Why Are Markets So Volatile? It's Not Just the Coronavirus.

The market is dominated by computer-driven investors that rely on signals such as volatility and momentum

By Gunjan Banerji and Gregory Zuckerman
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Traders like Michael Pomada help explain why the stock market is going through its most turbulent period in recent memory.

Mr. Pomada was in good spirits as he drove his convertible to his office in Los Angeles's Century City complex before sunrise on March 9. Investment funds managed by his $4.5 billion firm, Crabel Capital Management, were up about 5% for the year. He wasn't especially concerned about financial markets or the economy, even though oil prices were tumbling that morning.

Yet, all day, Crabel sold stock futures and other investments, contributing to a 2,014-point, or 7.8%, drop in the Dow Jones Industrial Average.

Two days later, the blue-chip index fell into a bear market-—as Mr. Pomada's firm continued selling—bringing an abrupt halt to an 11-year bull run that began in the throes of the financial crisis.

Traders on the floor of the New York Stock Exchange on March 11
PHOTO: ANDREW KELLY/REUTERS

Like a growing number of investors today, Crabel relies on preset algorithms to make computerized trades. They are dictated by a series of inputs. And one of the most important of these inputs is the market's own volatility.

As a result, when things get wild, the computers at Crabel and other firms start selling—helping make it wilder still.

"We need to cut position size when market volatility pops," even if the positions seem like winners over the long term, said Mr. Pomada, Crabel's chief executive. "It can feel awkward, but we know we're doing the right thing from a risk perspective."

The stock market has been plunging as investors struggle to judge the impact of the coronavirus, a price war in oil and their impact on the global economy. Monday's fall of nearly 3,000 points in the Dow Jones Industrial Average, or more than 12%, marked the second-worst day in its 124-year history. But those reasons don't fully explain the remarkable volatility.

Since the mid-February market peak, the Dow Industrials have closed more than 1,000 points lower on six trading days and rebounded at least 1,000 points four times. Adding to those moves, and potentially hastening them, are technical factors that have little to do with how investors feel about the outlook for companies, earnings and the economy.

In a dramatic shift since the financial crisis, the market today is dominated by computer-driven investors whose machines react to a series of technical and other factors, as well as by more-traditional investors who rely on reams of fast-flowing data. On many days, forces such as the market's volatility and momentum, derivatives activity and the market's liquidity—how easy or difficult it is to get in and out of trades—can help drive trading.

In earlier times, when trading was dominated by fundamental investors who scoured balance sheets, studied goods prices and tried to reckon a company's future profits, market volatility figured in to some extent, but not in any defined way. Now, for many traders a stock is simply a thing that moves, whether the company makes shoes or airplanes or frozen pizza. And how much a stock moves—how sudden and sharp are its swings—is a factor as important as any other in whether to buy or sell it.

On Friday, various momentum inputs directed investors to buy shares late in the day when the market began to climb. Buying by these algorithmic investors, alongside other investors' bullishness or hedging, sent the Dow Industrials up nearly 2,000 points, or 9.4%, in its biggest one-day percentage gain since 2008, traders said. Most of the move happened in the last 30 minutes, a concentrated burst that drove the index up over 1,400 points.

As 2020 began, investors were optimistic the economic expansion would continue, as calming trade tensions between the U.S. and China and three recent interest-rate cuts from the Federal Reserve lifted stocks to record levels. For years, it paid to buy each dip in stocks and to embrace trades that bet against the return of volatility.

The outlook for investors started turning dire the weekend of Feb. 22, after a surge of coronavirus cases outside China. Fears it could spread globally and tip economies into recession smashed a long stretch of tranquility in financial markets.

The Dow Industrials fell from a record Feb. 12 into a bear market on March 11—defined as a decline of at least 20%—in 19 trading days, the fastest such plunge ever. The S&P 500 suffered a similar drop.

Including Monday's plunge, the trading wiped $8.28 trillion in market value from the broad stock-market index. Treasury yields plumbed new lows, reflecting furious buying of safe government bonds. Oil prices fell at rates not seen since the 1991 first Gulf War. Investors fled riskier debt, afraid companies that loaded up on credit amid low interest rates would have trouble repaying.

"You've gone from an environment where you think you can go into a mini bubble to… we could have a recession starting in March," said Troy Gayeski, co-chief investment officer of SkyBridge Capital, which oversees $9 billion. "This is a whole new world."

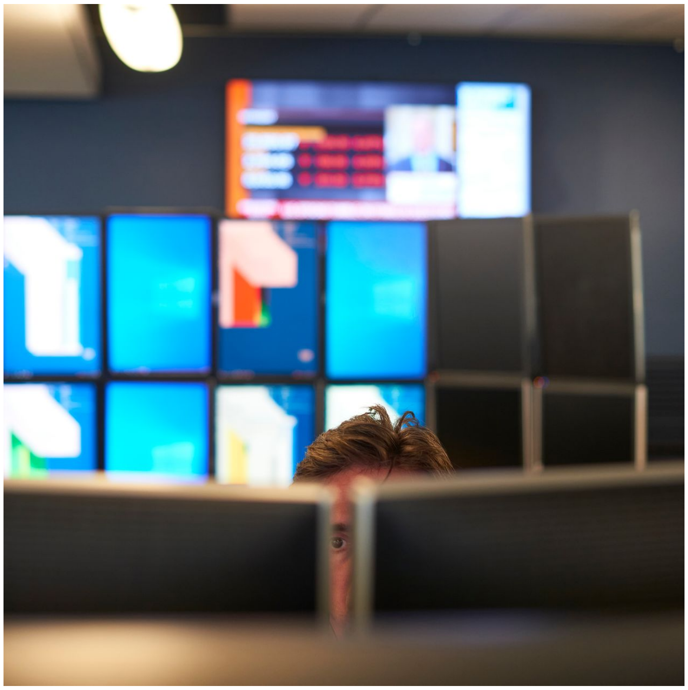
According to JPMorgan Chase & Co, more than $100 billion of selling during the week of Feb. 23, the worst week since the financial crisis, was fueled by strategies such as options hedging, what traders call "vol targeting"—using volatility as a central input in trading decisions—and other systematic tactics.

Many of the technical trading strategies—which helped buoy markets during its 11-year bull run—have been unraveling and driving volatility. On the way up, as volatility fell, people bought risky assets; now volatility is rising, so they're selling.

"What you get is that Minsky moment: That stability ultimately breeds instability," said Charlie McElligott, a strategist at Nomura, referring to the late economist Hyman Minsky's thesis that prolonged periods of calm can sow the seeds of a painful collapse.

Different technical dynamics can work the other way, too, Mr. McElligott said, creating "a massive violence on upside moves."

Many of these traders are selling shares and other investments to manage their risks rather than to profit from a tumble. Along the way, they can amplify the very downturns they are hoping to avoid by offloading shares just as the market swoons, adding to the turmoil.



Inside Crabel Capital Management in L.A.

PHOTO: MATTHEW SCOTT GRANGER FOR THE WALL STREET JOURNAL

Some of these strategies, such as chasing momentum, also can magnify rallies. Extended rallies often bring lower market volatility, thus spurring computer buying.

Funds making decisions based on volatility, including some with names such as volatility-targeting funds and risk-parity funds, have risen in popularity. Risk-parity funds manage an estimated $175 billion.

One such investor, Roberto Croce, spends his days tracking thousands of data points on volatility and the intricate relationships between about 60 markets, from commodities to stocks and bonds around the world. Overseeing about $1.3 billion in a risk-parity strategy, Mr. Croce, a senior portfolio manager at Mellon Investments in Boston, buys and sells assets based on how risky they appear at any given time.

He began dumping stocks in early February and kept selling during the week of March 2 as the selloff accelerated.

By then, business leaders were canceling conferences and travel because of the virus. Anxiety was so high that the Federal Reserve's emergency interest-rate cut on March 3, its first such move between scheduled policy meetings since the financial crisis, did little to soothe markets. On Sunday the Fed cut rates again, to near-zero, as the coronavirus pushed the U.S. closer toward a recession.

"It's very clear what I have to do when risk rises. I have to reduce exposure," said Mr. Croce. "That all happens based on the list of instructions that we've given to the computer."

A risk-parity strategy run by Man Group PLC, one of the largest publicly held hedge funds, was cutting exposure to stocks around the world, commodities and credit the week of March 2, according to someone close to the matter.

By March 12, as the Dow dropped 10%, exposure by risk-parity strategies to stocks and other assets fell to the lowest level since 2013, Nomura estimates show.

That same day, so-called volatility-targeting funds slashed their allocation to stocks to a record low, according to Deutsche Bank strategist Binky Chadha.

Those who trade based on volatility say that their activity isn't dangerous because they alone can't move markets, and that it isn't clear how much they amplify the market's direction.

They can also help stem the bleeding. Mr. Pomada's firm reduced some of its bearish oil positions on March 9 because volatility had surged. It had been betting against the market, but moved to buy crude that day, potentially lending support to oil prices as they were cratering.

Additionally, these investors say their strategies are nuanced. "It's extremely unlikely that a bunch of managers are pounding the market with exactly the same trades at exactly the same time," Mr. Croce said.

Mr. Croce said he looks to sell shares gingerly so as to not significantly move prices. The signals help him make levelheaded decisions. "Humans like to sell bottoms and buy tops," he said.

In addition to investors who have been selling as volatility soared, others have been getting out solely because of moves in the value of stock options they have sold.

In recent years, traders big and small have turned to options, which give investors the right to buy or sell shares later at agreed-upon prices, to juice returns. Assets in mutual funds and exchange-traded funds using options strategies have soared to $26 billion from about $10 billion since 2010, according to Morningstar Direct as of January.

In calm markets, when it's safe to assume most options will never be exercised, some investors sold options just to collect the premium. Banks and trading firms also sell options to investors looking to hedge.

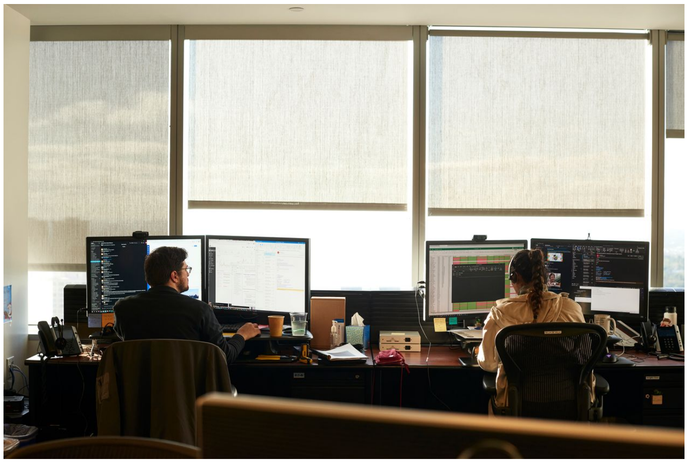
When markets fall and volatility soars, sellers of put options—which give the buyer the right to sell at a certain price, and which typically rise in value as the market falters—can be caught in a bind. They scramble to dump shares and stock futures to try to hedge or to minimize their growing losses.

Data firm SqueezeMetrics estimates that for every percentage-point fall in stocks, trading firms need to sell $30 billion in stocks to hedge their stances. Those same firms need to buy that much when the market jumps one percent. Hence, still more volatility.

In some ways, these trading techniques are similar to "portfolio insurance," the hedging strategy popular in the late 1980s, when investors' computers sold stock futures at the first sign of a decline to protect against deeper losses. On Oct. 19, 1987, that tactic led to more computerized selling and a rout of more than 22% in the Dow.

"It's adding to the severity of these rips up and down," said Tobias Hekster, who has been trading options for more than two decades and is co-chief investment officer of hedge fund True Partner Capital.

As of Monday, the S&P 500 has moved up or down by at least 4% for six consecutive sessions, the longest streak since November 1929, according to Dow Jones Market Data. The market's move triggered trading halts for the first time since 1997.



A scene at Crabel Capital Management offices

PHOTO: MATTHEW SCOTT GRANGER FOR THE WALL STREET JOURNAL

SHARE YOUR THOUGHTS

Do you discount volatility somewhat, knowing that part of it is due to quirks of algorithmic trading? Join the conversation below.

London's Aspect Capital automatically reduced positions in oil and other assets on March 9. The $7.2 billion firm spread its activity throughout the day, rather than sell at the opening of trading, according to Christopher Reeve, director of risk. That would suggest the firm didn't exacerbate the collapse in oil prices.

"If markets get more volatile, our positions get smaller," said Mr. Reeve, whose firm has funds that have both gained and lost money so far this year.

Further magnifying moves is how tough it can be to complete trades in times of stress. Big banks have backed away from trading over the past decade, leaving fewer players in many markets. The trades that get done can move prices more, causing greater tumult.

It's become harder to trade assets from Treasurys to stocks and derivatives during the selloff. The number of Treasurys available to buy or sell near the best prices has dropped and is near levels not seen since late 2008, according to JPMorgan data. It became more onerous to trade S&P 500 futures and stocks, according to Goldman

Sachs Group Inc., which said in a March 3 note to clients that the dynamic was contributing to rallies and selloffs.

Dean Curnutt, chief of New York-based brokerage Macro Risk Advisors, said he has considered leading clients away from trading certain stock options because of this concern.

Options are handy when investors are fearful of stock declines and can provide a buffer against losses. If it's tough to trade them in times of stress, that could leave investors handcuffed.

That was the case recently with options on iShares iBoxx USD High Yield Corporate Bond Exchange-Traded Fund, a high-yield-bond ETF that has recorded steep price declines. “I would call it untradeable. The frictions are so high,” said Mr. Curnutt. “Maybe the best defense is just unwinding your portfolio to return to cash.”

The result? Likely more volatility.