

Controlling Emotions in an Algorithmic World

Volatility Emerges with a New Face



The number of Google searches for algorithmic trading increased 100% during the week of February 4-10th.¹ Algorithmic trading, also known as high frequency trading is a computer-based, systematic way of trading that has been around for decades and has come back into focus after the massive daily swings in global equity markets in early February. The surging interest about the term came after the Dow Jones Industrial Average saw its largest intraday point decline (-1,600 points on Feb 5) in history, the VIX Index (Volatility Index) spiked to the highest level (50.3 intraday on Feb 6) since 2009 and the S&P 500 officially entered correction territory (a drop of more than 10%) for the first time in over 500 trading days. These events all occurred in the span of one trading week and could not be pinpointed to any fundamental change to the economic outlook or exogenous event (like a 9/11 type of event). Instead, computer-based algorithms forced inexplicable, rapid-fire selling that sent equity prices spiraling. The volatility experienced was reminiscent of the flash crash in May 2010 that sent the S&P down over 100 points intraday or as far back as Black Monday in October 1987 when the Dow Jones experienced a 23% decline in one trading day. Could you imagine if the Dow Jones Industrial Average experienced another Black Monday type of day? A 23% decline today would equate to a drop of nearly 6,000 points.² In 2014, the controversial book "Flash Boys" by Michael Lewis, studied how the use of technology and expansion of fiber optic cables across the U.S. can speed up the transmission of data and replace human traders with technology. Basically, turning the stock market into a "war of robots."³ While the book has been criticized for its accuracy, we can not deny that algorithmic trading is impacting daily trading markets, especially on highly volatile days. With the bull market in its ninth year and institutions searching for any edge on their competitors, investors should get comfortable with this new, unforeseen trigger of volatility that has the potential of whipsawing equity markets.

Where Did Algorithmic Trading Come From?

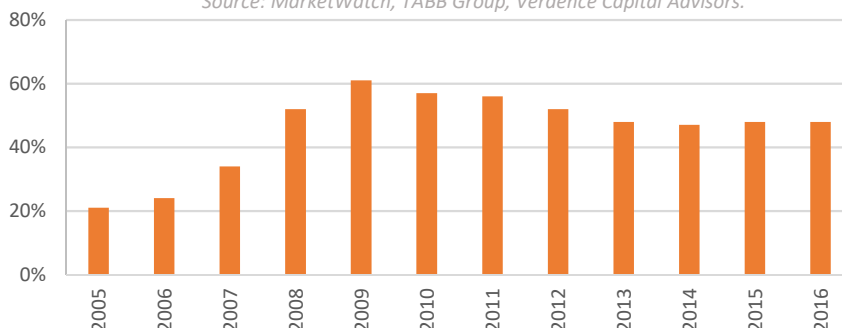
While the use of computers to efficiently trade stocks has been around for decades and has replaced many traditional floor brokers and ticker tapes, algorithmic trading really took off at the turn of the century. High frequency trading as a percent of all U.S. equity trading (**Chart 1**) has increased from a little over 20% in 2005 to nearly 50% in 2016. With technological enhancements, high frequency/algorithmic trading has been able to gain momentum. Algorithmic trading is primarily used by large institutions (e.g. pension, mutual and hedge funds). Computers develop algorithms that dictate the execution of large blocks of trades. The algorithm is created to "trigger a buy or sell" when an investment meets certain conditions such as a specified price and/or volume. The "trigger" conditions may vary depending on the firm's goals, view on a stock, outlook for

the broad market or an investment hitting key technical levels. The benefits of algorithmic trading are simple. By using computer generated algorithms, an institution can quickly trade large blocks of an investment faster than any human could execute, it can mitigate risk and find arbitrage opportunities faster than humans. In many cases, algorithmic/high frequency traders are looking for quick ways (in milliseconds or nanoseconds) to make small profits on individual trades by beating their competitor to the best execution price.

Chart 1: High Frequency Trading as a % of all U.S. Equity Trading

Data is as of 2016 with article released March 2017.

Source: MarketWatch, TABB Group, Verdence Capital Advisors.



How Does Algorithmic Trading Work?

To illustrate how algorithmic trading may work and how rapidly it can move an Index, we can evaluate the price movement experienced in equity markets on February 5th. While heightened valuations and concerns over rising rates fueled the start of a weak trading day, once a key technical level was breached (i.e. 50-day moving average), algorithmic trading was triggered, and the weakness accelerated at a whirlwind pace. **(Chart 2)** In fact, the Dow Jones Industrial Average fell 859 points in a matter of seven minutes once the algorithms were triggered.

What is important to note is that while algorithmic trading may exacerbate selling on the downside, it can also help to stabilize the markets once they decline to another key technical level that has been programmed by the computer as a buy signal. For example, while the weakness accelerated on February 5th once the Dow Jones Industrial Average broke below its 50-day moving average, it found support and moved higher once it fell to its 100-day moving average. **(Chart 3)** To highlight how quickly algorithms can move a market in one direction to another, after taking seven minutes to decline 859 points that day (Feb 5th), it took just another seven minutes for the Index to rise 809 points.

Chart 2: Dow Plunges After Key Technical Level Breached

Data is as of February 5, 2018.

Source: Bloomberg Finance LP, Verdense Capital Advisors.

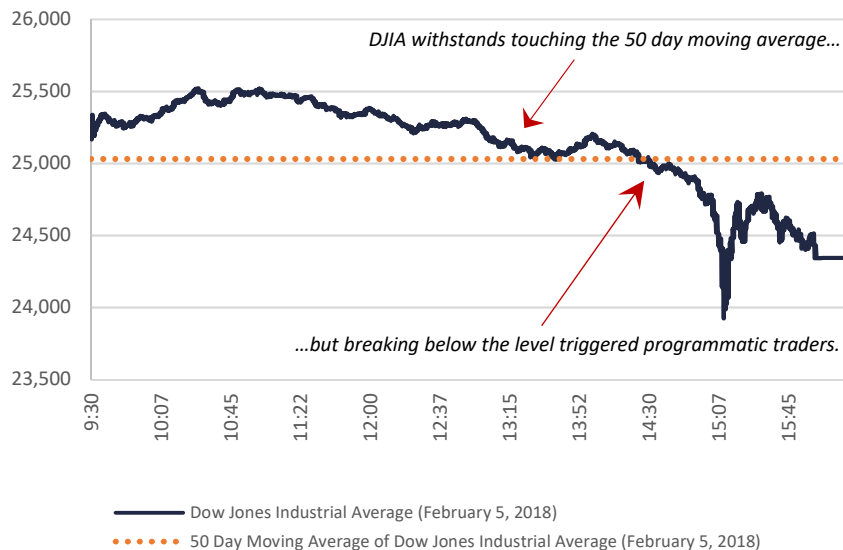
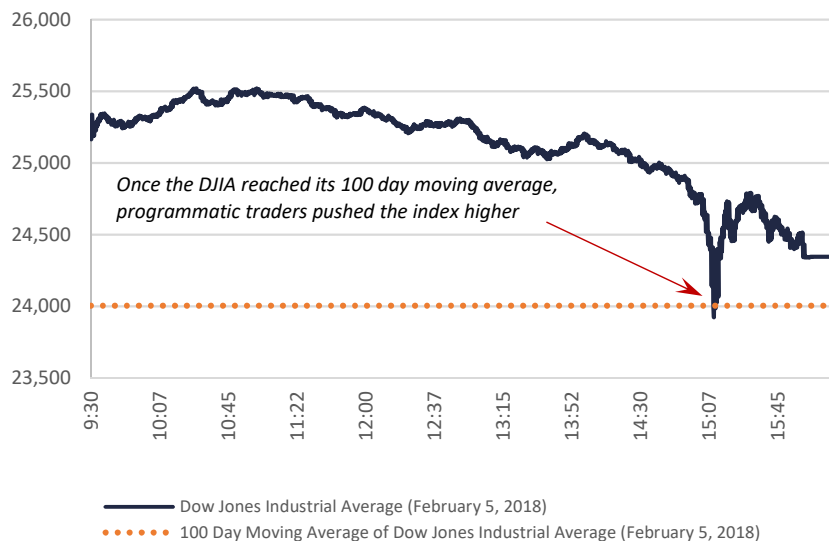


Chart 3: Dow Finds Support at Key Technical Level

Data is as of February 5, 2018.

Source: Bloomberg Finance LP, Verdense Capital Advisors.



The Bottom Line:

Investors should get used to this new reality and fresh source of volatility. In an environment of exchange traded funds, hedge funds and relatively low volatility, algorithmic trading is here to stay. However, it is crucial to not get caught up in daily trading moves and to not let the markets create a problem that doesn't exist just because the rapid decline is insinuating there is an underlying change in fundamentals. While, in fact, it is driven by algorithmic trading and not a change to the economic outlook. Investors should remain disciplined and focus on fundamentals and valuations instead of short term technical trading. It is also important to note that using past experiences, some of these algorithmically driven declines would have presented a buying opportunity (especially if

you could have magically administered a trade intraday when the market was dropping to the intraday low). For example, the flash crash in May 2010 drove the S&P 500 down 3.2% in a single day (over a 100-point intraday drop) but the market recovered the losses within a matter of days (**Chart 4**).

At Verdense, we understand that witnessing trading days impacted by staggering moves driven by algorithmic trading can be alarming and even queasy for investors. In behavioral finance, the term Prospect Theory is the theory that investors feel the pain of investment losses significantly more than the pleasure of investment gains. We are here to remind investors to not let emotions overshadow your long-term investment objectives. Investing in stocks in an algorithmic world, especially at this stage of the bull market may be turbulent. It can feel like riding the Tower of Terror in Disney World. You have a gradual rise higher only to be whipsawed up and down on the way back down. However, in the end the ride travels back to the top. If there is a fundamental change to our long-term view on the economy, we will alert investors and evaluate if changes to asset allocation are warranted. Therefore, remember your long-term goals, focus on an active management strategy as opposed to indexing and try to ignore the daily swings.

¹ According to Google trends as of February 20, 2018.

² Data as of February 26, 2018.

³ Michael Lewis, *Flash Boys*, 2014

Chart 4: S&P 500 Surrounding Flash Crash - May 6, 2010

Data is intraday for May 6, 7, 10, 2010.

Source: Bloomberg Finance LP, Verdense Capital Advisors.



Important Disclosures and Disclaimers

This document was created for informational purposes only; the opinions expressed are solely those of the author, and do not represent those Verdense Capital Advisors, LLC "Verdense", or any of its affiliates and is not intended as a recommendation or an offer or solicitation for the purchase or sale of any security referenced herein. It is being provided to you by the registered representative referenced above on the condition that it will not form the primary basis for any investment decision.

The information contained herein is as of the date referenced and Verdense does not undertake an obligation to update such information. Verdense has obtained all market prices, data and other information from sources believed to be reliable although its accuracy or completeness cannot be guaranteed. Such information is subject to change without notice. The securities mentioned herein may not be suitable for all investors. Clients should contact their Verdense representative at the Verdense entity qualified in their home jurisdiction to place orders or for further information. Verdense Capital Advisors, LLC is a member of FINRA, the MSRB and SIPC. Verdense Capital Advisors, LLC is an SEC registered investment adviser.

Megan Horneman
Director of Portfolio Strategy
mhorneman@verdence.com

Past performance is not indicative of future returns

Discover true independence.