

Levered to AI: Connecting the Dots between Bi-Modality, Concentration, Dispersion, Implied Correlations, the Very Very Low VIX and What One Can Do About It

By Vineer Bhansali | August 25th, 2026

In a recent piece on [Forbes.com](https://www.forbes.com), I speculated that the very high levels of implied volatility in many large, mega-cap stocks like Micron (MU), SpaceX (SPCX) and some foreign stocks like SK hynix, might rationally be reflecting the desire of investors to own volatility on both “tails”, up and down. This seems reasonable, since this is an unprecedented time -- in the speed and reach of AI tools in normal life, and no one knows whether we will have a doubling or tripling of many of these stocks, or perhaps a complete re-calibration on the other side, accompanied by a collapse.

To justify this high, persistent level of volatility in some of the AI exposed stocks, I suggested, one could assume that the world we are entering is bi-modal (see **Exhibit 1**), where I have shown a “unimodal” distribution in dotted along with the “bi-modal” distribution with two very different means. The volatilities of these two distributions are the same, about 100% per year. But note that the volatilities of the two individual modes of the bi-modals are actually quite low by comparison. In other words, the high implied volatility of options could very simply be from the fact that the market is pricing a schizophrenic, melt-up or melt-down scenario.

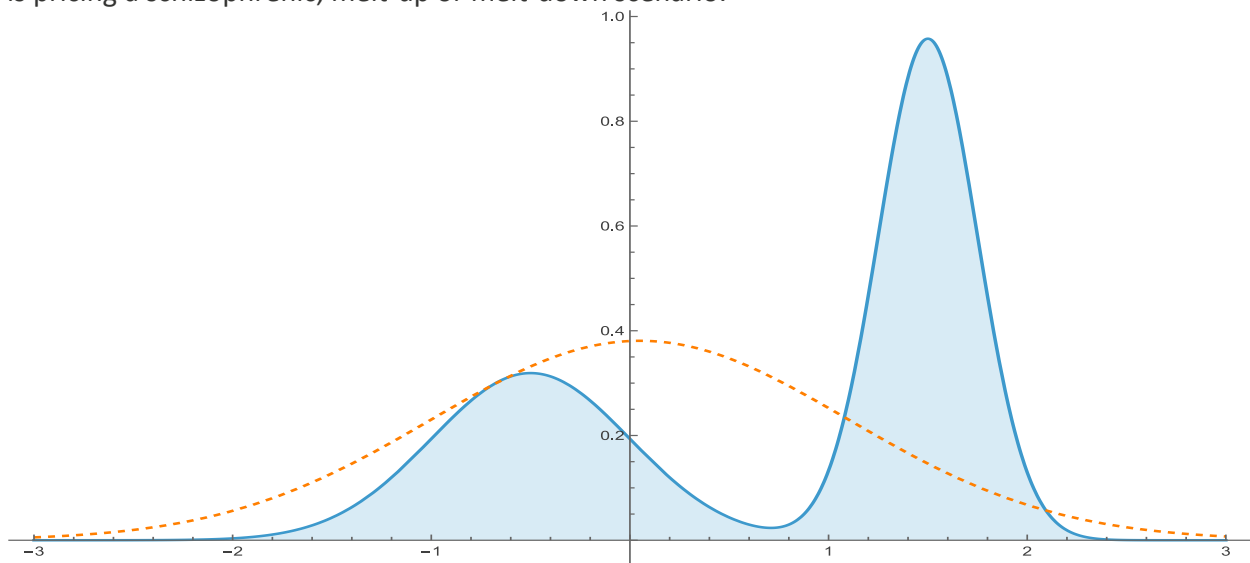


Exhibit 1: A Unimodal and a Bi-Modal Probability Distribution, each with volatility of 100%. Source: LongTail Alpha

Let me list a few other curiosities that we are currently observing in markets, and then start to put them together in one narrative.

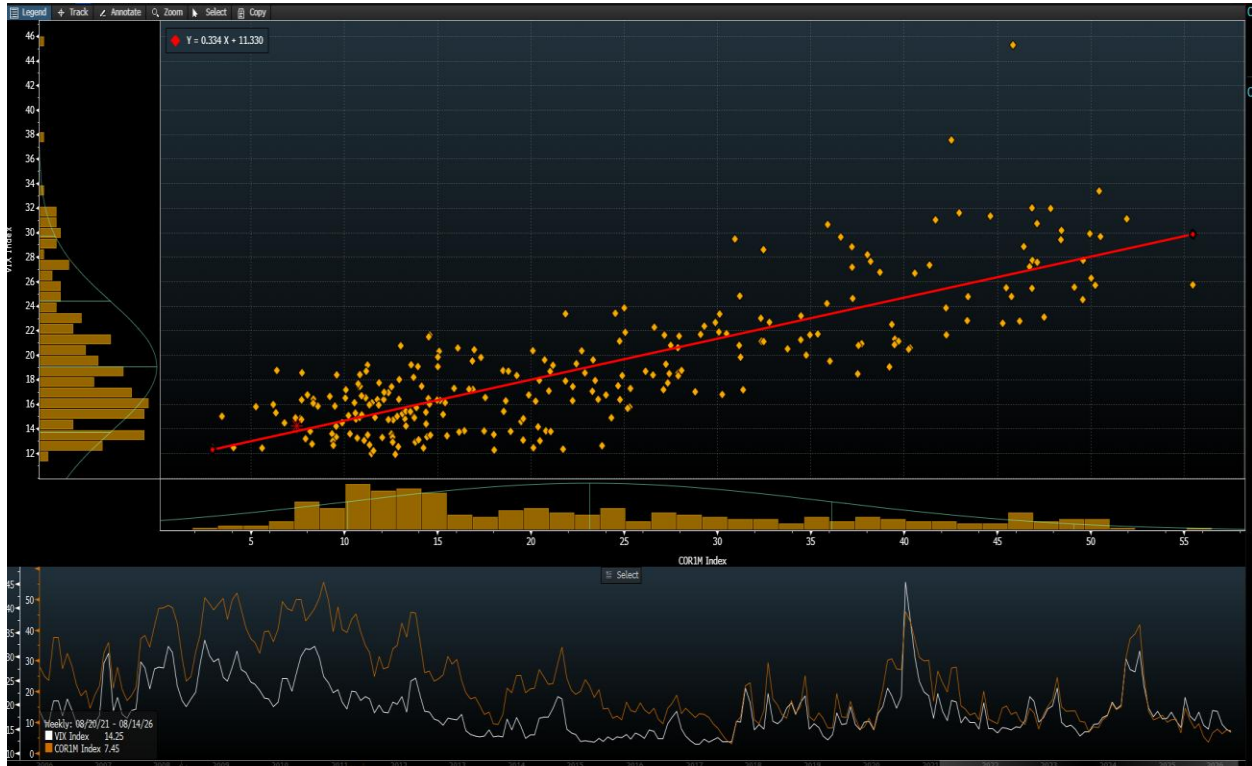


Exhibit 2: VIX vs. Implied Correlation in the S&P 500, Source: Bloomberg

In **Exhibit 2**, I display a chart of the relationship between the VIX index and implied correlation. We can see that they are quite tightly correlated, even moving in lockstep (shown in the bottom panel of the exhibit). Implied correlation of the S&P 500 has collapsed to all-time lows, and this has resulted in massive profits and crowding for a popular hedge fund strategy call “dispersion” arbitrage, which consists of selling options on the S&P 500 (“index volatility”), and buying the volatility on the constituents (“single name volatility”). The implied correlation can be computed by an equation that subtracts the weighted variance from the index variance. Here is the equation for the implied correlation:

$$\rho = \frac{\sigma_{Index}^2 - \sum_i w_i^2 \sigma_i^2}{\sum_{i \neq j} w_i w_j \sigma_i \sigma_j}$$

S&P500 Historical Sector Composition – Share of Information Technology Stocks

Historical End Of Day



Source: SG Flow Strategy & Solutions, Bloomberg. Historical Range: 12/31/1990 – 06/08/2026.

Exhibit 3: Weight of Information Technology in the S&P 500. Source: SocGen

As displayed in **Exhibit 3**, the weights of the tech sector stocks have surpassed the past high, and currently sit at over 40%! So arithmetically, if the weights of the components get large, or if the volatility of the component stocks gets large, the implied correlation will fall. When the index components contribute both large weights and volatilities at the same time, the multiplicative effect of weights times volatilities of the components makes the correlation collapse even more rapidly. So, the falling implied correlation is a function of rising concentration of the high volatility, large weight, single name stocks, which is a fairly new development. Large cap stocks normally do not trade at such high implied volatilities, and the weight of these large weight stocks can be traced back to one key risk factor today – AI, as shown in **Exhibit 4** where we regress the S&P 500 against JP Morgan’s AI CAPEX basket¹.

¹This basket consists of the following tickers: AAPL, AMZN, BABA, CORZ, CRM, CRWV, DLR, EQIX, GOOGL, IBM, IRM, META, MSFT, NOW, ORCL, PLTR, SNOW, TSLA

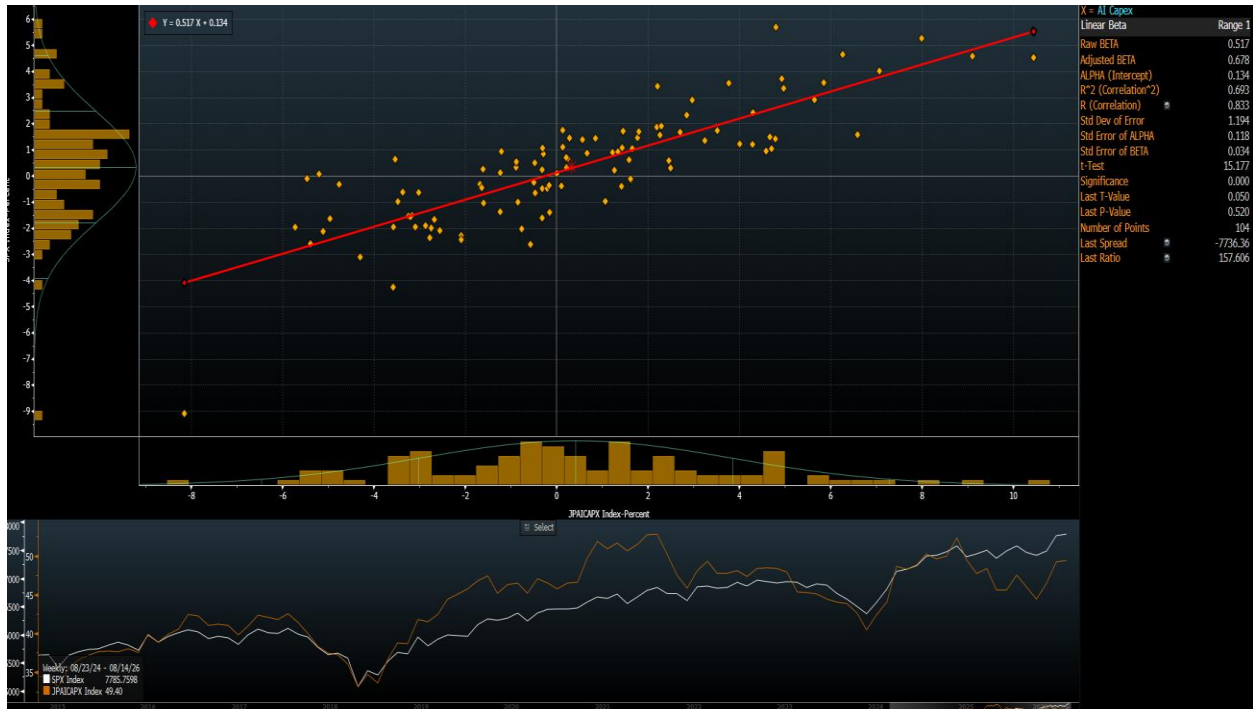


Exhibit 4: S&P 500 vs the AI Capex basket. Source: Bloomberg

This explains why implied correlation is falling (due to weights and high single name volatility). But what about the low level of the VIX?

One hypothesis here is that the prevalence of “dispersion” trading and retail interest has resulted in a temporary lid on the level of the index volatility. Dispersion is a popular hedge fund strategy in which a trader sells index volatility and buys single name volatility. The higher the single name volatility, and the higher the concentration of these single name volatility stocks in the index, the more profitable it becomes to buy the single name volatility and sell the index volatility as a “hedge”. The consequence, as discussed, is the symptom that everyone is observing, i.e. the collapse in implied correlation. For now, we can also justify why the implied correlation should be low on macro grounds. The S&P 500 is made up of 7 or 8 highly profitable large cap tech stocks, and the “493 other”. One can reasonably argue that the correlation between the large cap tech stocks and the rest should be low, because they are tapping into different markets and economies. In addition, the stupendous increase in retail participation in name stocks via levered structures such as call options and levered ETFs has also magnified the volatility of these single name stocks, again leading to the same result – falling realized and implied correlation. The victim of this completely reasonable story is the VIX.

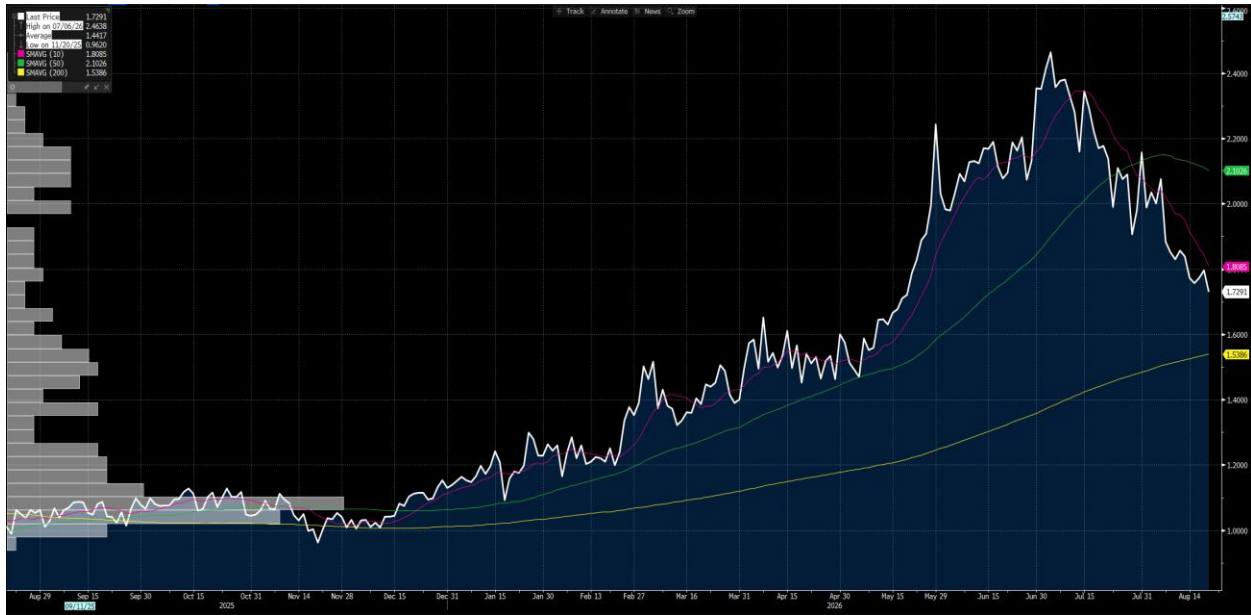


Exhibit 5: Ratio of 3-month EEM 80% strike option volatility to SPY 80% strike option volatility.

Source: LongTail Alpha, Bloomberg

One other phenomenon that has emerged from all of this is shown in **Exhibit 5**, where we plot the ratio of 20% out of the money put option volatility on the emerging market ETF EEM vs. its US market counterpart, 20% out of the money put option volatility on the SPY ETF. This ratio can be thought of as the extra perceived risk in the emerging markets sector relative to the developed markets. As we can observe, this ratio of volatilities spiked almost 50% recently before receding in the last few days. If we look inside EEM we find that its largest holdings are... TSMC (Taiwan Semiconductor), Samsung, and SK hynix, all of which are both massively levered to AI, and are also very high volatility stocks. So these high volatility -- AI exposed single name stocks are now dominating that index volatility as well. Again, concentration and high volatility working in concert.

The importance of this last observation is that when an index becomes so dominated by a few large and volatile names, it may no longer be a proper benchmark. This is somewhat reminiscent of the 2000 tech bubble and bust, when the markets were levered to the internet theme, or the credit bubble of 2008, when the bond markets were levered to structured credit and housing related mortgages. Today, both the broad stock markets, and increasingly many bond markets, are increasingly levered to the AI theme.

All of this leads us to the conclusion that the low level of the VIX may just be an artifact of the low level of implied correlation. This, in turn could be in part due to the retail interest in single stock options, dispersion of trading profits and possibly crowding, and of course the concentration of the market in large cap, AI levered stocks. This current level of index volatility is priced for perfection, and precludes any macro, systemic shocks.

One way to take a contrarian position to benefit from systemic shocks (up or down) would be to “buy correlation”, i.e. to sell dispersion. But creating a reverse dispersion trade is hard to manage, since it requires buying index volatility and selling single name volatility on many stocks, each of which can create a lot of risks. Another, much simpler, though crude way is to own the VIX. But since one cannot buy the VIX itself, the only choices left are to either use VIX futures, buy VIX calls and S&P 500 puts and calls, or use OTC variance swaps. From my perspective, VIX futures expose one to too much unlimited risk. OTC variance swaps require documentation and some lack of transparency. This leaves VIX options as a simple, crude pure expression to implement a convex long position on volatility rising. For now, given the low levels of the volatility of volatility (which is used to price VIX options), VIX call-options seem to be a simple, attractive way to position for any change in the AI story, dispersion, implied correlation, or a recalibration of reality.

Important Disclosures

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