



MORNING BRIEFING

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HFT Algos

A [pdf](#) of this Morning Briefing is also available.

(1) Can Capitalism exist without HFT algorithms? (2) Information in a free market. (3) Leveling the playing field with supervision and regulation. (4) No answers, but lots of (rhetorical) questions. (5) Keynes on casinos. (6) Professor Gary Smith weighs in on HFT algos: Tax 'em. (7) Cooperman wants some answers from the SEC. (8) A short history of the uptick rule for short sellers. (9) Computers can't read between the headlines.

Algo 1: Ban Them? Capital markets play a crucial role in the economic system known as “Capitalism.” They provide a very efficient means for capitalists to raise money to expand the capacity and payrolls of their enterprises. The capital markets provide investors with a very sound and liquid way to accumulate wealth in the stocks and bonds issued by corporations.

In a free market system, the main trading exchanges play a vital role in providing both regulation and supervision to ensure that buyers and sellers of securities all are on a level playing field by reducing the potential for unfair manipulation of the trading system. In a perfect world, the exchanges alone would provide enough self-regulation to quickly identify and stop corrupt practices. In the imperfect real world, the government also imposes regulations on the capital markets and supervises them.

Ideally in a free market, all information necessary for judging the values of securities should be publicly available. To that end, banning insider trading tends to be one of the main objectives of regulators. In the following, Melissa and I discuss the impact of high-frequency trading systems driven by computer algorithms (HFT algos) on our capital markets.

There is no universal or legal definition of HFT, according to a 2016 Congressional Research Service (CRS) [report](#). Neither the SEC, which oversees securities markets, nor the Commodity Futures Trading Commission (CFTC), which regulates most derivatives trading, has specifically defined the term. Regulating something without a clear definition of what that something is presents a problem on its own.

However, the CRS report does say that HFT “generally refers to trading in financial instruments, such as securities and derivatives, transacted through supercomputers executing trades within microseconds or milliseconds (or, in the technical jargon, with extremely low latency).”

HFT has grown substantially over the past 10 years. According to CRS, HFT accounted for roughly 55% of trading volume in US equity markets and about 40% in European equity markets around the time of the report. Likewise, HFT has grown in futures markets.

The question is whether the useful function they serve—increasing liquidity in the capital markets—comes with a distortion of price signals that amounts to market manipulation in their favor.

We don't have the definitive answer, but we have lots of questions. Isn't it unfair for the exchanges to allow the computer systems of high-frequency traders to collocate at the exchanges to gain nanosecond edges in executing trades? Other than providing fees to the exchanges, what are the benefits, if any, to low-frequency traders? Do the exchanges employ the rocket scientists necessary to keep track of what the rocket scientists employed by the HFTs are doing?

Is it possible for HFT algos to be profitable without having any special edge? Is their edge simply that the algos are faster and smarter than human traders? If not, then what is their edge? Might it be that they can game the system faster than the regulators can detect their manipulations? Do HFTs increase liquidity in the capital markets in all market situations? What if they do so during normal times, but also increase volatility during abnormal times along with the risk of recurring flash crashes? Is this an acceptable tradeoff? Is the risk of extreme volatility a price that market participants should be forced to pay for more liquid markets?

In short: Does Capitalism need HFTs? Should they be banned?

Algo II: Tax Them? When I was a graduate student at Yale University, one of my professors was Gary Smith. He is now the Fletcher Jones Professor of Economics at Pomona College. He is a widely cited expert on financial markets, statistical reasoning, and artificial intelligence. His research focuses on stock market anomalies, statistical fallacies, and the misuse of data. I asked him to weigh in on HFT algos. Here is his response:

"Keynes wrote that, 'When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill-done.' Using computers to pick stocks or time the market by using screening devices created by humans may be valuable, and it is hard to draw a line between this and standard fundamental and technical analysis.

"The counter-argument to a ban on algo trading is going to be that high-frequency algos drive prices toward the 'correct prices,' but that is nonsense since algos have no way of knowing what the correct prices are. Arbitraging prices in seconds or nanoseconds has no real economic value. The resources used to build infrastructure to facilitate trading in nanoseconds is a waste of society's resources.

"The stock market as a whole generates cash for investors through dividends and stock buybacks, but trades that are reversed in nanoseconds are a zero-sum game; if such trades are profitable enough to pay for the infrastructure, it is at the expense of other investors. And they create the danger of flash crashes.

"We should consider two possible ways to kill high-frequency trading: (1) Make it illegal to sell a stock unless it has been held for some short amount of time—at least 10 seconds? A minute? (2) Put a small tax on trades, e.g., 0.01% (which would be a penny a share for a round-trip trade on a \$50 stock).

"Computers can do many difficult tasks (like calculating cube roots and searching the Internet) much better than humans, but computer 'intelligence' is very different from human intelligence in that computers do not have the common sense, wisdom, and critical thinking skills that humans have accumulated by living. Stock trading algorithms are particularly dangerous because computers are so efficient at discovering statistical patterns—but utterly useless in judging whether the discovered patterns are meaningful or merely coincidental and therefore fleeting and useless." (See Gary's new book, [The AI Delusion](#).)

Algo III: Bring Back the Uptick Rule? "Get somebody from the SEC [Securities and Exchange Commission] to explain why they eliminated the Uptick Rule and what do they think about these

quantitative trading systems that have created a tremendous amount of volatility in the market, scared the public, [and] effectively raised the cost of capital to business,” Leon Cooperman, the billionaire investor and founder of Omega Advisors told CNBC in a 12/6 [interview](#).

So Cooperman agrees with what I wrote in our [7/20/10](#) and again in our [8/17/11 Morning Briefings](#), which may as well have been written yesterday. I wrote: “Raise your hand if you believe that High Frequency Trading (HFT) contributed significantly to the insane volatility of the market over the past two weeks. I see lots of hands up in the air when I ask our accounts to do so. ... [G]iven that only a tiny group of traders are making a very comfortable living in the HFT trade, why not put them out of business and see if there is less volatility in the market?”

I added: “The question is whether HFT serves a useful purpose by increasing liquidity among the dispersed markets. Or do they compound the volatility of these markets? ... Let’s also bring back the Uptick Rule while we are at it. It was eliminated by the SEC on July 6, 2007, just in time for speculators to launch numerous bear raids that nearly destroyed the financial system.”

I bet that if Cooperman were to get his desired explanation from the SEC on why they eliminated the rule in the first place, the answer would be something like: “At the time, we didn’t think the rule contributed significantly to reducing market volatility or other adverse market outcomes. On the contrary, we think that short sellers may provide some liquidity and price efficiency in the market.” How do I know this? Because those were the reasons given by the SEC in 2007 when the rule was eliminated and in 2010 when a less restrictive version of the rule was brought back, as Melissa and I discuss below.

Melissa and I wonder if bringing back the full-version rule instead of the less restrictive one would have been better for markets. Apparently, so does the White House. On 1/31/17, @WestWingReport [tweeted](#): “Treasury Dept. source: Trump admin. looking at uptick rule, which became rather infamous during econ. collapse of a decade ago.” We haven’t found an update on that. And we agree that the more restrictive version of the uptick rule should be revisited.

Even that may not go far enough, however. We’d also advocate for more studies and broader oversight of HFT. Maybe it’s high time that Congress takes another look at HFT, updating its 2016 review in light of all the recent head-spinning headline-driven market volatility.

Consider the following:

(1) *SEC’s pilot program*. In July 2004, the SEC adopted Regulation SHO, which allowed the Commission to establish a pilot program to examine the efficacy of price restrictions. A 2/6/2007 SEC [report](#) titled “Economic Analysis of the Short Sale Price Restrictions Under the Regulation SHO Pilot” detailed the findings of the pilot program: “Our evidence suggests that removing price restrictions for the pilot stocks has had an effect on the mechanics of short selling, order routing decisions, displayed depth, and intraday volatility, but on balance has not had a deleterious impact on market quality or liquidity.” These findings became the basis for eliminating the uptick rule later that year.

The study provided background on the uptick rule: “Short selling in exchange-listed stocks (“Listed Stocks”) in the U.S. has been subject to a ‘tick test’ since 1938. Rule 10a-1 under the Securities Exchange Act of 1934 allows short sales to occur only at an uptick or a zero uptick ... for Listed Stocks. That is, short sales in Listed Stocks may be effected above the last trade price or at the last trade price if the last trade price is higher than the most recent trade at a different price.”

(2) *Alternative uptick rule*. Fast forward to February 24, 2010 when the SEC [adopted](#) a new version of

the uptick rule, i.e., the “alternative” uptick rule, “intended to promote market stability and preserve investor confidence” following the financial crisis. The SEC’s same-day press release stated: “This alternative uptick rule is designed to restrict short selling from further driving down the price of a stock that has dropped more than 10 percent in one day. It will enable long sellers to stand in the front of the line and sell their shares before any short sellers once the circuit breaker is triggered.”

The features of the rule (a.k.a. “Rule 201”) are such that the circuit breaker would be triggered for a security any day in which the price declines by 10% or more from the prior day’s closing price. Once triggered, the alternative uptick rule would apply to short-sale orders in that security for the remainder of the day as well as the following day. The rule applies broadly to all listed equity securities, whether traded on an exchange or in the over-the-counter market.

The alternative uptick rule was intended to strike a balance between the views of short selling’s detractors and proponents—i.e., those who think that short selling contributes unduly to market volatility and those who think that short sellers provide an important source of liquidity to the markets. A thorough 2013 Seton Hall University Law School Student Scholarship [paper](#) explained this well.

The SEC’s 2010 rule adoption was preceded by a hefty comment period from market participants. Upon the adoption of the alternative uptick rule, the then SEC Chair Mary Schapiro acknowledged both sides of the argument, stating: “Short selling can serve useful market purposes, including providing market liquidity and pricing efficiency. However, it also may be used improperly to drive down the price of a security or to accelerate a declining market in a security.”

(3) Will algos ever learn to read between the headlines? While we applaud the SEC for bringing back a version of the rule, we aren’t sure if it is restrictive enough. We wouldn’t put it past the short-selling HFT wizards to figure out a way to game the rule. But that’s just based on speculation and our admittedly limited knowledge of the murky space. If anything, we do have anecdotal evidence in the recent wild headline-driven swings in markets that something further needs to be done. What we don’t like is seeing market swings that are based not on fundamentals but on surface headline news.

A case in point: Last Thursday, when the DJIA plunged by more than 700 points on the news of the arrest of Huawei CFO Meng Wanzhou only to close the day down just 79 points. If humans were more involved in the trades that moved the market that day, maybe they would have paused to put the news in proper perspective before panicking? The arrest had little to do with US-China trade tensions, as we all soon learned and as Melissa and I discussed in our 12/10 [Morning Briefing](#).

Moreover, it didn’t take Melissa much research to determine that the timing of the arrest on the day that US and China officials agreed to a trade ceasefire was just coincidental. Per her email to me on that eventful day (before the press began reporting on the official reason for the arrest and before we learned that Trump didn’t know about it at the time): “[T]he trade cease fire isn’t relevant to Meng. The allegations [based on Iran sanctions violations] have been going on since [at least] 2013. ... Meng was apparently arrested on the same day that Xi and Trump met. It’d be an insane coincidence if [the arrest] really had nothing to do with the recent trade dispute, but it looks like it might not!”

The point isn’t that we were right but that it only took a quick Google search to find a 2013 Reuters [article](#) on the violations to deduce what had happened. The problem is that the computer algos haven’t been programmed to read between the lines! Gary observes that while computers can spell-check words, search the Internet for words, and count the number of times that a word is used in a document, they do not understand what words convey to humans. They do not understand what words mean in any meaningful sense.

CALENDARS

US. Wed: Headline & Core CPI 2.2%/2.2% y/y, Atlanta Fed Business Inflation Expectations, Treasury Budget -\$165.0b, MBA Mortgage Applications, EIA Petroleum Status Report. **Thurs:** Jobless Claims 228k, Import & Export Prices -1.0%/0.1%, EIA Natural Gas Report. (Econoday estimates)

Global. Wed: Eurozone Industrial Production 0.2%*m/m*/0.8%*y/y*, Mexico Industrial Production 1.7%*y/y*. **Thurs:** Germany CPI 0.1%*m/m*/2.3%*y/y*, Japan Tankan Large Manufacturing & Non-Manufacturing Indexes 18/21, Japan Tankan Large Manufacturing & Non-Manufacturing Outlooks 17/20, Japan Tankan Large All Industry Capex 12.8%, ECB Rate Decision 0.00%, ECB Marginal Facility & Deposit Facility Rates 0.25%/-0.40%, Summit of EU Leaders. (DailyFX estimates)

STRATEGY INDICATORS

S&P/Russell LargeCaps & SMidCaps ([link](#)): All of these price indexes are in a correction from their record highs near the end of Q3. After leading for much of 2018, SmallCaps have struggled mightily since late August and nearly have slipped into a bear market. Here's how they rank ytd through Monday's close, along with their percentage changes since SMidCap's record highs in late August and LargeCap's on September 20: S&P LargeCap 500 (-1.3% ytd, -10.0% from record high), Russell LargeCap 1000 (-1.6, -10.3), S&P SmallCap 600 (-4.0, -18.2), Russell SmallCap 2000 (-6.0, -17.1), and S&P MidCap 400 (-6.9, -13.7). However, forward revenues and earnings are at or near record highs now for all the S&P and Russell indexes, but have flattened in recent weeks. Earnings momentum remains healthy, as the yearly change in forward earnings is up from six-year lows in early 2016, but momentum has clearly peaked. In the latest week, the rate of change in LargeCap's forward earnings remained steady at a seven-month low of 20.7% y/y. That's down from 23.2% in mid-September, which was the highest since January 2011 and compares to a six-year low of -1.8% in October 2015. MidCap's y/y change was down to an 11-month low of 21.1% from 21.6%, which compares to 24.1% in mid-September (the highest since April 2011) and a six-year low of -1.3% in December 2015. SmallCap's improved to 29.7% from a six-month low of 29.5%, which is down from an eight-year high of 35.3% in early October and compares to a six-year low of 0.3% in December 2015. Here are the latest consensus earnings growth rates for 2018, 2019, and 2020: LargeCap (23.3%, 8.3%, 10.4%), MidCap (21.9, 10.4, 12.0), and SmallCap (24.3, 15.3, 14.4).

S&P 500 Growth vs Value ([link](#)): The S&P 500 Growth index is up 3.7% ytd through Monday's close, well ahead of the 6.6% decline for its Value counterpart. However, both of these indexes are in a correction now. Growth is now 10.9% below its October 1 record high while Value is 12.0% below its record high on January 26. Since the election in late 2016, Growth's 32.4% gain is more than double the 13.0% increase logged by Value. Looking at the fundamentals, Growth is expected to deliver higher revenue growth (STRG) than Value over the next 12 months, but forward earnings growth (STEG) is only slightly higher for Growth. Specifically, 7.6% STRG and 9.9% STEG are projected for Growth, respectively, vs 5.1% and 8.9% for Value. Prior to February's selloff, Growth's P/E of 21.8 on January 26 was its highest since May 2002, while Value's 16.6 on January 3 was its highest since April 2002. Through Monday, Growth's P/E was back up to 18.1 from its 24-month low of 17.7 on November 23, but Value's 12.9 was the lowest since February 2014. Regarding NERI, Growth's was barely positive in November for a 19th straight month as it dropped to a 19-month low of 0.1% from 7.4% in October; that compares to a record high of 22.3% in March and a five-year low of -16.2% in April 2015. However, Value's NERI was negative in November for the first time in 20 months as it fell to -0.5% from 3.7%; that compares to a record high of 21.2% in March and five-year low of -20.3% in April 2015. The Tax Cuts and Jobs Act (TCJA) sharply boosted the consensus forward earnings estimate and the forward profit margin for both Growth and Value. Growth's forward profit margin of 16.5% is up from 14.4% prior to the TCJA's passage, but down slightly from its record high of 16.7% during mid-September. Value's

forward profit margin of 10.0% is up from 9.1% prior to the TCJA, but that's also down from a record high of 10.2% in October, which was its first since the pre-financial-crisis record high during August 2007.

US ECONOMIC INDICATORS

NFIB Small Business Optimism Index ([link](#)): “Small business owners are enthusiastic about the economy and have demonstrated their optimism by raising wages, creating new jobs, and investing in their businesses throughout 2018,” said NFIB President and CEO Juanita D. Duggan. “Overall, small business owners have shown a historic trend in optimism for their businesses and the economy and continue to be the driving force behind economic growth.” The NFIB Small Business Optimism Index (SBOI) in November fell for the third month since reaching a record high of 108.8 in August, dipping to 104.8 in November. Still, the November reading continues the string of exceptionally strong readings that started with the 2016 election results. None of the 10 components of the SBOI recorded an increase last month, with 8 contributing negatively, while plans to increase employment (22%) and expected credit conditions (-5) were unchanged—with the former just 4ppts below August’s record high of 26%. The biggest negative contributor was posted by expected business conditions (-11ppts to 22%), followed by sales expectations (-4 to 26), current job openings (-4 to 34), and plans to increase inventories (-3 to 2); the remaining components each ticked down a percentage point. The report notes that respondents’ top concern remained the scarcity of qualified workers, reaching a net 25% last month, a new record high. A net 25% of respondents say they plan to raise compensation—the highest percentage since 1989.

GLOBAL ECONOMIC INDICATORS

Global Leading Indicators ([link](#)): In October, the OECD’s composite leading indicators (CLIs)—designed to anticipate turning points in economic activity relative to trend six to nine months ahead—continued to point to an easing of growth momentum in the OECD (99.4) as a whole. Easing growth momentum remains the assessment for the UK (98.8) and the Eurozone (99.5) as a whole—including France (99.2) and Italy (99.6)—with Germany (99.8) now joining the group, a downgrade from the prior month. Looking at major non-European CLIs, stable growth momentum remains the assessment for Japan (99.7), while signs of easing growth momentum are now emerging in CLIs for both the US (99.7) and Canada (99.4), down from stable growth momentum in September. Among major emerging economies, stable growth momentum remains the assessment for China’s (98.8) industrial sector, while India’s (101.1) has been downgraded to stable growth momentum from gaining momentum in the prior report. Signs of easing growth momentum continue in both Russia (100.0) and Brazil (102.1).

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