INSTITUTIONAL ADVISORY & SOLUTIONS

Executive Summary

RIDERS IN THE STORM

How Volatility Events Affect Private Asset Class Performance

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We expand our earlier analysis of asset class performance before, during and after equity market volatility events by adding three types of private assets to our earlier study *When the Dust Flies*[1]. For this expanded study we include private US buyout, US mezzanine, and US real estate LP funds in addition to US equity and fixed income markets.

We examine broad equity, fixed income market and private asset average performance during the VIX spike quarter and in the pre- and post-volatility spike periods. The spike quarter (t_0) represents the calendar quarter in which the spike month resides (the month during which the VIX index increases by at least 50%). We define the **pre-spike period** as the 7q period ending in quarter t_{-1} (not including returns for quarter t_0) and the **post-spike period** as the 7q period after quarter t_0 (beginning with the returns for quarter t_1).

Figure 1 shows that, on average, during the spike quarter, the equity market has poor performance (the average 1q spike period S&P 500 loss was 11.9%). For the public fixed income market, 10y Treasury performed well during the spike quarter reflecting a "flight to safety." In contrast, US high yield suffered an average loss of 5.2% during the spike quarter.

In contrast to the public assets, performance of buyout funds also declined (-4.1%) during the spike quarter, but the average quarterly loss was much smaller than that for public equity. Private mezzanine and real estate funds were resilient during the spike quarter, with average performance of -0.4% and 1.0%, respectively.

When comparing the pre- and post-spike cumulative total return performance, we find that public risky assets did better in the post-spike period than in the pre-spike period. In contrast, private assets had weaker performance post spike compared to before the spike. Since private asset performance includes a subjective (*i.e.,* not market price-based) NAV valuation, this pattern of performance of private assets may reflect *overestimated* performance during the spike period. Alternatively, it might be argued that public assets were too aggressively marked down during the spike month (due to both forced selling by a limited number of participants during illiquid public market conditions and reliance on the last observed trade price at month-end) and did not reflect accurate fundamental valuation.

1 A. Xie, *When the Dust Flies: How Volatility Events Affect Asset Class Performance*, PGIM IAS, April 2018. A webinar discussion of this research, updated to March 2020, can be accessed via a replay: https://www.pgim.com/insights/pgim-expertise/when-the-dust-flies.

The findings shown are derived from statistical models. Reasonable people may disagree about the appropriate model and assumptions. Models should not be relied upon to make predictions of actual future account performance. See additional disclosures.

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Figure 1: Total Cumulative Returns (Pre-spike, Spike and Post-spike Periods) Q4 1988 – Q2 2017; 9 VIX Spike Events

Asset Class	Total Cumulative Returns			
	Pre-Spike (7 Quarters)	Spike Period (1 Quarter)	Post-Spike (7 Quarters)	Entire Period (15 Quarters)
S&P 500	15.7%	–11.9%	27.0%	29.7%
DJI	19.5%	–11.2%	27.1%	33.9%
10y Treasury	13.1%	6.5%	8.5%	30.5%
US HY Credit	11.3%	–5.2%	28.9%	33.8%
US IG Credit	12.2%	2.8%	13.7%	30.9%
US Buyout LPs	32.0%	–4.1%	20.7%	51.5%
US Mezzanine LPs	20.2%	–0.4%	16.3%	39.4%
US Real Estate LPs	13.1%	1.0%	5.2%	19.0%

Note: The dates of the nine spike quarters are: Q3 1990, Q3 1998, Q3 2001, Q3 2002, Q3 2007, Q4 2008, Q2 2010, Q3 2011 and Q3 2015. The corresponding pre- and post-spike periods associated with each spike event are, respectively, the seven quarters before and after the spike quarter. Past performance is not a reliable indicator of future performance. Source: PGIM IAS, Burgiss, Datastream, ODCE, FRB St. Louis (FRED). For illustrative purposes only.

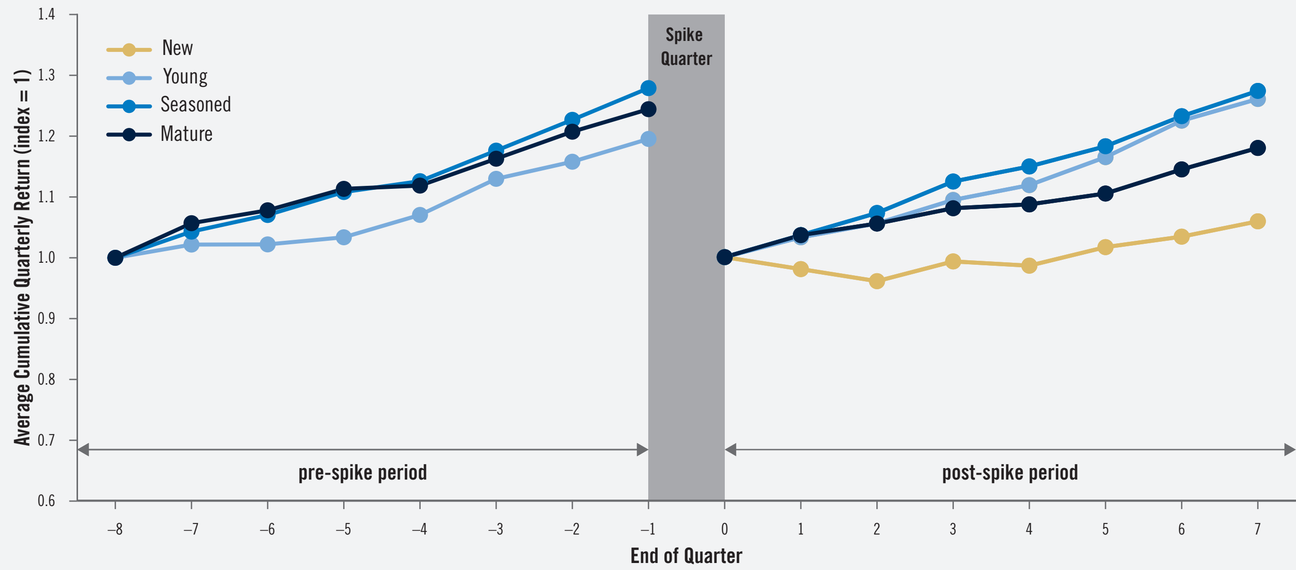
Private Asset Results – by Vintage Age

In the wake of volatility spike events we might expect differences in fund performance, conditional on fund age, due to where funds of different ages might be in their performance cycle. For example, young funds may be in a better position to take advantage of volatile markets when deploying capital. In contrast, old funds may have already made most of their distributions and have mostly struggling companies remaining in the fund whose valuations are more susceptible to volatile markets.

We also study US buyout LP performance pre- & post-spike quarter cumulative performance conditional on the age of the LP fund. To do so, we group funds into age cohorts for the eight VIX spike events.[2] An LP fund less than 1y old (at the time of the spike quarter) is defined as "new"; between 1-3y old, "young"; between 3-6y old, "seasoned," and older than 6y the fund is defined as "mature."

Figure 2 shows that new funds underperform the other cohorts in the period after the volatility spike. This is most likely due to the "J-curve effect." Meanwhile, the mature cohort post-spike event recovery is not as strong as that for the young and seasoned cohorts – perhaps due to these funds having already made the bulk of their lifetime distributions and having less room for further operational enhancement.

2 Only vintages with at least five buyout LP funds are included in this analysis to reduce the potential of an idiosyncratic fund-level event heavily affecting vintage-level returns. We study only eight VIX spike events, instead of the nine that occur after Q4 1988 and before Q2 2017, because for the 1990 Q3 VIX spike event there were not enough LP data for mature funds that spanned both pre- & post-spike periods.



Past performance is not a reliable indicator of future performance.
Source: PGIM IAS, Burgiss. For illustrative purposes only.

Public equity and credit assets experience poor performance during spike events relative to their kindred private assets. However, for public assets that experienced relatively larger losses during spike events, they responded quickly after the event and performed better in the post-spike period than in the pre-spike period.

While private assets rode out the spike storm relatively well compared to comparable public assets, private assets "paid" for that relative performance gain with relatively weaker post-spike performance compared to their pre-spike performance.

On net, however, our analysis of private asset performance supports our earlier findings for public assets: Following a volatility event, investors might wish to consider "staying the course" (*i.e.*, do not de-risk) and possibly rebalance to increase allocation to private assets.

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