FOMC meeting dates have been considerably higher than during the overwhelming majority of trading sessions when it was not convened. Since 1985, there have been an average of only eight FOMC meeting days per year (thus, roughly 3% of trading sessions) yet these have accounted for 25% of the market's total return!

- The correlation between Fed meetings and market returns hit its peak during the Global Financial Crisis (GFC) and its immediate aftermath. However, it continues to run far above its pre-early '80s level.

- By adjusting the Shiller P/E to account for this effect, its indications of under- or over-valuation have been much more accurate.

- The so-called “Fed-put” is the notion that the US central bank has repeatedly intervened to halt bear markets. This started under Alan Greenspan when he assumed the chairmanship in 1987 and has, according to this notion, continued under Ben Bernanke and Janet Yellen.

- A profound question is whether this is a permanent condition or one that will give way to an era of far more skeptical investor attitudes, characterized by a lack of faith in the Fed’s ability to influence market direction.

THE STOCK MARKET AS MONETARY POLICY JUNKIE: QUANTIFYING THE FED'S IMPACT ON THE S&P 500
By James Montier, Philip Pilkington

Introduction. Jeremy Grantham has a lovely saying that resonates deeply with us, and it is, “Always cry over spilt milk.” Analyzing past errors and mistakes is crucial to improving our understanding, and vital if we are to stand any chance of avoiding making similar errors in the future. Indeed, “Always Cry Over Spilt Milk” was the title of an internal investment conference we held at GMO towards the end of last year. The deeper subject was seeking to understand why our forecast for the S&P 500 had been too pessimistic over the last two decades or so.

In August 2015, we shared some of the work that emerged from that event in the white paper, “The Idolatry of Interest Rates, Part II.” We would like to highlight two elements from that work that are of particular relevance for this note. First, we showed that our basic valuation framework has tended to underestimate the returns to the U.S. market of late because the market has simply turned out to be more expensive than we had expected (see Exhibit 1). Second, we showed that despite many protestations to the contrary, low interest rates didn’t really seem to be a viable explanation for the market’s high P/E.

Exhibit_1

Image not found or type unknown

This, of course, raises the question as to what might account for the higher P/E if it isn't interest rates. At the end of one of our recent pieces* we speculated that the Fed might well have a role to play in a broader sense than simply its interest rate decisions. We cited the late, great Nicholas Kaldor from a paper he wrote in 1958 arguing:

Reliance on monetary policy as an effective stabilising device would involve…a high degree of instability…in the capital market…The capital market would become far more speculative…longer run considerations of … profitability would play a subordinate role. As Keynes said, when the capital investment of a country "becomes the by-product of the activities of a casino, the job is likely to be ill-done."

Effectively, the Fed created enormous "moral hazard" and investors have been force-fed risk assets. (Hence we have occasionally referred to this as a foie gras market.) Whilst this seemed preeminently plausible to us, we didn't have any evidence to offer until recently.

From the belly of the beast. In a delicious stroke of irony, the idea for our approach actually stemmed from research originating at the Fed! In 2013, two economists at the New York Federal Reserve published a paper entitled "The Pre- FOMC Announcement Drift." In this paper the economists document "large average excess returns on U.S. equities in anticipation of monetary policy decisions made at scheduled meetings of the FOMC in the past few decades" (Lucca & Moench, 2013).

In a nutshell, the authors found that significant amounts of annual stock market returns over the past 30 years were made on FOMC meeting days. What is more, the authors found that “these pre-FOMC returns have increased over time and account for sizeable fractions of total annual realized stock returns.”

The New York Fed economists utilized tick data from the stock market to aid in their explorations. They were interested in determining whether these divergences could be explained by actual new information passed on to the market after the FOMC had made its decisions or whether they were due to simple anticipation by the markets of the FOMC decisions. They concluded that the returns could not be explained by markets “pricing in” FOMC decisions.

We were less interested in this particular aspect, but the approach sparked an idea in relation to what we might call the Kaldor hypothesis, which is essentially that the Fed has had a meaningful impact on market behaviour. Rather than using tick data as the Fed researchers did, we used full-day data, but reached a very similar conclusion.

Exhibit 2 plots the S&P 500 together with an adjusted series, which shows the impact of removing the days when the FOMC was meeting. Exhibit 3 plots the same data in relative cumulative space (effectively a strategy of going long the market on days when the FOMC was meeting, and zero all the other days of the year). A cursory glance at either chart shows that sometime around 1985 the market really started to react to FOMC days. Like the Fed economists, we found that for the past 30 or so years these announcement days have had a major, and increasing, impact on the stock market.

Exhibit_2

Image not found or type unknown

Exhibit_3

Image not found or type unknown

Just to be clear, all we did here was to remove the days on which the FOMC met; nothing more, nothing less. This means that we removed around 18 days a year in the 1960s, 14 days a year in the 1970s, and 8 days a year from 1981 onwards. During the period 1964 to 1983 there was absolutely no effect from removing these days. But, from 1985 onwards, removing fewer days began to have a major and increasing impact on the market. In fact, FOMC days account for 25% of the total real returns we have witnessed since 1984!

One of our bright young colleagues,** who is considerably more statistically sophisticated than we, calculated that the chance of this occurring randomly was only 0.0086% (that is, 86 out of 1 million). As he put it, “The odds are astoundingly low!”

To try to generate some more insight, we broke the data down in a variety of ways. Exhibit 4 shows the average return on FOMC days across a variety of time periods. As is clearly visible, between 1964 and 1983 there was no impact whatsoever; the average return on FOMC days was below the total average daily return. But beginning in the early 1980s, returns were substantially higher on FOMC days than they were on the average day. The period between 2008 and 2012 is particularly notable. Average returns on FOMC days in this period were phenomenally high; some 29x higher than on the average day, testimony to the impact of QE and “unconventional monetary policy” upon the market’s behaviour. More recently, the impact the Fed is having on the market has shrunk back to its “normal” post 1980s level accordingly. Evidence of QE fatigue perhaps?

Exhibit_4

Image not found or type unknown

It is possible that we were simply picking up on the fact that the Fed has been easing in trend terms over our sample period. So we looked to see whether the specifics regarding what type of action the Fed took had any impact on returns. In order to do this we broke down the FOMC days into those where the Fed increased or decreased rates or simply left them unchanged. We used data from 1990*** onwards. Exhibit 5 on the next page shows the averages of each of these various rate decisions as well as the average non-FOMC day return.

Exhibit_5

Image not found or type unknown

This evidence would seem to suggest that “easing” wasn’t driving the returns to FOMC days. In fact, the return to easing days was heavily influenced by two particularly strong days in 2008. Statistically speaking there was no difference in the returns to days when the Fed raised or cut interest rates (even including those two big days in 2008). In essence it appears that the stock market reaction wasn’t driven by easing so much as it was by the fact that the FOMC was meeting at all!

The Monetary Policy-Adjusted CAPE. We can use this insight to build a counter-factual picture of the world: a measure of the S&P 500’s valuation if the Fed didn’t have any impact on the animal spirits of investors. We simply take the return series for the S&P 500 and replace the days when the FOMC met with the average return on non-FOMC days (using an expanding window) and use this to then calculate the Monetary Policy-Adjusted CAPE. Exhibit 6 plots the standard CAPE and our adjusted series.

Exhibit_6

Image not found or type unknown

If we remove the impact of FOMC days, the CAPE looks to be significantly more mean reverting than it has over the last 20 years or so. The adjusted CAPE fits with our intuition over this period: The tech bubble would not have gotten quite so big (although it would still have been the biggest stock market bubble in U.S. history) without the Fed's help; in the wake of the GFC the market would probably have gotten down to the levels of valuation associated with a serious crisis (i.e., single-digit P/Es). Thus, if we believe this data we can say that post the GFC in particular the Fed has impacted the valuation of the stock market significantly, preventing mean reversion to occur in the fashion that we would have expected.

Of course, the 64 million dollar question is what should one assume going forward? The bulls will presumably argue that this Fed impact is now part of the accepted wisdom, and that P/Es should remain higher than history in order to reflect the Greenspan/Bernanke/Yellen Put. The bears will suggest that if ever there were a time for the scales to fall from investors' eyes over the Wizard-of-Oz-like nature of the Fed, then this is it. We (the authors, as opposed to the collective "we" at GMO) are inclined to the latter view. Betting on the Fed's ability to generate continued market levitation seems like a dangerous game to us, but as Newton long ago opined, "I can calculate the motion of heavenly bodies, but not the madness of people."

*James Montier, "Macro Market Myths: Debt, Deficits, and Delusions," January 19, 2016. This paper is available at www.gmo.com.

**Thanks to John Pease. For those with an interest in the gory details, John assumed that the returns of the S&P 500 from 1983 onwards represented the "true" probability distribution. He then drew 1 million 264-day samples, and looked to see how many times the returns were as strong as those of FOMC days.

***This was the period within which the Fed was very explicit about the level of interest rates they were targeting and policy actions were announced rather than having to be inferred from

open market operations.

OUR LIKES AND DISLIKES.

Likes_Dislikes

Image not found or type unknown
