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TD Asset Management CEO Brian Murdock Seeks to Expand Reach

SPECIAL FEATURE:
THE MATURATION OF HIGH-FREQUENCY TRADING

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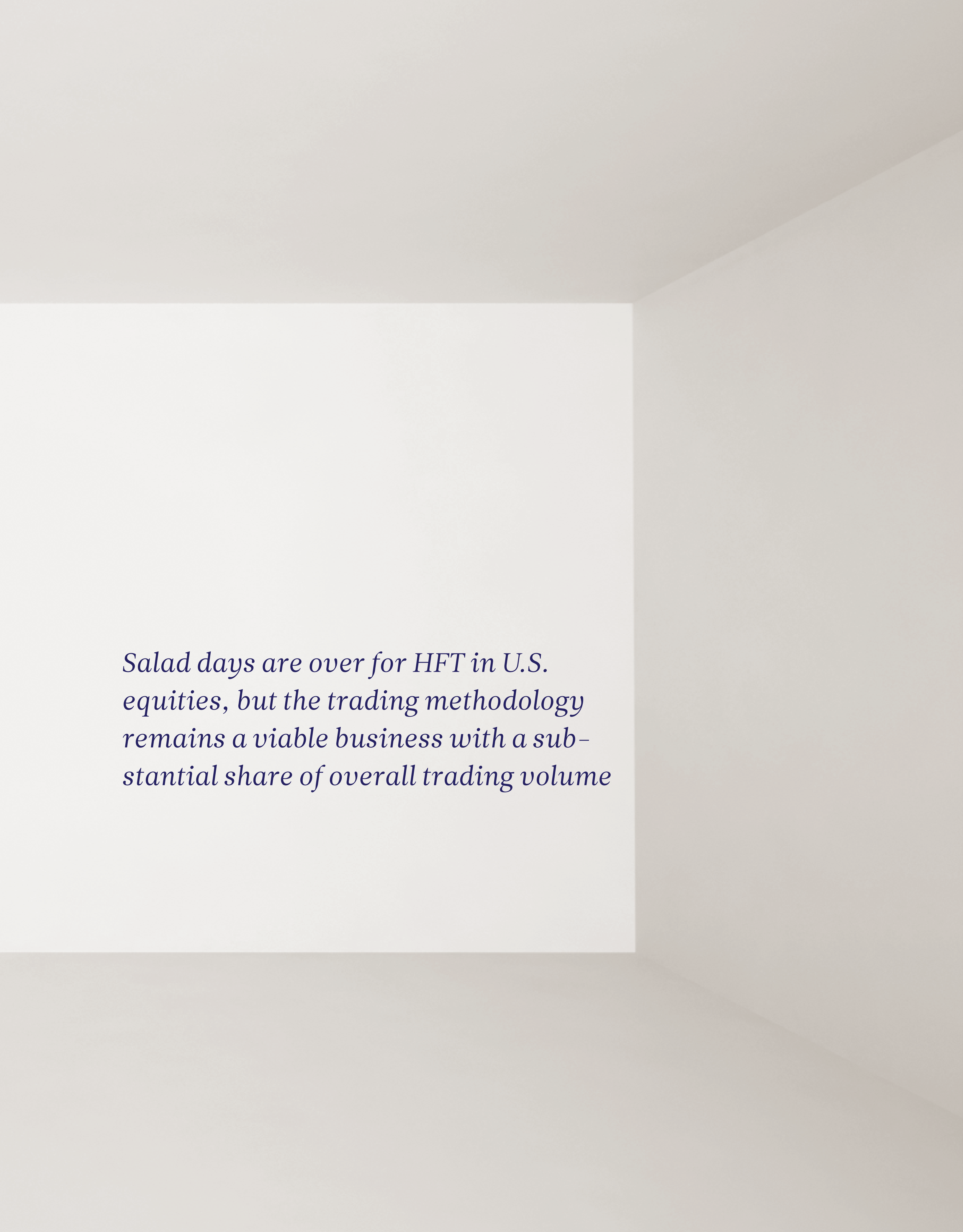

Salad days are over for HFT in U.S. equities, but the trading methodology remains a viable business with a substantial share of overall trading volume

High-frequency trading in U.S. equities, arguably the biggest growth story in financial markets in recent years, has reached a plateau.

The trading methodology's expansion in share of trading volume has paused or perhaps ended for good, and the cessation of growth has been accompanied by typical characteristics of a mature industry, including an increasingly crowded field of participants, lower profit margins, and more scrutiny from regulators.

"HFT did best when it first started out and operated in a stealth mode," said Karim Taleb, principal at New York-based investment management and research firm Robust Methods. "The practice is now 'out of the box' somewhat and coming under the light of the regulators who are taking a keen interest in it."

More participants means smaller slivers of pie per participant. "There is a finite amount of alpha in the intraday HFT segment, and the more players, the lower the alpha per player. So overall, the bar is moving higher," Taleb told Markets Media. "Some profitable HFT strategies are no longer as lucrative and there are question marks about possible regulatory changes."

High-frequency trading comprised a negligible proportion of U.S. equities trading volume as recently as 10 years ago. HFT's share then rose steadily to 23 percent in 2003, to about one-half of total volume by 2007, and to about two-thirds of volume in subsequent years, according to Aite Group.

But just as a tree doesn't grow to the sky, the once seemingly boundless expansion of high-frequency trading has stalled. Aite estimates HFT's share of U.S. equities volume will remain at about two-thirds in 2011 and 2012.

"High-frequency trading is close to maturity in the U.S.," said Manoj Narang, chief executive officer of Tradeworx. "It is still growing in other asset classes and other geographies. As far as U.S. equities, the peak was in 2008 or early 2009."

LOW COSTS, HIGH FREQUENCY

By way of background, Narang explained that the rise in high-frequency trading over the past decade is largely attributable to lower trading costs.

"Lower brokerage commissions and decimalization helped create a virtuous cycle of higher volumes, greater technology, and lower costs," Narang said. "Decimalization resulted in hugely diminished trading costs. When transaction costs go down by factor of six or eight, clearly much smaller return opportunities become feasible targets for traders."

Brokerage fees for the highest-volume traders declined to less than 1/100 of one cent per share in 2007, signaling a "natural peak" in high-frequency trading, Narang said.

The market then threw a curve ball when the credit crisis of 2008-2009 dried up liquidity. The disruptions from the failure of Lehman Brothers, multiple government bailouts and a sinking stock market placed an extreme premium on liquidity, and because demand for was so elevated, liquidity suppliers such as high-frequency traders made fat profits.

The exogenous shock of the credit crisis boosted volume and the appeal of high-frequency trading, which "caught people off-guard and was misinterpreted, as people were fooled into thinking that exponential growth was in the offing," Narang said. "So 2008-2009 was an artificial result as an exog-

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JONATHAN BROGAARD, JD-PHD CANDIDATE IN FINANCE, KELLOGG SCHOOL OF MANAGEMENT AT NORTHWESTERN UNIVERSITY

enous shock, and that was why people built out excess capacity, and co-location real estate is now going unused. People still entered the business in 2009 expecting growth, but in reality the writing was on the wall back in 2007."

According to Taleb of Robust Methods, one macroeconomic factor that took air out of the high-frequency trading balloon over the past couple years was an extremely accomodative Federal Reserve and its an easy-money policy, which paved the way for a steadily rising stock market.

"Many profitable HFT and short-term trading models started to break down after 2008, as a new market regime came to occupy the stage," Taleb said. "Many of these trading models are built to operate in free markets characterized by a balanced power between buyers and sellers; these models are very sensitive to a balance between demand and supply."

"The less obvious and publicized agent that destabilized the workings of these HFT strategies has been the Federal Reserve's tampering with the free markets via the electronic creation of colossal quantities of money," Taleb said. "The result has been an enormous underlying uptrend in financial markets, causing an upwards bias that is uncharacteristic of a normal market that most HFT strategies have been designed to work with. Many HFT and short-term trading strategies lost money due to the Fed's actions."

Every industry, business line and market strategy has its salad days, when awareness is comparatively low, competition is limited, and first movers rake in profits. But the tenets of microeconomics hold that high profits and low barriers to entry attract competition, which whittles down profits to no better than what is available elsewhere.

A microeconomic analysis of high-frequency trading is beyond the scope of this article, and because there are no registration requirements for HFT participants and no central data repository, gauging the number of players and their profitability is speculative. But it is clear that the trading practice is not immune to the laws of economics.

One market source recently told Markets Media that profit margins for the short-term trades — those with holding periods of seconds to minutes — are down "dramatically" from a few years ago. Another source said that some of the first-moving and most successful HFT firms have taken to licensing their systems to competitors, a sure sign that profit is not what it used to be and growth in the space will be muted at best.

"There is some natural limitation as to what fraction of the market high-frequency traders can make up before they are simply trading amongst themselves," said Jonathan Brogaard, who has researched high-frequency trading as a Ph.D. candidate at Northwestern University's Kellogg School of Management. "Such trading doesn't enhance the profitability of the HFT industry and will in fact reduce its net trading profits due to transaction costs."

"Within the industry there will certainly be winners and losers, and some high frequency trading firms will likely close their doors," Brogaard said. "Whether the general public learns that not all of these firms are profitable will depend on the size of the firm exiting, as many HFT firms are rather small and their closure may not be picked up by any news source. As the industry matures, the increased competition between HFT firms and better algorithmic strategies used by institutional investors to parse and trade large orders into the market undetected should decrease the profitability of HFT."

Indeed, traders at traditional buyside institutions have been increasingly ramping up their technology and market savvy to better compete with high-frequency traders, and some sell-side and vendor products such as RBC Capital Markets' Thor specifically target HFTs. Reviews are mixed regarding the effectiveness of such tools, but the increased vigor of the buyside's fight suggests the $20 billion annual aggregate profit figure from a couple years back was a high-water mark for high-frequency trading.

"When discussing HFT within the buy-side trade execution versus the ultra HFT market-makers aspect, the buy-side market participants, who represented the bulk of the low-hanging fruit, have narrowed the technology gap that existed against the market makers," said Taleb of Robust Methods. "They have modified and upgraded their execution strategy with the help of third-party algo-execution providers and this helps them camouflage their orders and execute with less slippage."

There were a surge of co-location suites that were built with market data but not direct market access data. These spaces can be three to six milliseconds behind.

TONY VERGA, CHIEF EXECUTIVE, HFT TECHNOLOGIES

RECRUITMENT OFF HIGH

On the recruitment front, the market for high-frequency traders is not as strong as it once was, though opportunities remain.

"There has definitely been a slowdown in the HF space overall but there is still a lot of hiring going on," said Joe Long, a quantitative trading recruiter at I-Net Technologies. "I am hearing about a few smaller places not doing well and that's to be expected."

"There were a lot of opportunities back in 2008 as the demand for high-frequency traders was huge," Long said. "Not only was the market not as mature and crowded like it is today but there were a lot of talent looking to move, so some firms jumped heavily into the game and took advantage of the flood of talent. Top quant-trading candidates out of Bear Stearns, Lehman, and Merrill Lynch were on the market and they were hired in a short amount of time."

Many of the movers in the HFT space currently are technologists rather than traders, according to Long. "Large banks are now hiring again and it's mostly in technology," he said. "It seems that some of the firms are behind the eight ball when it comes to their electronic trading products and they are hiring across the board."

While HFT openings may be fewer, pay has held steady, at least in certain areas. "Compensation has not really changed – if you have a top candidate in quant research, strategy, or technology, they will get paid to make a move," Long said.

The maturation of high-frequency trading has, to a certain extent, helped the once broadly demonized practice make strides in gaining acceptance and understanding in the marketplace. The maturation is also helping market participants and regulators better identify which HFT practices are legitimate and which fall under the category of gaming.

That's the view of the top two executives of the Security Traders Association, which advocates for trading professionals on legislative and regulatory issues. "The interpretations of what HFT is have narrowed as the level of awareness and understanding of HFT has matured," said Jim Toes, the STA's chief executive. "This increase in transparency, due in part to the SEC's Concept Release, has led the conversations surrounding HFT to shift from 'all HFT is bad' to trying to define bad behavior which is being done via a HFT platform."

"Good and bad behavior can be conducted via a HFT platform," Toes told Markets Media. "Therefore, that does not make all trading being done via HFT bad."

Joe Cangemi, STA's chairman, acknowledged slimmer profit in high-frequency trading versus a few years ago, but he noted that traders will always find ways to make money.

"Anytime you reduce margins you reduce the opportunity for people to compete. As margins have compressed, less and less people will compete for that profit margin," Cangemi said. "As there is enhanced competition and growth in similar HFT trading strategies, you will have a lower growth rate in that strategy."

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>
> KARIM TALEB, PRINCIPAL, ROBUST METHODS

However, "I do not think that prop trading will be reduced as long as there are academic theories out there which can find new ways and places to for margins in our market structure," Cangemi said.

As would be expected, a cessation of growth in U.S. equity high-frequency trading holds negative implications for companies that sell products and services to high-frequency traders, and may have built out businesses on the expectation that growth would continue. "A lot of people who are in the technology business that support HFT are seeing some pressure as a result of the industry not growing as fast as expected," said Narang of Tradeworx.

AFTER MATURITY, DECLINE?

Working from academic terminology, high-frequency trading is clearly past its emerging stage, and it has passed through growth to reach maturity, at least in U.S. equities. But that hardly means that the next stage – decline – is in the offing anytime soon, and there may well be pockets of growth within the maturity stage.

"There was a peak in high-frequency a few years ago, but I feel there will be a second wave in 2011-2012," said Tony Verga, chief executive of Chicago-based consultancy HFT Technologies. "2007 and 2008 were really good years. But there are still profits to be made."

"I do not anticipate a decline at this stage and see a plateau from here," said Taleb of Robust Methods. "This will give all the players some time to digest and further assess the brisk changes brought about in the past few years. The next big block could be a regulatory change which would be a catalyst for any impending development."

Technological upgrades at exchanges should boost high-frequency trading this year compared with 2010, as will the clarity provided by U.S. Securities and Exchange Commission's ban on so-called naked access, Verga said. "This will force everyone in high-frequency to rethink their systems," he said.

Verga said many firms are considering getting into high-frequency trading, but he estimates that 60 percent of these hedge funds and other investment firms lack the knowledge and/or trade flows needed to be successful. Some HFT inquiries come from unexpected places – Verga said he had a recent conversation about the business with a floor broker in a grain pit, who expressed concern that his job might not exist within a couple years.

Regarding co-location – which has evolved from a novelty to a must-have for high-frequency traders – Verga noted a bifurcation.

"There are two types of co-location: at-exchange and near-exchange," Verga said. "At-exchange space goes for a premium and it will remain that way. Near-exchange has become a little less in demand."

"For example, some spaces in the middle of New Jersey have become a bit of a dinosaur," Verga said. "There were a surge of co-location suites that were built with market data but not direct market access data. These spaces can be three to six milliseconds behind," a time lag that could mean the difference between profit and loss for a high-frequency trader.

Verga said premium co-location space, such as a cabinet at CME Group's new data center in Aurora, Illinois, rents for $10,000 per month. A co-location cabinet at other exchanges can go for about $4,000-$6,000 per month, while near-exchange cabinets rent for $1,500-$2,500 per month. Verga said he is not seeing any pressure on co-location pricing.

Demand for co-location is buoyant, according to John Knuff, general manager of global financial services at Equinix.

"What keeps me up at night is if we are going to have enough supply to meet demand," Knuff said, noting that high-frequency trading is only one factor that drives demand for co-lo. "Demand for co-location is based on the economic benefits and the ability to aggregate multiple data sources — trade inputs, market data, economic data — and execute trades efficiently."

Knuff said that within the high-frequency space, there is a trend towards working across multiple asset classes. "People are using market data and trade inputs from multiple asset classes to support trading strategies even in one asset class," he said. "For example, a trader who trades cash equities in North America might be requesting access to FX data providers and asking for aggregate feeds for market data providers in futures and options. People are using multiple data sources and increasing their span of awareness from multiple sources to reduce risk."

"Trading quickly is important, but trading intelligently is more important," Knuff said. "A latency advantage doesn't help if it's a bad trade."

HFT RISES ELSEWHERE

To be sure, while the expansion in high-frequency trading in U.S. equity markets has come to a stop, there is still room for growth in other asset classes, and the steep part of the curve still lies ahead for HFT players in other regions.

Aite Group expects high-frequency trading to account for 19 percent of U.S. fixed-income trading in 2012, up from 16 percent this year, and modest growth is projected for HFT in futures and FX from current levels of slightly above 50 percent and slightly below 50 percent, respectively.

HFT is a big growth area in European and Asian interest-rate markets, said Long of I-Net Technologies; HFT Technologies' Verga said many players are asking about opportunities in Asia and on Brazil's Bovespa exchange.

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In this post-financial-crisis era where regulators have heightened influence and the Dodd-Frank Wall Street Reform and Consumer Protection Act stands to redraw the map of U.S. market structure, it can be said that Washington, D.C. may be the single biggest determinant of the future growth — or contraction — of high-frequency trading.

Proposals that could constrain high-frequency trading recently discussed in public by regulators include levying fees on traders who submit large numbers of order cancellations, and mandating additional pre-trade safeguards. Yet while the SEC and Commodity Futures Trading Commission seem to be scrutinizing and studying the trading practice from every angle, it is unclear what proposals will move forward, and when. Many market participants have said they do not expect regulation to substantially rein in HFT anytime soon, if at all.

Even before regulators act on high-frequency trading, there may be a natural self-regulation taking place that limits the emphasis on speed. "The maturation is manifesting itself as players realize that the speed edge is starting to wear off in some cases," said Taleb of Robust Methods. "Modifying their strategies could be more effective than competing on latency."

"The law of diminishing returns is also at work, where achieving lower latencies may not necessarily translate into a tangible improvement; speed is no longer the limiting constraint for the success of some strategies," Taleb said. "Some HFT trading funds are either running into more capacity limitations, or seeing their profitability and Sharpe ratios drop. HFT equity strategies such as stat arb or pairs trading are still valid, conceptually at least, but there is more competition for the same amount of liquidity within the intraday market."

The future trajectory of high-frequency trading is closely tied to broader volume trends. If buyside institutions step up their market activity, high-frequency players will have more opportunities to take the other side of the trade; if buyside participation is muted, HFTs will remain on the sideline.

"High-frequency traders can't generate volume in a vacuum. If you put a bunch of HFTs on an exchange together, most likely there will be zero volume," said Narang of Tradeworx. "You need large investors seeking liquidity to enter the market — this is what creates all kinds of opportunities, based on correlation, in all kinds of stocks. HFTs need significant participation by long-term investors."

"As a mature business, high-frequency trading volumes will go up when long-term investors demand more liquidity," Narang continued. "This can happens when the market goes up or down — either scenario. In the absence of that, we can expect a resumption of slow, longer-term trends that were in place prior to this cycle."

Ultimately, high-frequency trading has established itself as a viable strategy with staying power. But the days when most anyone could make money by simply hanging a shingle and jumping into the high-frequency game are over.

"People who are entering the business for the first time today face a lot of challenges and headwinds," Narang said. "There are still new firms, but these are largely created by people who are already successful in the business. Trying to learn the ropes and succeed against experienced competitors today is very challenging. In 2008 it was very easy."