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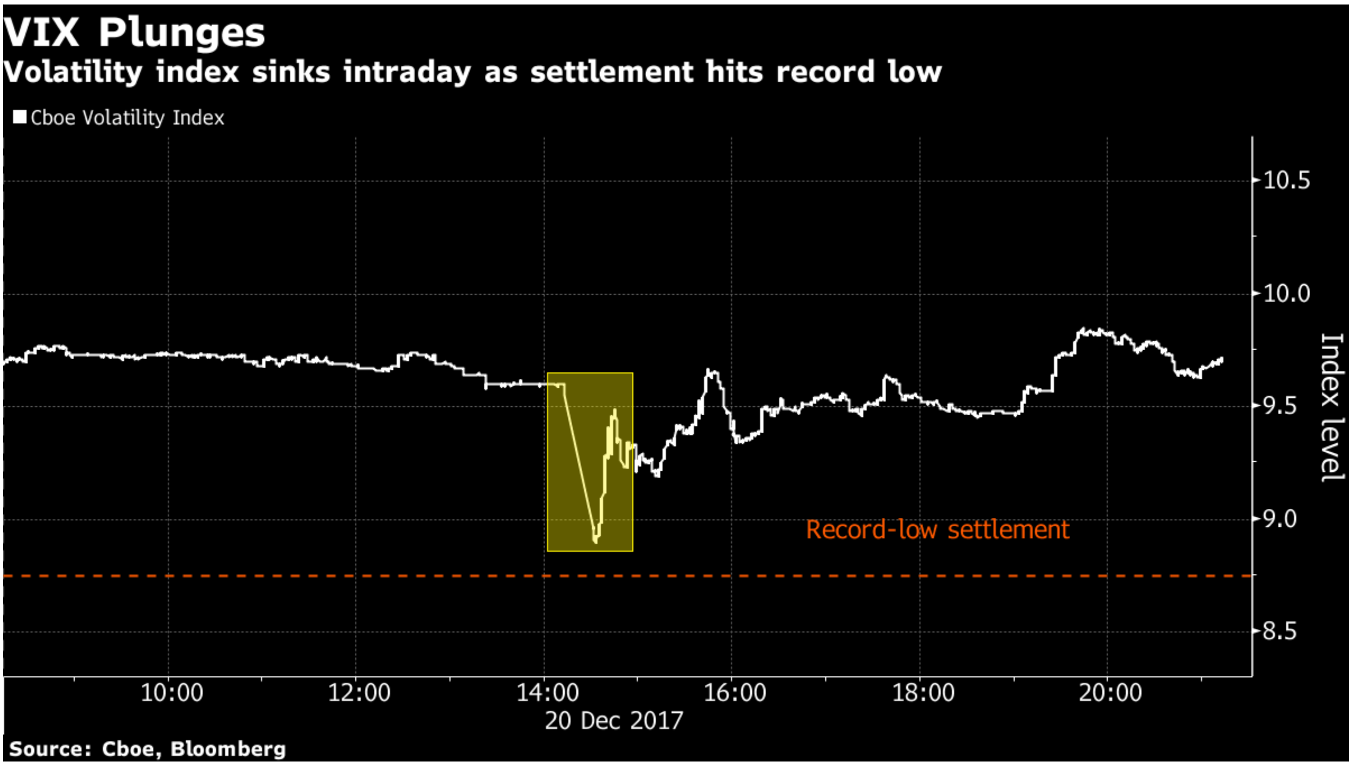
Is the VIX Being Gamed? A Sudden Swoon Has Traders Talking Again

- **The volatility gauge took a quick tumble on morning of Dec. 20**
- **Futures tied to the gauge settled right around that time**

By Nikolaj Gammeltoft and Cecile Vannucci

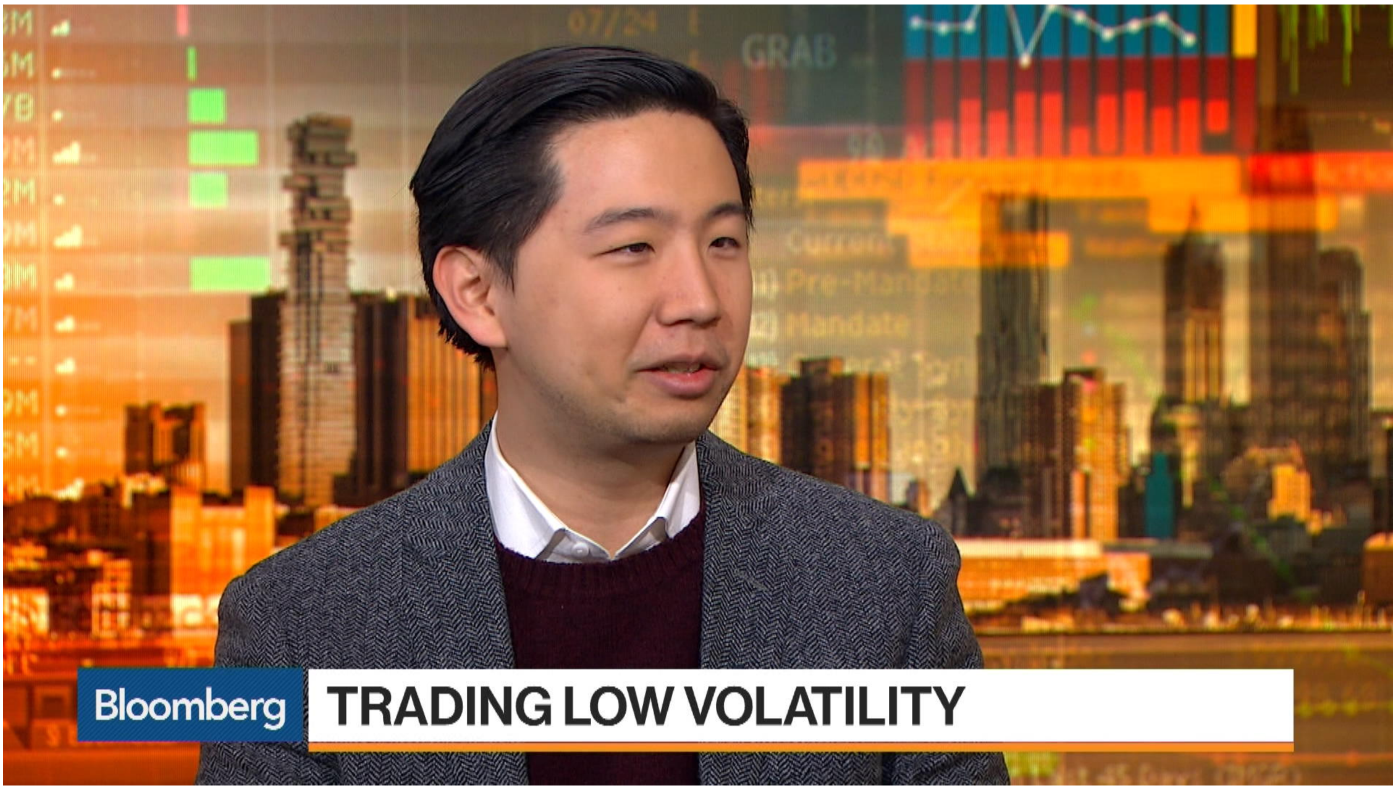
(Bloomberg) -- It made for quite a chart.

On the morning of Dec. 20, just as billions of dollars of futures tied to the Cboe Volatility Index were set to expire, the index plunged. The result was a settlement price, a weekly value critical to holders of some the most heavily traded derivatives in the country, that was 13 percent below the prior day's close. A nice break, if you were short.



For much of last year, the Cboe had to defend itself after an academic study purported to show the VIX settlement is subject to manipulation. While the exchange has seen nothing to alter its view that the claims are baseless, December's events gave the conversation another stir.

"There couldn't have been a more appropriate cherry on top of the 2017 cake," said Patrick Hennessy, head trader at IPS Strategic Capital in Denver. "The VIX settlement in December was one for the books."



Macro Risk Advisors' Pravit Chintawongvanich discusses trading against the VIX.

(Source: Bloomberg)

Scrutiny of the Cboe settlement process left the realm of the theoretical last week when its futures exchange fined a Chicago-based trading firm following allegations it submitted improper bids to volatility auctions on emerging-market stocks and oil. Regulators enforce strict rules against practices they consider unfair or noncompetitive.

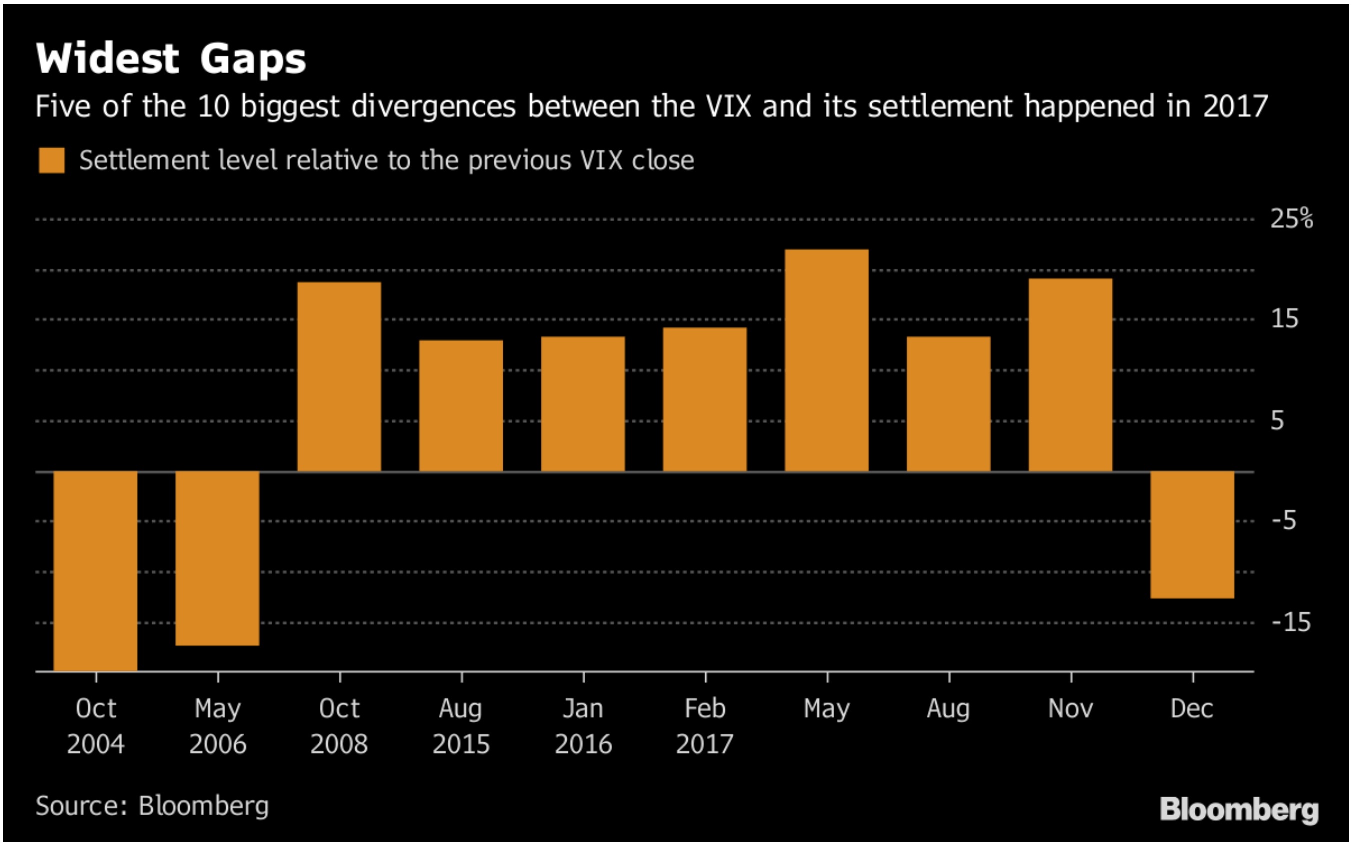
Heavily Traded

This is a corner of the market dominated by professional speculators, where frenzied wagers are laid by those with a view on how calm or chaotic share prices will be. The most recognizable fixture in that stew is the VIX, which goes up and down as options on the S&P 500 Index fluctuate.

Exchange officials say nothing untoward is going on, that the VIX settlement repels tampering through a transparent auction process that is separate and distinct from its pricing the rest of the day. And conversations with a half dozen options professionals show that while the topic is hotly discussed, many reject claims of overt manipulation.

But the events of Dec. 20 are familiar enough that questions keep coming back. Why does the VIX, a reference value for futures whose final price is set in an auction by the Cboe, often settle so far away from its market price?

Bloomberg data show that of the 10 biggest gaps between the VIX settlement value and its closing level the night before, five came in 2017, including December's, which was the biggest discount in 11 years. On monthly expirations, settlement occurred outside the VIX's same-day trading range 42 percent of the time last year, the most since 2005. The average occurrence was 15 percent in the decade through 2016.



While a lot of innocent explanations exist, "really, it is a mystery," said Pravit Chintawongvanich, the head of derivatives strategy for Macro Risk Advisors. "Some people rightly get confused about why the settle is seemingly out of context with the market."

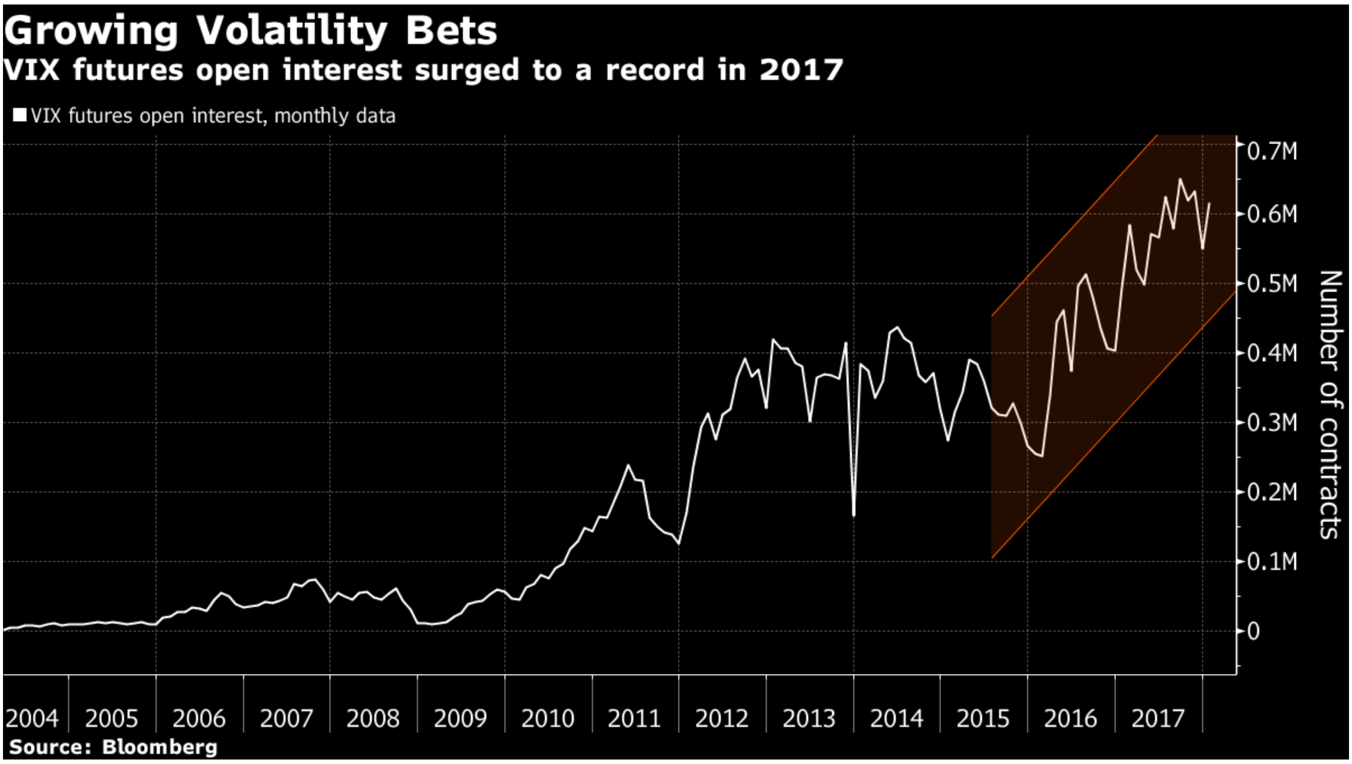
Texas Study

Concern something fishy is at work got an airing last summer when University of Texas researchers published a paper saying they saw evidence the settlement process was being gamed, possibly by people holding derivatives. It's a theory the Cboe vehemently denies, saying trading patterns like those observed by the authors, John Griffin and Amin Shams, have explanations that require no illicit motive.

As for Dec. 20, "We have not identified anything that looks out of the ordinary, other than the optics of the big drop from one day to the next," said Bill Speth, vice president of global research at Cboe Global Markets. "The settlement value is based on SPX options trades, while the VIX Index is based on the midpoint of SPX options quotes. And we saw a large number of those trades execute on bids."

In rebutting the University of Texas study, the Cboe has said that supposedly telltale volume spikes in S&P 500 contracts at auction are a natural result of traders replacing VIX futures with options exposure.

It's possible widening gaps in settlement prices reflect not manipulation, but simply the influence of market makers conducting such trades. The number of outstanding VIX futures has certainly been rising. Open interest just before the monthly expiration averaged almost 611,000 contracts last year, 44 percent more than in 2016 and more than double the average of 240,000 in the decade before.



A measuring stick for market anxiety, the VIX is also a benchmark for futures that have ballooned in popularity among hedge funds and other institutions. The final value of those bets is determined by a settlement auction conducted by the Cboe at the same time every week: 9:20 a.m. New York time on a Wednesday. The Dec. 20 fix was special because weekly, monthly and quarterly contracts expired.

It went like this. The night before, Tuesday, Dec. 19, the VIX closed at 10.03, and by 9 a.m. the next day, as equity futures strengthened, it had drifted down to 9.6 (the VIX moves in the opposite direction of stocks most of the time). Then a swoon started, taking publicly visible prices on the index from 9.55 to 8.97. In between, the Cboe auction generated a settlement price of 8.75 -- 13 percent below its close 17 hours earlier.

Auction Process

Sequences like that are bound to bring out conspiracy theorists, particularly in a world where money has piled up in bets volatility will wane. Griffin and Shams likened their earlier account of VIX gamesmanship to Libor and currency markets, where traders allegedly manipulated fixings to maximize profits on instruments they held.

Options traders say that while the morning's events did turn heads, assigning an illicit cause to the phenomenon is no simple matter. For one thing, it's not illogical the auction would generate a different VIX level than regular trading. It works differently than the normal market -- by design.

"It's a robust mechanism with enormous volumes and hundreds of thousands of options trades," said John-Mark Piampiano, derivatives strategist at Seaport Global Securities, in Aspen, Colorado. He views the settlement price as transparent because it's based on transaction prices, while the VIX is quotation based.

That said, misconduct in settlement auctions isn't unheard of. Last week, the Cboe's futures exchange settled allegations with DRW Securities that it submitted orders to auctions settling volatility indexes for emerging-market stocks and crude oil that violated exchange rules. Without admitting guilt, DRW agreed to fines and disgorgements of about $1.5 million.

"We will continue to work collaboratively to gain clarity about acceptable trading practices, especially for new and innovative products like those involved here," a DRW spokeswoman said in a statement. "We take very seriously our obligations to comply fully with all regulations and rules."

Details of the enforcement agreement demonstrate the complexity of the auction process and how far Cboe goes in trying to police it. Nine times between February 2014 and March 2015, DRW's trading desk submitted a type of options trade that, in effect, artificially expanded the number of orders that were considered in settlement auctions, according to a notice on Cboe's website.

Complex Chemistry

The VIX has a complex chemistry. The gauge itself isn't an asset like corn or a share of stock, but a mathematical value that is derived from the price of options on the S&P 500 that expire in 30 days. Those options are what trade in the auction the Cboe uses to set the settlement: puts and calls on the equity index, about 135,000 of them on Dec. 20, average for the year.

"Naturally there will be speculation that the print was manipulated, but we have to remember that there is real money on the line here," Hennessy said. While people may have made a killing on futures based on the VIX settlement, "they also are going to have to deal with and manage the resulting position they took on in January if they're trying to boss the market around."

Griffin and Shams, in their May 2017 paper, said a number of facts support their view that VIX settlement is gamed. Among them are a statistically significant increase in volume in the very options included in the VIX calculation, and a lack of corresponding volume in options that aren't used in the auction.

"The most natural explanation for these patterns appears to be attempted manipulation," they wrote.

Cboe doesn't see it that way. "We have built numerous structural safeguards into the VIX settlement process that are specifically designed to make it difficult for traders to improperly influence the settlement price," Speth says. "Separately, our regulatory group actively monitors for any improper activity related to VIX settlement."

Another factor at work on Dec. 20 was the calendar, according to Piampiano. The 30-day window that Cboe uses for the calculation included Christmas, New Year's and Martin Luther King Day. Demand for options tends to wane around the holiday season, but last month the proximity to all these holidays caused the settlement to be abnormally low.

Traders could have foreseen that, and used strategies to position for a low settlement, such as buying VIX December puts while selling January options -- or exiting their positions before. Piampiano's clients saw a higher-than-average chance that the Dec. 20 settlement might be low because of its nearness to the holiday period.

Hennessy of IPS says in a market dominated by professionals, everyone plays at his own risk.

"Like any market it is susceptible to manipulation by large participants but I think that most VIX traders understand that," he said. "2017 saw many settlements that came in points away from the previous day's close value, and at this point you have to understand the risk you are taking on if you choose to let your options/futures position go into settlement."

Related tickers:
8184735Z US (DRW Holdings LLC)
CBOE US (Cboe Global Markets Inc)

--With assistance from Matthew Leising, Nick Baker and Mark Boardman.

To contact the reporters on this story:
Nikolaj Gammeltoft in New York at ngammeltoft@bloomberg.net;
Cecile Vannucci in London at cvannucci1@bloomberg.net

To contact the editors responsible for this story:
Jeremy Herron at jherron8@bloomberg.net
Chris Nagi