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INDUSTRY-DRIVEN MESSAGING STANDARDSM

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Thoughts on High Frequency Trading

FIX Global Face2Face Forum - Mumbai

13 April 2010

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Is this our hero ?

Or our villain?



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Background

- ✘ How did we get here?
 - ✘ Investors have changed the way they wanted to manage risk in the transaction process
 - ✘ Technology was developed that enabled a different approach to trading and risk management
 - ✘ Regulation evolved to recognise revised investor priorities
 - ✘ New market operators emerged using new technology to meet the new needs
 - ✘ Traditional market operators have responded with widely varying speed and effectiveness



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Trend – No Old Style Market Makers

- ✘ Lit 'Quote' driven markets are dead – all exchange markets are lit order driven markets
 - ✘ NASDAQ and NYSE were last exchanges to change
 - ✘ Last days of old market makers mired in 'front running' scandals etc
- ✘ Investment banks and the old market makers ran quote driven markets on their internalised 'dark books' solely for their clients
 - ✘ Want clients to HAVE to come to them with their flow
 - ✘ Don't want IB/prop shop competitors using their capital
- ✘ With 50% market share, investment banks can make more profits by internalising flow
 - ✘ Conflict of interest with exchanges and lit ATS/MTF



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Trend – New ‘Lit Market Makers’

- ✘ New style stat arb/quant trading firms are willing to post bids and offers into a public lit market – the new ‘lit market makers’
 - ✘ Trend started in USA; now in Europe and coming to Asia
- ✘ One of the prime reasons for Chi-X success was that it did not rely on investment banks to post liquidity onto a Lit Book
 - ✘ In Chi-X model, anyone can post liquidity and receive rebates
 - ✘ “New Market Makers” were first movers on Chi-X. Major investment banks initially only sourced liquidity from Chi-X
- ✘ To operate effectively on a Lit market, these traders need ultra fast and ultra low cost platforms
 - ✘ Trading can and will migrate to the lowest frictional cost platform



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HFT Characteristics

- ✘ Most are still US based firms branching out first to Europe and now to Asia
- ✘ Most take a multi-strategy approach that makes them important in many asset classes, especially cash equities and futures
 - ✘ 80%+ trade equities
 - ✘ 65% + trade futures
 - ✘ 55%+ trade options
 - ✘ 25% + trade FX
- ✘ HFT traders are typically liquidity providers – their rebate is seen as part of the spread
- ✘ Holding periods are very short – much less than one second



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HFT's – Bad or Badly Understood?

- ✘ HFT's are an unreliable source of liquidity
 - ✘ All evidence through the financial crisis shows they provided a steady liquidity environment
- ✘ HFT's just make money at everyone else's expense
 - ✘ Academic work underscores this is NOT a zero sum game – different timeframes, different strategies and differing objectives all make for opportunities
- ✘ HFT's need “unfair” advantages like co-lo to work
 - ✘ Market players have always worked to gain information advantages – this is not new. Are we now penalizing those who invest to be smarter?
- ✘ HFT's are “predatory” against other traders
 - ✘ Liquidity provision has always been compensated in markets – it doesn't



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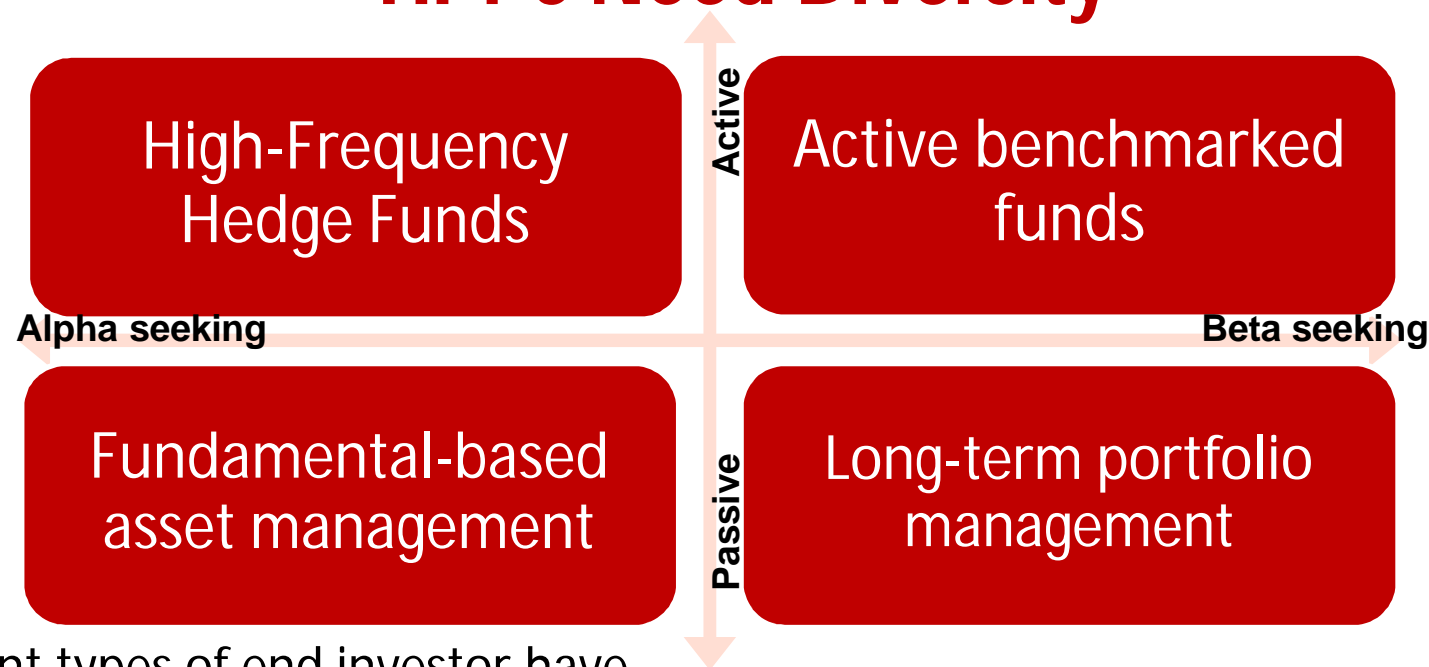
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HFT's Needs

- ✘ Order driven markets
- ✘ Maker-taker operating models
- ✘ Co-location
- ✘ Sponsored access
- ✘ Ability to short
- ✘ Availability of leverage
- ✘ Arbitrage opportunities – ie, multiple venues
- ✘ Transaction speed and capacity



HFT's Need Diversity



- ✘ Different types of end investor have
 - ✘ Different investment aims
 - ✘ Different time horizons
 - ✘ Different trading requirements
- ✘ These differences make for more liquid markets for both retail and institutional investors



Technological Arms Race

- ✗ New, advanced technologies have dramatically altered the financial markets for all participants
 - ✗ All participants benefit from better, faster and more efficient execution
- ✗ Many exchanges have historically been slow to react to technological innovation and fell behind in system performance
 - ✗ Technology performance measures, such as system latency and messages processed per second, demonstrate the gap between exchanges and new technology-driven entrants

Sample Venue Latency ¹

Trading Venue	Average Latency (milliseconds)
Chi-X Europe	<1
LSE SETS	<6
Euronext	13
Deutsche Börse Xetra	37
OMX	43
Borsa Italiana	106
SWX	216

(1) Source: Internal system performance measurement statistics for average DMA order messaging in October 2008, supplied by a Chi-X Europe Trading Participant. These internal figures are for round trip latency message acknowledgement based on sending an average number of messages to the exchange system and obtaining a response back to the participant's system over the course of a normal trading day. These figures are provided for illustrative purposes only and are not intended to represent an independent performance measure of latency.



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Regulatory Evolution

- ✘ The U.S. and Europe have recently enacted legislation aimed at increasing competition, transparency, and fairness in the marketplace
 - ✘ Regulation National Market System (“Reg NMS”) in the U.S. – HFT’s now 65%+ of US volume
 - ✘ Markets in Financial Instruments Directive (“MiFID”) in Europe
- ✘ Reg NMS and MiFID further propelled the trend toward electronification and trading off-exchange with the order protection rule
 - ✘ Best execution leveled the playing field for non-exchange liquidity pools
 - ✘ Also increased the need for better technologies (e.g. smart order routing) to deal with resulting market fragmentation
 - ✘ More efficient markets by way of lower trading costs widely viewed as positive by market participants / stakeholders
 - ✘ Changes expected to spread to other markets throughout the globe
- ✘ Increasing ‘globalisation’ of regulations
 - ✘ Regulators interacting on a global level between US, Europe, Asia
 - ✘ Regulators pushing for reforms in emerging economies based on best practise from other jurisdictions



Reg NMS

USA

- Aimed at making markets more equitable and modernized
- Three rules in Reg NMS modernize and bolster the regulatory framework
 - “Order Protection Rule” : trading centers must implement procedures that prevent trade executions from occurring at prices inferior to other trading centers
 - “Access Rule” : establishes equitable, non-discriminatory access to quotations and limits access fees across different trading centers
 - “Penny Rule” : bars market participants from displaying orders, quotes and engaging in trading activity that deals with a pricing increment smaller than \$.01 ¹ –
- More coming – pre-trade risk filters, circuit breakers, etc

MiFID

Europe

- Aimed at increasing market transparency, fairness, and strength
- Requires that firms pursue the best possible execution order on behalf of a client
 - This includes factors beyond cost including speed, likelihood of execution and settlement, and the size and nature of trade
- MiFID mandates that firms make available the price, volume, and time of all trades even if executed outside of a regulated market
- MiFID – 2 is coming

These changes have expanded trading and catalysed the introduction of new exchanges and ATS

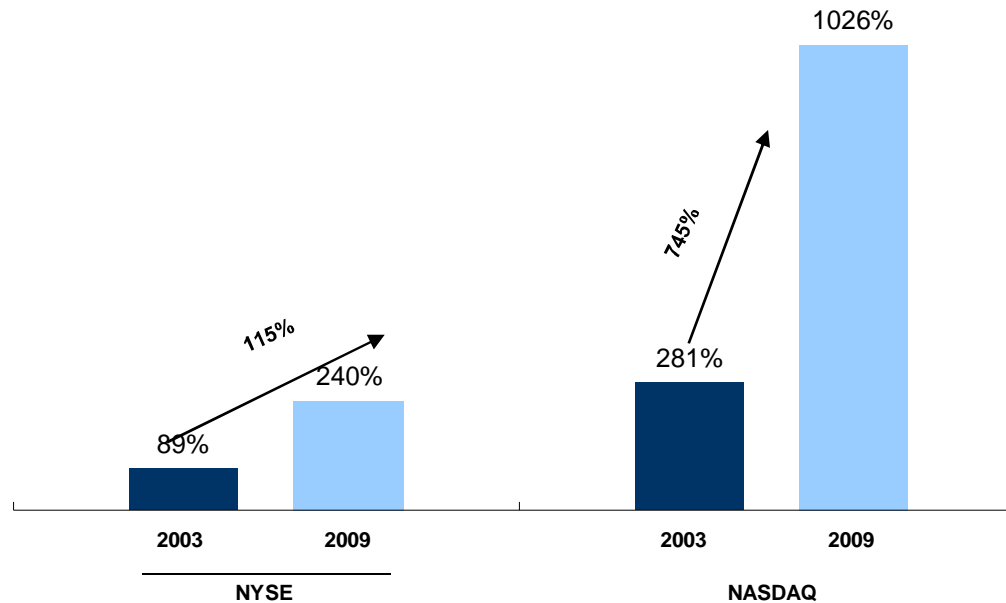
(1) Exceptions exist, for example, if the price per share is less than \$1.00.



Increasing Volumes

- ✗ U.S. markets
 - ✗ First to experience these industry trends
 - ✗ Experienced explosive growth in trading volume
 - ✗ NYSE and NASDAQ trading velocity has increased 2.7x and 3.7x, respectively, between 2003 and 2009

Rapid Expansion of Trading Velocity



Note: Trading velocity represents the value of shares traded divided by the total market capitalization of domestic shares; represents monthly average multiplied by 12.
Source: World Federation of Exchanges.



Evolving Market in US/Europe

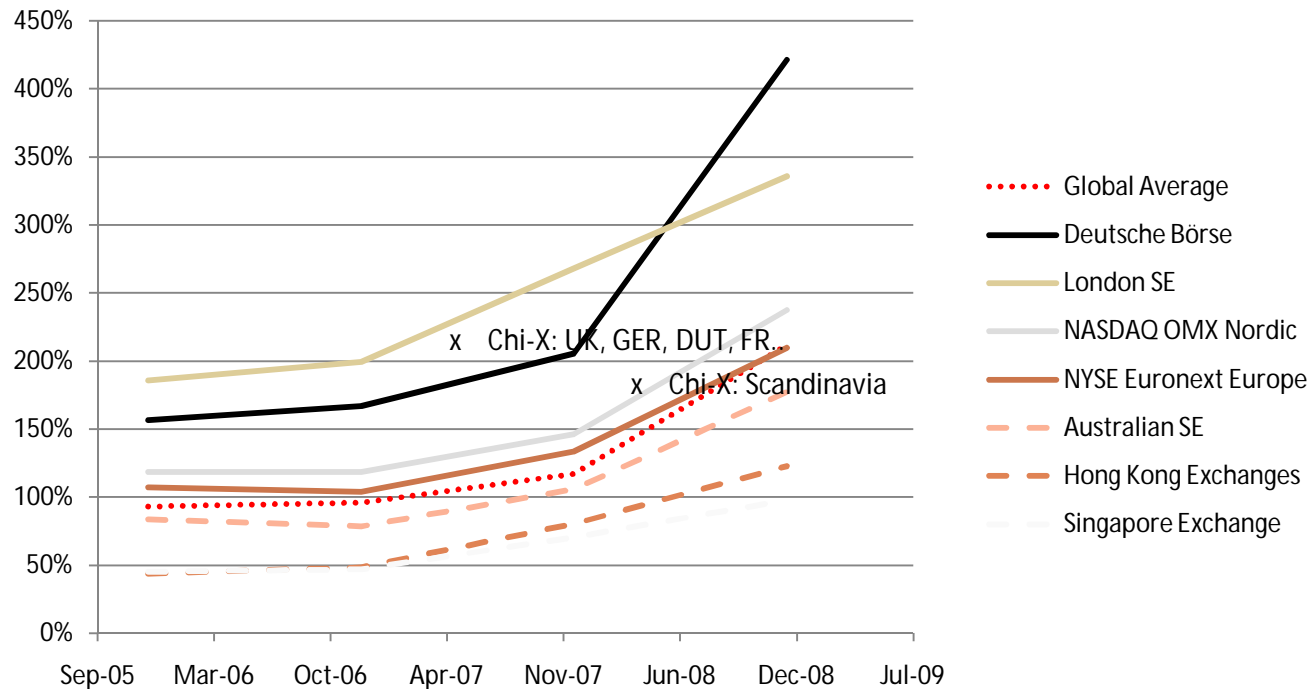
- ✘ Landscape of market participants has also changed dramatically in response to these industry trends
 - ✘ New entrants emerged with meaningful market share
 - ✘ Chi-X, BATS, Liquidnet, etc.
 - ✘ Consolidation by and alliances amongst incumbents
 - ✘ NYSE/Euronext/Arca
 - ✘ Nasdaq/OMX
 - ✘ LSE/Borsa Italiana/Turquoise
 - ✘ Etc.
 - ✘ Incumbent exchanges have benefitted from higher volume trends
- ✘ Trends are spreading to other global markets
 - ✘ Regulation also likely to accelerate as a consequence of the financial meltdown



Positive impact on volumes from ATS

- ✗ Europe experienced similar explosion in trading activity after introduction of new ATS in 2007.
- ✗ Turnover of market cap on LSE, Deutsche Borse increased significantly

Annual Trading Turnover by Market
Europe vs. Asia

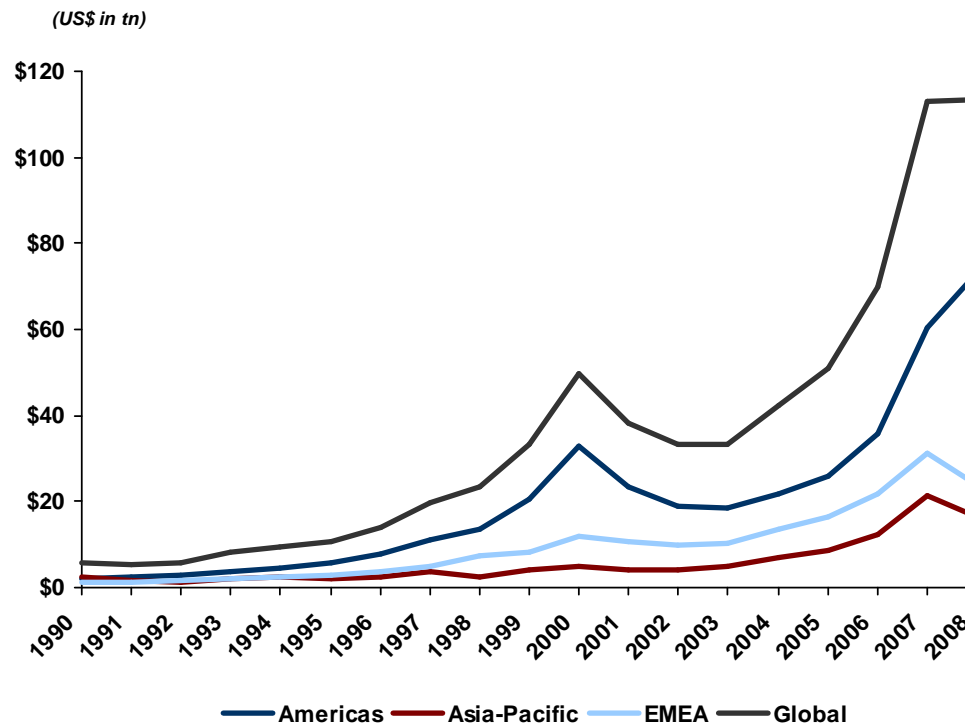




Asia-Pacific, the Next Near-Term Growth Story

- ✗ Asia-Pacific markets will undergo many of the same changes as the U.S. and Europe
- ✗ Asian markets have not yet experienced either the accelerated growth in liquidity or the liquidity bubbles that occurred in the Americas and the US
- ✗ Given lower liquidity in many existing Asia-Pacific markets, the need for a marketplace oriented towards high volume electronic trading is acute – HFT's play a critical role

Value of Trading Consideration in Cash Equities





High Frequency Future

✘ Thank you!

