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## Trading White Paper

Michael Lewis' book, *Flash Boys*, has been a media sensation creating considerable interest in the inner workings of the stock market and in High Frequency Trading (HFT). I enjoyed both Mr. Lewis' piece on 60 Minutes and his book. As an aside, I would have loved to have been present for the pitch Lewis made to his publisher. "I want to write a book about fiber optic cable, computers and the minutiae of how stock trades are executed. And by the way, the hero of my story is a Canadian." That *Flash Boys* is a best seller is a tribute to Lewis' ability to take something complex and make it understandable and to take something mundane and make it exciting. To me, Lewis is in the perfect spot. His book is entertaining. His marketing is brilliant. Then he gets to step away from the fray without having to be involved in soothing fears of investors, protecting their capital or improving market structure. My hat is off to him.

This paper covers HFT, but does not critique Lewis' book nor fan the flames of the HFT debate. Once HFT is explored, I expand the paper's scope to discuss dealing with all trading realities. This paper addresses some very specific topics, namely:

- ▶ HFT – Both sides of the argument
- ▶ Are stock markets rigged?
- ▶ Dealing with reality

### **HFT – BOTH SIDES OF THE ARGUMENT**

Proponents argue that HFT adds liquidity to markets and reduces the cost of trading for all investors. Opponents call HFT a tax, a needless cost being sucked out of your wallet or pension plan. The debate between the two camps is very heated. In my opinion, both sides make valid points. However, both arguments have flaws. Consequently, like many times in life, the truth lies somewhere in the middle.



### *The Pro side*

HFT proponents claim the benefit they are creating can be readily evidenced by two developments that have occurred since HFT's introduction:

1. As illustrated in Appendix 1, Bid<sup>1</sup> / Ask<sup>2</sup> Spreads<sup>3</sup> have tightened considerably. This is an important indicator of transaction costs, especially for retail investors who are generally forced to transact at either the bid or the ask. If one was to assume that the "true" current price of a stock is the mid-point between its bid and ask then the cost of trading at the bid or ask is half the spread. As spreads narrowed, from say \$0.25 twenty years ago to \$0.01 today, the cost of trading, as represented by the spread, has declined dramatically.
2. Total transaction costs, as measured using Implementation Shortfall<sup>4</sup>, in the past twenty years, have declined substantially (see Appendix 2). This metric is most relevant to institutional investors as it bases cost not on the size of the prevailing spread but rather on the difference between the final transaction price and the price at the time the decision to transact was made.

These cost measures have dramatically decreased in the years since HFT's introduction. However, HFT cannot claim 100% of the attribution for these declining costs. Significant contributing factors include:

- ▶ Regulatory changes allowing greater competition for trades
- ▶ Stock market structural changes, such as the addition of multiple competing exchanges
- ▶ Declines in market volatility<sup>5</sup> – there is a strong link between volatility and transaction costs
- ▶ The ongoing evolution of trading technology
- ▶ The improving skillset of buy-side traders
- ▶ Transparency in markets and transactions

Given the importance of the items on the above list, my opinion is that HFT is one of the smaller contributors to declining transaction costs. A confluence of events and developments has led to lower costs, making it impossible for HFT to prove the extent of their contribution to declining trading costs.

### *The Con side*

Opponents of HFT claim that markets are rigged and, cite latency arbitrage<sup>6</sup> as the proof. I won't defend latency arbitrage as I agree with Michael Lewis that this activity lacks merit. However, I will point out that latency arbitrage is but one of several dozen HFT strategies. The con side is whitewashing all HFT activity based primarily upon this one aspect.



The true test of a market's efficacy is the typical cost to match a buyer to a seller measured in dollars and time. For a market to be rigged there has to be a constant and most likely hidden levy charged or waiting period enforced. In a rigged market one would expect that all trades occur at some price worse than the last traded price or at some delay. However, several reasons other than markets being rigged explain why a trade may occur at a price other than the last traded price or at some delay:

- ▶ Liquidity - how does your trade impact the current supply / demand situation for a stock
- ▶ Skill - one person's knowledge, analytical acumen and experience allowing for better decisions
- ▶ Tools - use of tools at one's disposal
- ▶ News - company specific developments at time of trade
- ▶ Luck - right place, right time
- ▶ Time - how quickly do you want to get this trade done
- ▶ Games - trading with someone who possesses knowledge about your trade before you execute

Most of the above items are inversely related to potential transaction costs. For instance, it would be logical to assume that, over time, a highly skilled trader would incur, on average, lower transaction costs than a lowly skilled trader. The exception to the logic of an inverse relationship would be Games where the more others know about your trades the more you are going to incur in transaction costs. Having read Flash Boys and watched 60 Minutes, the average investor might draw two conclusions:

1. HFT firms possess perfect knowledge about all trades before they occur ("the market is rigged").
2. This alleged prescience is a new occurrence, enabled solely by recent developments in technology and regulation.

Neither of these conclusions is accurate.

Let's examine the issue of others seeking knowledge of your trade before you execute within an historical context. People have been trying to game markets for centuries, not just in the stock market but in several aspects of life. House buyers and car buyers attempt to camouflage their enthusiasm so as to not give the seller knowledge of their intent. Poker players camouflage their feelings towards the hand they've been dealt hoping that competitors don't gain knowledge of their strategy. Years ago, stock market traders, in an effort to protect information about their trades, communicated with hand signals to camouflage if they were buying or selling or if the trade was big or small. And, for as long as people have been trying to camouflage their intent, other market participants have been trying to read the signs to figure out the intended course of action. None of the above activities is illegal. In the field



of competitive sport all such activities would be categorized as strategies, skills or competitive advantages.

### **ARE MARKETS RIGGED?**

No. In most cases, retail orders are completed instantaneously at either the bid or the ask. On these trades, there is no tax, no levy or no delay as there would be in a rigged market. And, it could be argued, quite rightly, that HFT *contributed* positively to this situation. Nonetheless, I agree that *some forms* of HFT activity (for instance, latency arbitrage) are exceptionally predatory. As industry participants, we should advocate for stronger regulation and enforcement to combat predatory activities *of any kind*. However, our actions, as stewards of capital, should not focus solely upon advocacy and regulation.

### **DEALING WITH REALITY**

Any experienced, skilled trader knows that people have always attempted to divine other market participants' trading strategies. This has been a reality not since the advent of HFT but since the advent of stock markets. Predatory activity, in the stock market, will always be part of a trader's reality. If HFT didn't exist then some other form of predatory activity would simply take its place.

Perhaps the greatest benefit of the recent chapter of the HFT debate is that it might cause movement, on the part of investment managers, toward improving their overall trading capabilities. Such movement would enable a manager to deal with, not only HFT, but with all trading challenges. In the hope that the debate will be expanded, I will expand my remarks for the remainder of this paper to discuss trading in general versus discussing specifically how to deal with HFT.

To deliver on this paper's objective, three areas for action will be highlighted:

- ▶ Best Execution - Process and Tools
- ▶ Skills
- ▶ Culture

To discuss each of these items it is necessary first to provide some context. For a moment, reflect upon all facets of an investment process, from idea generation to security selection to portfolio construction to risk management to trading. In order for each of these process steps to exhibit world class best practices standards, considerable and continual investment is required. If one were to think of the investment of time and money that each of these process steps has received over the decades I would assert that trading has taken a backseat while the other aspects of the investment process have a) garnered the lion share of improvement efforts and b) have been the area of focus for years.



Anecdotally, I submit the following to support my assertion:

- ▶ The Chartered Financial Analyst (CFA) is a portfolio manager's primary professional designation. Traders do not have a designation with similar stature or credibility. Also, the CFA study program dedicates very little time to expanding candidates' knowledge on the topic of trading.
- ▶ The body of academic literature consists of countless studies, all geared toward improving some aspect of the investment process. However, studies on trading represent the very slim minority of all studies conducted. Trading research that does exist tends to have been done in the last ten years while a rich history of research exists on all of the other process steps.
- ▶ Regulatory bodies have evolved their criteria and requirements for personnel registration. However, while the people generating investment ideas (portfolio managers) need to be registered, the people implementing those ideas (traders) do not.

As generating ideas was more highly valued than implementing ideas, trading received less priority over the years, resulting in it being the least evolved investment process step. In the 1980's and into the 1990's, at most institutional investment shops, trading meant picking up the phone and calling in the orders, then waiting until after 4:00 to get your fills. Quite astutely, in the late 1990's, some investment shops improved their trading processes by investing in technology and human resources, garnering considerable competitive advantage given trading's low state of process evolution. This sudden and significant differentiation eventually became noticeable to clients, consultants and other industry participants, culminating in an "arms race" over the past decade as investment management firms beefed up all aspects of their trading operations.

Within this context, let's examine each of the three areas for action:

- ▶ Best Execution - Process and Tools. Years ago, demonstrating Best Execution focused on the commission allocation process. If the trade allocations and commission dollars seemed "fair" relative to services provided then it was deemed that commission dollars were being spent appropriately and that Best Execution was achieved. This process recognized that commission dollars are a client's property but ignored that transaction costs include market impact costs and not just commissions. Today, far superior tools exist, allowing execution to be separated from idea generation. These tools provide investment teams with valuable information about:
  - the expected cost of trades before they are sent to the market, an effective transaction cost benchmark against which to measure actual costs
  - actual costs incurred in past trades
  - the effectiveness of execution services of various brokers



- costs of trading segmented by industry sector or market capitalization bucket
  - recommendations for future trading strategies
  - typical transaction costs versus peers
- ▶ Skills. Thirty years ago, a trader was valued for being able to build relationships and ferret out pockets of liquidity. Today, with the decline in block trades and the advent of new technology, new skills are required. A trader today needs to have technology skills, a mathematical aptitude and advanced analytical capability. Despite the rise in the requirement for the above 'hard' skills, a trader absolutely needs to bring 'soft' interpersonal skills to the table, enabling effective interactions with other members of the investment team and the brokers servicing their account. Armed with these skills, a trader now has the ability to assist in idea generation as expected trading costs can be used as a decision-making input.
- ▶ Culture. The challenge for investment management firms is that investing in process, tools and people will not be enough to achieve trading best practices. There is an additional aspect of the trading process that needs addressing by our industry. In many pockets of the investment management industry, trading is not a highly valued step in the investment process. In firms where idea generation trumps idea implementation, the trading function holds second class status and traders are not seen as full-fledged members of the investment team. In such instances, there is an 'us' (idea generators) versus 'them' (idea implementers) mentality. I have attended several trading conferences and interviewed numerous traders on this topic. The sentiment of traders not really being part of the investment process is a cultural reality that is shared by the majority of traders with whom I have spoken. Eliminating the cultural divide has very real benefits, which can be measured in both dollars and time.
- Dollars – if an effective relationship, based on mutual respect, exists between the trader and the portfolio manager then transaction costs and liquidity considerations are more likely to be factored into idea generation, resulting in better investment decisions and boosting client returns.
  - Dollars – in an environment where idea implementation is as respected as idea generation, strategic priority will be placed on exhibiting a world class trading process. This priority would logically lead to reduced trading costs, a further boost to client returns.
  - Time – in a trusting environment decisions can be executed quickly. As in all facets of life, time equals money and once again, the client benefits.



Firms fostering a vibrant, cohesive culture will be able to achieve trading process best practices and thereby, add value for their clients, highlighting the importance of investing in culture.

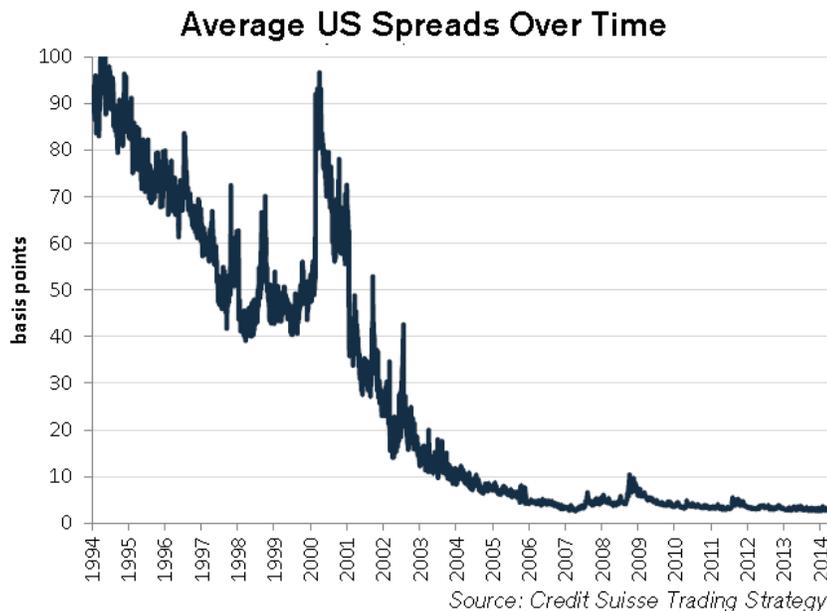
If the recently amplified HFT debate becomes an impetus for investment managers to improve their trading process then, despite my earlier stated misgivings, Michael Lewis might just be doing our industry a great service.

**NOTES:**

1. Bid – the highest price someone is currently willing to pay for a known quantity of a stock.
2. Ask – the lowest price someone is currently willing to accept for a known quantity of a stock.
3. Bid / Ask Spread – the difference between the bid and ask prices. Spread = \$ask - \$bid.
4. Implementation Shortfall – this is the difference in a stock's price between the time when the decision was made to buy or sell shares in the company to the point when that decision was fully executed.
5. Market Volatility – measures the extent of variation in the price of an individual security or the market as a whole.
6. Latency arbitrage – the attempt to profit from knowing something before others do.

**APPENDIX 1**

Average Bid / Ask Spreads in the US

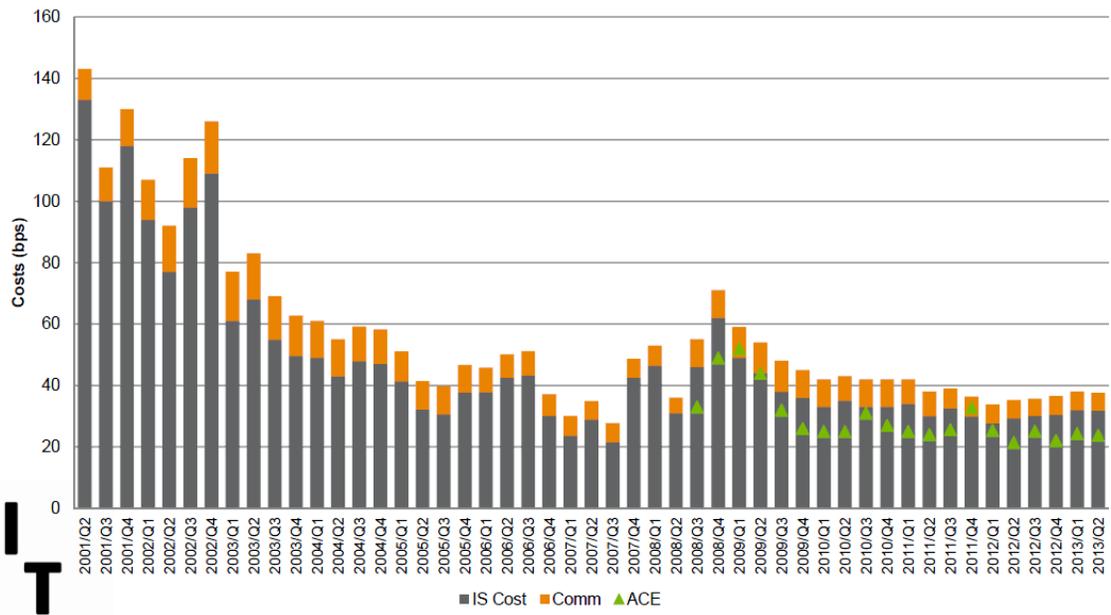




APPENDIX 2

U.S. Implementation Shortfall Costs

US Large Cap Costs



Source ITG