Comment
to the
Securities and Exchange Commission

Concept Release on Equity Market Structure

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[redacted]

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I. Introduction

I am commenting on the Securities and Exchange Commission's concept release on equity market structure, specifically the concept release's consideration of high frequency trading. I would like to thank the Securities and Exchange Commission for providing the opportunity to comment on this significant area of potential regulation.

I am writing on my own behalf, as a law student and as an individual investor. Additionally, I hold a Bachelor of Arts degree in Philosophy from Tulane University, the pursuit of which included a study of business ethics.

I write to argue that high frequency creates substantive risks, that those risks outweigh any benefits; that high frequency trading fundamentally alters securities transactions; and that this alteration undermines stakeholder confidence in the market.

In presenting that argument, this comment will first identify the specific portions of the concept release that this comment addresses and provide a brief background on high frequency trading. Next, this comment addresses the benefits asserted by proponents of high frequency trading and contrasts those benefits with an outlining of the substantial risks that high frequency trading imposes upon the market. That contrast will serve to show that the risks of high frequency trading heavily outweigh any benefits. The next section will outline fundamental inequities created by high frequency trading. These fundamental inequities will illuminate the unethical character of high frequency trading and reveal its potential to undermine confidence in the securities market. Finally, this comment will offer several suggestions of mechanisms for Commission regulation, which will be followed by a brief conclusion.

II. Background

The Commission seeks comments on strategies, tools, and systemic risks of high frequency trading. Relevant to this comment are the Commission's consideration of systemic risks posed to the current equity market structure by high frequency trading and the Commission's interest in whether high frequency trading firms help promote market integrity by providing a source of liquidity. Also relevant to this comment is the Commission's consideration as to whether the current regulatory regime adequately addresses the concerns raised by high frequency trading strategies, such as momentum ignition strategies and order anticipations strategies.

High frequency trading utilizes sophisticated algorithms, the methods of which are largely unknown to the Commission or to the public. These algorithms respond to pre-set conditions in order to identify gaps between the price that a buyer is willing to pay, and the price that a seller is willing to sell at, and then to exploit that gap for profit. The algorithms buy and sell stocks in milliseconds, reaping minute differences, and ultimately accrue profits that would otherwise fall to investors. In addition, high frequency trading uses rapid offer making and cancellation to probe for price information that is not otherwise displayed by the exchanges.

Unlike past innovations in the securities industry, which subtly affect the price of a share of a particular stock or the volume of shares traded, high frequency trading affects nearly every transaction of stock individually.[1]

In addition, high frequency trading not only moves substantial sums of money into the hands of computers but also gives those computers the capacity to affect the market much more quickly than a human being could react. This capacity matters because a market dominated by high frequency trading algorithms could see the devastation of a security's value, or perhaps the entire market's value, in less time than the human brain could turn shapes on a computer screen into numbers representing tumbling share prices, and discern what might cause the collapse.

[1] Scott S. Powell, *Wall Street's New Race Toward Danger*, BARRON'S, 2010, http://online.barrons.com/article/SB126783128753256821.html (last visited Mar 16, 2010) (noting that high frequency trading now accounts for 73% of all equity trading).

III. Discussion

A. Particular Strategies at Issue

The strategies of high frequency trading firms are necessarily secret; the intricacies of any particular strategy are unknown.[2] Nonetheless, a general consideration of high frequency trading reveals potential for substantive risks and inequities in the securities markets.

The Commission's concept release outlines two types of high frequency trading strategies: order anticipation strategies and momentum ignition strategies that this comment treats as reflective of high frequency trading strategies in general.

Order anticipation strategies seek to sniff out the existence of one or more larger buyers or sellers, and then use that knowledge to buy or sell ahead of the investor. The purpose of this strategy is to capture the change in price sparked by heavy trading interest. As the concept release identifies, this practice is presently illegal where a fiduciary duty exists between investor and third-party, but is currently legal where an unrelated third-party converts the investor's actions for its own benefit.

Momentum ignition strategies seek to ignite a rapid price movement by submitting a series of orders or trades designed to trip the conditions of other high frequency trading algorithms. Essentially, this type of algorithm masquerades as a large buyer or seller, in order to exploit order anticipation strategy–based algorithms.

B. Dubious Benefits and Substantive Risks to the Stability of the Securities Market

High frequency trading creates the potential for dramatic market movements and for several "worst case" scenarios, that is to say, it creates risks. However, proponents of high frequency trading argue that these risks are justified because high frequency trading adds liquidity to the market. This section argues, through several illustrations, that the magnitude of these risks heavily outweighs the benefits of added liquidity.

1. Dubious Benefits of High Frequency Trading

The Commission must weigh the benefits and utility created by high frequency trading, against the risks and disutility that it creates. This section addresses the asserted benefits of allowing the practice to continue unregulated, but also identifies the illusory character of those benefits.

[2] The Commission's present Notice, however, explains both order anticipation strategies and momentum ignition strategies.

The benefits that high frequency trading advocates point to are: the narrowing the bid/ask spread, the reduction of market impact by the large traders of major funds, the reduction of trading costs, and the increase of market liquidity as benefits that high frequency trading provides. They point to these benefits as justification for the risks that high frequency trading creates.

Increased market liquidity is the most commonly touted benefit. The theory of increased liquidity suggests that greater liquidity necessarily causes pricing to reflect the true value of the stock, rather than the outcome of a negotiation between buyer and seller. However, some note that the volume of transactions created by high frequency trading does not necessarily contribute to price liquidity. Wharton School of Business professor Franklin Allen, points out that simultaneous buy and sell orders by the same trader do not produce offers to which other market players can respond.[3]

Supposing high frequency trading does contribute to price liquidity, other professors of business note that if algorithmic trading destabilizes the market, then increased liquidity would not be a benefit of high frequency trading, but a substantial risk created by it.[4]

Thus, if these professors are correct, then the best case scenario of high frequency trading's contribution to price liquidity is that the benefits are exaggerated, and the worst case scenario is that high frequency trading creates new risks to the stability of the market, as outlined below, in Section B.

Further, any implication that high frequency trading liquidity will improve price accuracy, fails to distinguish the nature and goal of high frequency trading, from the nature and goal of traditional investment. These algorithms – at least those based on market movements, rather than news or balance sheets – race investors to their next move; they do not divine the value of a security.

In practice, if the movements of the market encourage price movement towards the real value of a security, such as by hovering around a narrow range of prices, then high frequency trading liquidity will move the price of the security towards its real value. On the other hand, when movements in the market are more dramatic, such as when they are consistently downward, then high frequency trading algorithms could accelerate and exaggerate the direction of share prices.[5] Thus, despite the assertions of high frequency

[3] *Id*. at 3.
[4] *Id.*
[5] This dramatic movement could be caused by real world changes, such as a corporation becoming insolvent, but it could also be caused, as discussed later, by a bug in a single algorithm. Additionally, the same is not true of sending prices rocketing upwards, as the spending power of any market participant is finite, causing demand to taper as prices increase.

trading's proponents, high frequency trading liquidity does not necessarily reduce market volatility.

Because these proponents primarily tout reduced market volatility and useful price liquidity as the benefits of high frequency trading and because those benefits are in fact dubious, those benefits could only stand in the face of minimal risks. Only concrete benefits make substantial risks worth taking.

2. High Frequency Trading–Created Harms

First, front-running strategies harm investor morale by creating unfairness in the market. One such front-running strategy is an order anticipation strategy, as outlined above, and by the Commission in its concept release. Front-running algorithms raise the price of a security while a large buyer (though this would also apply to a large seller) begins to purchase a large number of shares of a particular stock.

A front-running algorithm notices the first several chunks of a large trade and races the investor to purchase further chunks before the heightened buying interest drives the price up. When the algorithms succeed, they raise the price of the chunks that the investor would have bought, and then often sell them back to the investor that sparked the algorithm into motion in the first place. The result is that the investor pays more than he or she would have otherwise paid for the stock, and the owners of the algorithm have captured the price difference.

When high frequency trading algorithms can detect the beginnings of any large movement by a particular buyer or seller and then use that knowledge to buy and sell ahead of the bulk of that large order, the high frequency trading algorithm necessarily excises a toll on every substantial trade. In a sense, an order anticipating strategy is akin to the troll under the bridge that demands a fee from any passing traveler. There, as here, the third party has no legitimate right to impose an additional transaction cost on individuals to whom the third party has provided no benefit.

More so, in the troll/bridge example the traveler has at least the option to refuse the fee and thus ignore the third party, although he or she does so under threat of violence. When high frequency trading algorithms identify an investor's action, and buys or sells ahead of that investor, the investor must either forfeit the profit captured by the algorithm and pay the inflated price, or cancel the order outright.[6] The cumulative effect of this behavior necessarily creates a universal sentiment of inherent unfairness, and causes individuals to question the integrity, reliability, and equity of the securities market.

[6] This, of course, ignores the practical impossibility of reacting fast enough to cancel on a high frequency trading algorithm's offer.

Second, high frequency trading algorithm's possess enormous potential to create complete market turmoil. For example, a high frequency trading–created frenzy could occur when one algorithm begins to sell off a particularly stock. This action might trips the conditions of another algorithm, then another, and another, and so on, just as a momentum ignition strategy intends to do. However, these strategies possess the potential to self-ignite one another until the value of a particular stock or of the market are devastated. Additionally, all of this could occur in a minimal amount of time, and before any human intervention could take place.

Momentum ignition strategies, mentioned in the concept release, have the potential to both cause and perpetuate such frenzy. Wharton School of Business finance professor Itay Goldstein notes that some experts attribute the 1987 stock market crash to this type of computer-based reaction, despite the then-minimal use of computer-based trading relative to today.[7] Moreover, the spark for this kind of frenzied sell-off may not even be a reaction to market realities; it could easily result from a software bug in a single short-selling algorithm.[8]

These harms, first to the integrity of the market and second to the stability of the market, amount to two substantial risks that the Commission must consider as strong counterbalances to of high frequency trading's asserted market benefits.

C. Fundamental Inequities Created by High Frequency Trading

Central to this comment are the fundamental reorganization of investment that high frequency trading commits as well as the fundamental inequities that high frequency trading creates. As high frequency algorithms become party to almost every market transaction, the traditional buyer/seller relationship erodes. That erosion reveals at least three ethical consequences, outlined below, each of which provides substantial impetus for proscribing or regulating high frequency trading.

1. Detracting from "Investment" as Investment

This section details the conclusion that high frequency trading strategies detract from "investment" as a practice of buying shares of stock in corporations at or below their estimated value and selling them at or above their estimated value. In this section, I suggest that the less the securities market resembles "investment," the more inaccurate

[7] *See The Impact of High-frequency Trading: Manipulation, Distortion or a Better-functioning Market?*, KNOWLEDGE@WHARTON, September 30, 2009, http://knowledge.wharton.upenn.edu/createpdf.cfm?articleid=2345 (last visited Mar 15, 2010).

[8] The Commission's latest mitigation of intraday short-selling stands to protect against this somewhat, but it does not protect against the complete selloff of all actually held securities by high frequency trading algorithms.

share prices will be, and resultantly the less equitable and less useful the securities market will be.

The implication of traditional investment is that as individuals "guess" the price of a stock, by buying it at prices below the value that individuals estimate and selling it when the stock exceeds that value, the guess will cause the share price to reflect the actual value of a share of a particular company's stock. Further, the theory goes, the more "guesses" that are made, i.e. liquidity, then the closer that the market price for a share of stock will come to the true value of that share of stock.

However, when high frequency trading strategies affect the price of securities based on the movements of market actors, they affect the price of the security without estimating the actual value of the security; they do not make a "guess." Because this type of high frequency trading algorithms seeks to capture market movements, rather than offering a "guess" as to the value of a security, they remove a basic premise of a market's capacity to hone the accuracy of stock prices: the estimation of worth.

Suppose, for example, that after extensive research, a human investor estimates true value of the security was $100 per share. Suppose also that this investor was correct, and the true worth of the security really is $100 per share, though he could never know that for sure. When that investor places an order for 10,000 shares at $98 per share, a high frequency trading algorithm reacts and pushes the price to $99 per share. Suppose next that the purchase of 10,000 (or more) shares by the above algorithm triggers additional algorithms, and that they push the stock price to $102 per share.

The result is that the price now reflects a price that is greater than the true value of that security. This is common in traditional markets, but here the stock's price is based not on an overestimation of the value of the company, it is based on the concentration of high frequency trading interest in the security.

High frequency trading algorithms play off the estimations of worth made by others.

Taken to its logical end, increased market permeation by high frequency traders causes more of the general market's movement to become comprised of movements made largely by other algorithms; what the algorithms see as "guesses" will actually be the actions and reactions of other algorithms. The percent of volume that makes an educated guess as to value will decrease, and the percent of volume that responds to other volume will increase. That is all to say that, without regulation, the share prices of a security will eventually have little or nothing to do with the estimated value of a share of a security.

The price of a share of stock will thus be arbitrary; it will not only have nothing to do with the value of a company. When the price of a stock is thusly arbitrary, and based on

market movements that are imperceptible to anyone but a high frequency trading algorithm, the estimation of the price's direction is impossible. When share price is arbitrary, and estimation resultantly impossible, the market is a place unfit for any investor other than a high frequency trading algorithm.

While this illustration may approach alarmism, it shows both that high frequency trading detracts from "investment" as investment and more importantly, that high frequency trading's promise of promoting greater price accuracy is illusory.

2. Analogous to Fraud

Second, high frequency trading strategies mimic traditionally fraudulent behavior. Specifically, high frequency trading operates identically to a complex salami-slicing or penny-shaving scheme.

In a true penny-shaving scheme, the fraudulent actor shaves small quantities of metal from coinage, reducing actual value while maintaining face value. In a more modern context, salami-slicing schemes might round off 1/10th of a cent from every compounding of interest to every one of a bank's clients. Ultimately, the fraudulent actor injures each victim in a negligible way. However, the sum of their fraud is a substantial injury against society as a whole.

High frequency trading works much the same way. Algorithms see a seller at $99.99 per share at 9:30.001 A.M., and a buyer at $100.00 share at 9:30.002 the high frequency trading algorithm buys the stock at $99.99, and turns around to sell it at $100.00, pocketing one penny per share. If this were a real estate sale, or the sale of an automobile, then the seller would receive the extra penny that the buyer was willing to pay. Instead, because this is the securities market, the high frequency trader swoops in and skims off the top.

Ultimately, the fraudulent actor injures each victim in a negligible way. However, the sum of their fraud is a substantial injury against society as a whole.

The amount of profit aggregated by high frequency trading algorithms is substantial. Some estimates put high frequency trading profits in 2008 as high as $21 billion.[9] This huge amount of money would have otherwise been in the pockets of traditional market actors, but algorithms have moved it into the pockets of high frequency traders, perhaps only pennies at a time. The Commission should note that, just as in the salami-slicing scheme, while individual transactions are often minimally affected, the detriment to investors as a group, and to the securities market as a whole, is substantial.

[9] *See* Charles Duhigg, *Stock Traders Find Speed Pays, in Milliseconds*, THE NEW YORK TIMES, July 24, 2009, http://www.nytimes.com/2009/07/24/business/24trading.html (last visited Mar 8, 2010).

The intangible nature of the securities exchanges makes regulation more appropriate that it would be in other business transactions. Real estate transactions and automobile sales do not need regulation against a problem like high frequency trading, because the transaction costs of injecting computers into every transaction of that type would be prohibitively high. Further, it would simply be unimaginable for a non-party to swoop into every sale of real estate at the last second, raise the price slightly, and then finalize the sale. It would deprive the seller of additional profit and/or deprives the buyer of additional savings. Moreover, it would do this in a way that borders on absurdity.

High frequency trading both mimics common fraud and analogizes patently unacceptable behavior, and it creates inequity in the market; it is an ethically deficient business practice. Accordingly, high frequency trading deserves regulation.

3. Injury to Individual Investors

Third, high frequency trading effectively steals the product of an investor's work.

Suppose, as above, that after extensive research, a human investor estimates true value of the security was $100 per share. Suppose also that this investor was correct, and the true worth of the security really is $100 per share, though he could never know that for sure. When that investor places an order for 10,000 shares at $98 per share, the first 100 shares are bought at $98 per share. The same happens for the second and third sets of 100 shares. A high frequency trading algorithm suspects that this is a big move by the investor, and reacts by buying up as many shares as it can. The algorithm's buying action pushes the price to $99 per share. At this point, the investor is met with a cruel dilemma: Either buy the remaining 9,700 shares at an elevated price, thus sacrificing $9,700 of his laborious research, or sacrifice the benefit of the research entirely, and ride his 300 shares up to $100 per share. His expected profit has dwindled from $20,000 to $10,300, or if he decides to throw in the towel, $600.

While this scenario could happen to any investor placing a large order (prices go up all the time), this particular scenario would not have happened but for high frequency trading. As the presence of high frequency trading increases on the market, so too does the incidence of this scenario. Moreover, as discussed above, the proliferation of this profit-skimming behavior stands to jeopardize faith in the securities markets.

More to the point, when the computer beats the investor to a move decided upon from hours and days of research, the investor loses a portion of the value of the work already completed. Taken to one potential end, this practice will force the most talented investors – that is to say those who best estimate of the worth of a particular security – to invest in high frequency trading in order to negate the effects of other algorithms, and in order to preserve the whole value of their efforts. Ultimately, this raises the cost of entry to a fair

securities market by making reliance on high frequency trading firms a prerequisite to market participation.

Cost of entry aside, a practice which intentionally co-opts an investor's efforts and which provides no consideration for that co-option is unethical, impermissible, and – without regulation from the Commission – legal.

4. Potential for Market Manipulation

Fourth, high frequency trading creates the potential for substantial market manipulation, particularly through the use strategies such as momentum ignition strategies. The hidden nature of high frequency trading algorithms, and their strategies, potentially obscures manipulation as well. Just as a computer bug in a single high frequency trading algorithm could accidentally devastate the value of a single stock, an intentional devaluation that seeks to trigger other high frequency trading algorithms could manipulate the price of securities, while disguising that manipulation as a software bug.

The Commission is aware that manipulation is not easy to detect and punish and undoubtedly creates problems for a healthy market. In response, one might suggest that this reality must be met with flexible regulation or proscription. In other areas of law, flexible statutes allow the prosecution of crimes that are difficult to detect are proscribed, such as crimes committed under the Racketeer Influenced and Corrupt Organizations Act, and under the federal conspiracy statute. Here too, because manipulation, by its very nature, is difficult to detect the Commission ought to expand its regulation of manipulative behavior to include flexible regulation high frequency trading, in order to effectively prevent high frequency trading–based manipulation.

The mere potential to manipulate the market, though, does not justify the prohibition high frequency trading. Still, the substantial potential for manipulation weighs heavily towards disutility when considered in the balance of the utility and disutility of the practice.

D. Potential Regulatory Mechanisms

If the Commission decides to regulate in this area, it will necessarily walk a fine line between regulating high frequency trading, and regulating all computer-based trading. In order to supplement the Commission's own invention of regulatory mechanisms, this section provides several suggestions.

First, the Commission ought to observe the operation of high frequency trading algorithms, in order to understand how to regulate them. At least one finance professor has suggested experimenting with a temporary ban on high frequency trading, beginning with a sample of 25-30 stocks. This would create a data set on the effect of high

frequency trading, with which the Commission would compare the price and trading patterns of stocks not subject to the ban.[10] This exercise would reveal the extent of the problems created by high frequency trading on a regular trading day, and may provide guidance as to how the Commission might discern high frequency traders from simple day traders.

Second, the Commission could give effect to its already-considered regulation of eliminating sneak previews of offers, which are given to high frequency trading algorithms at present. This would eliminate flash trading, and eliminate at least one fundamentally unfair aspect of high frequency trading.

Third, the Commission could remove the incentive of high frequency trading by implementing a minimal transaction tax on each share of stock traded. The tax would presumptively exceed the average per-share profit of a high frequency trader, and thus make the practice a net loss for the owners of high frequency trading algorithms. Representative Peter DeFazio has suggested a tax of $0.075 per share on a $30 per share stock, which would only apply to short-term transactions in order to encourage longer-term investment.[11]

Finally, my personal suggestion is that the Commission could establish a maximum number of intraday orders by a single market actor, on a single security. If, for example, the Commission set this maximum number at four-hundred orders per day, the regulation would effectively eliminate high frequency trading, while avoiding a verbose statute wrought with loopholes, which might attempt to define which types of computers are acceptable and which are not. Additionally, this mechanism would eliminate high frequency trading in a way that would still permit the use of other computer-based algorithms, such as those that are pre-scheduled to sell a defined number of shares of stock at a pre-set price, or a price based on some other factor, such as the 52-week high. Finally, this mechanism would not inhibit even the fastest of day traders, as it would allow them to make at least one transaction per minute of the day in a single security.

IV. Conclusion

The high frequency trader diminishes the fairness of securities transactions by invading the buyer-seller relationship. The fact that the harm is small on the level of each single transaction does not convert that harm into something socially permissible. Further, the

[10] *Id.*
[11] John Hintze, *Transaction Tax:The End of High-Frequency Trading?*, SECURITIES INDUSTRY NEWS, February 8, 2010, http://www.securitiesindustry.com/issues/22_3/-24646-1.html?pg=1 (last visited Mar 8, 2010).

fact that high frequency traders injures each party in a minimal way, means that the nature of high frequency trading prevents any single party from developing a cause of action. As a result, the Commission's capacity to regulate provides the only form of investor protection available in this area, and its decisions in this area are of particular importance.

Moreover, the continued existence of high frequency trading provides no tangible benefit to the market, and can neither outbalance the substantial risks that high frequency trading stands to effect, nor outbalance the substantial harm that high frequency trading does to the integrity of the securities market.

If anything, high frequency trading provides theoretical benefits to the securities markets, while creating substantial potential for abuse. The practice interjects a third party into the traditional buyer-seller transaction, increasing costs for buyers, and decreasing profits for sellers. As shown above, high frequency trading can, and often does, drive the price away from that which the investors would otherwise target.

In sum, the practice modifies the definition of a business transaction in a way that would appear ludicrous in any other business setting. Imagine if every home sale in the United States were interrupted at the last second by a third-party offering $1 more for the home, and then turning around and selling it to the intended buyer for $2 more, and then repeating that process millions of times per day in separate negotiations. Such a behavior exacts an inequity on every market participant, while justifying itself by arguing that it creates a more accurate price for each home.

This conclusion is accurate in a sense, because the buyer is still willing to pay the marginally inflated price. But consider the victim of petty theft who is willing to repurchase the items that he lost due to the theft. The fact that he has now expended more money than he otherwise would have, for the same items, does not mean that he has paid a more accurate price for them. The toll exacted by the high frequency trader is no different.

High frequency trading is an indefensible practice that must be regulated or proscribed. It must be regulated because it so substantially undermines the buyer-seller relationship, because it effectively robs the buyer of the $2 he would have otherwise had, and because this injection of a third-party into a buyer-seller negotiation is patently unethical and plainly parasitic.