High Frequency Trading: Practical Considerations

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Salient Features of High-Frequency Trading

- Highly Automated
- Low Holding Periods
- Low number of overnight positions
- High volume traded

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Market Requirements

- Very liquid and deep, reasonable spreads
- Many investor types/volatility
- Electronic transactions
- Ability to sell short/use leverage

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Types of High-Frequency Strategies

Strategy	Typical Holding Period
Automatic liquidity provision/synthetic M-M	1 minute or less
Order-flow recognition through observed quotes	10 minutes or less
Short-term trading on macro or stock-level events	1 hour or less
Statistical Arbitrage/basis trading of stocks and derivatives	1 day or less

Source: Internal, Aldridge (2009)

Fast High Frequency Trading

Advantage: Potentially very high Sharpe Ratios

Potential Limits:

- High technology cost and sophistication
- Models purely quantitative/not easily comprehensible to non-initiated
- Very limited trading capacity
- Ultra-HFT may be prone to “arms race” towards lowest-latency:

Second -> ms -> µs -> ns ->....?

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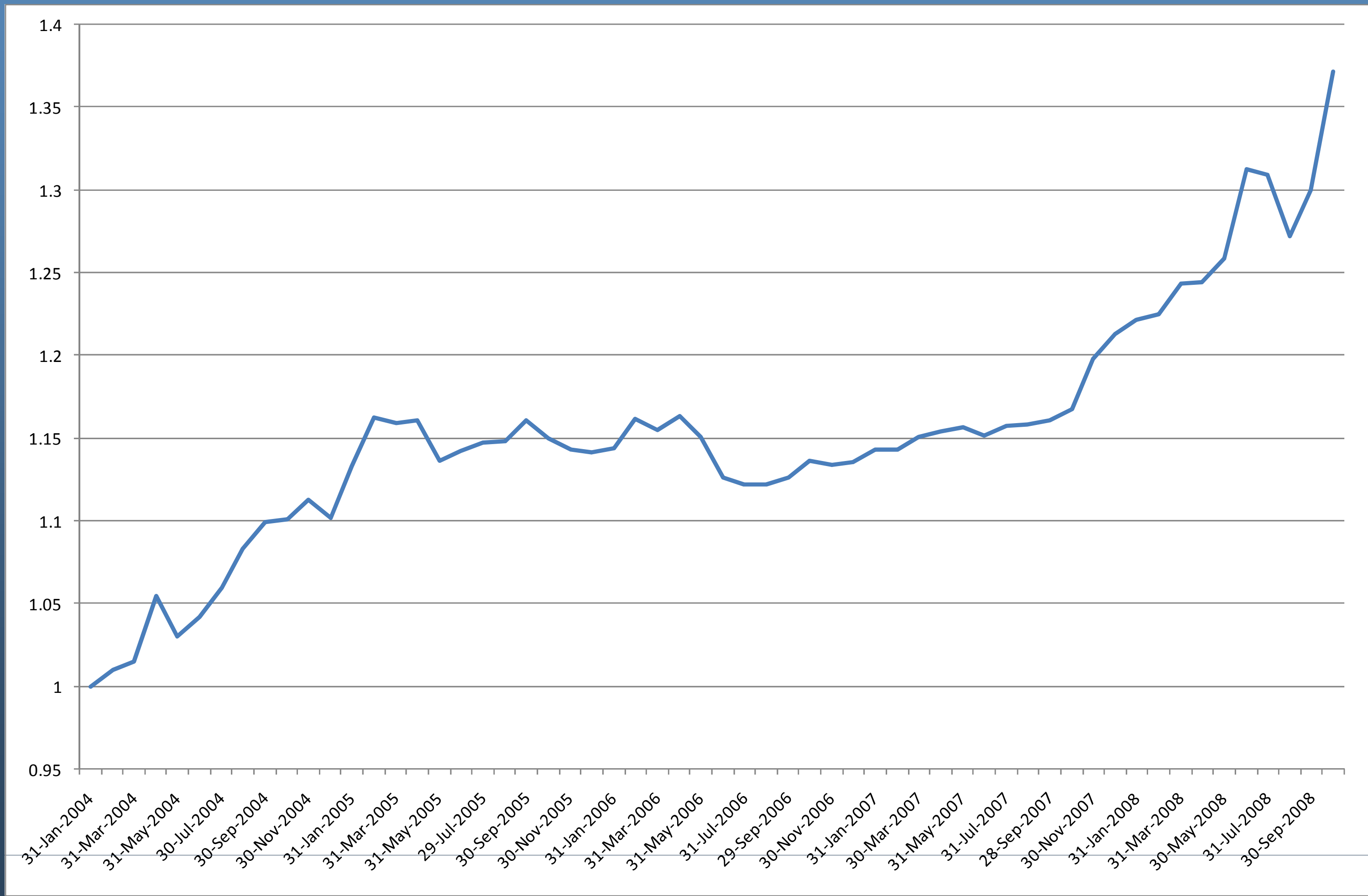
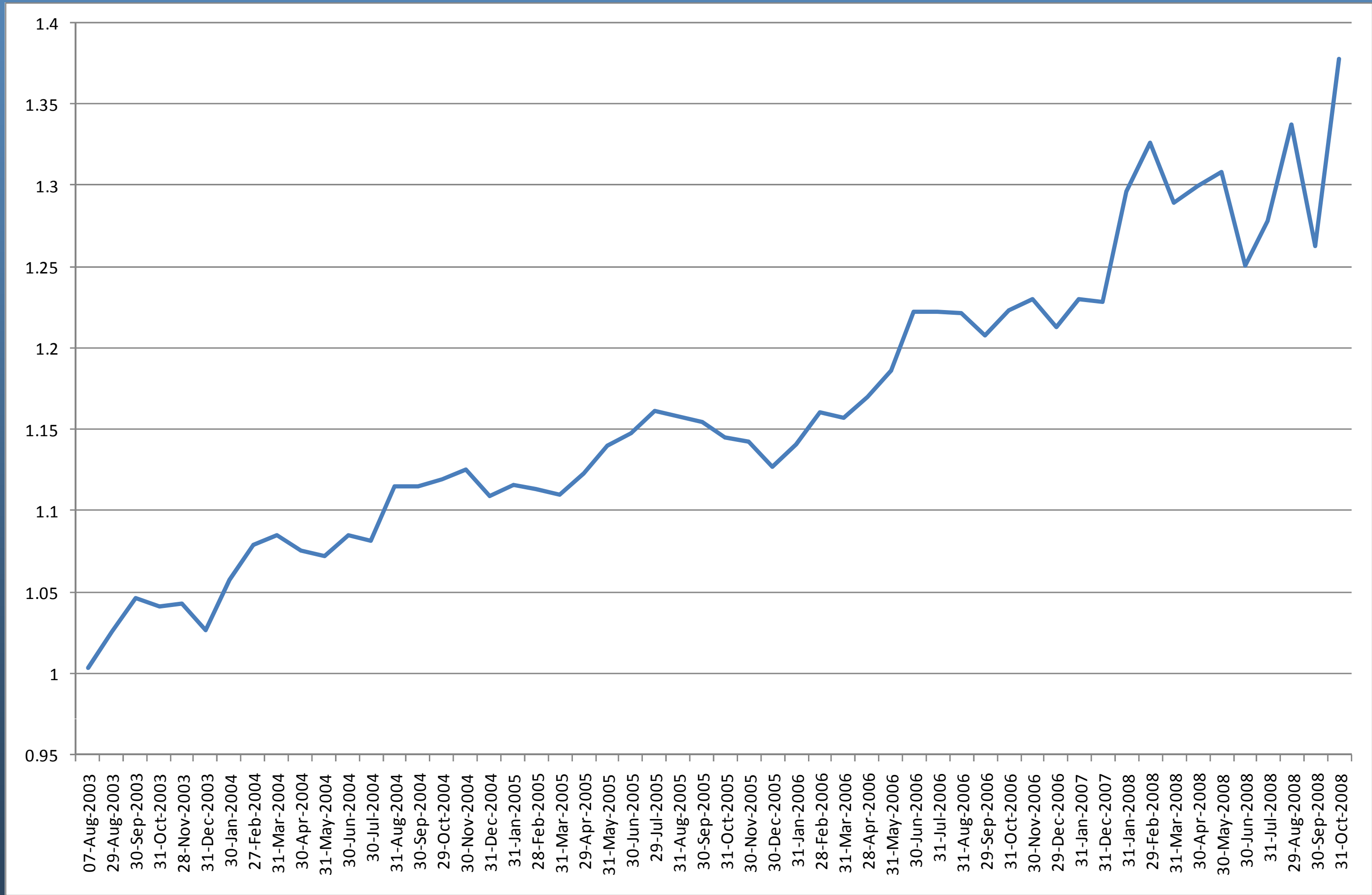
Features of Traded Signals

Signal Effective in Certain Environments



Source: Internal

Signal Effective in Most Environments (With Different Volatility)



Source: Internal

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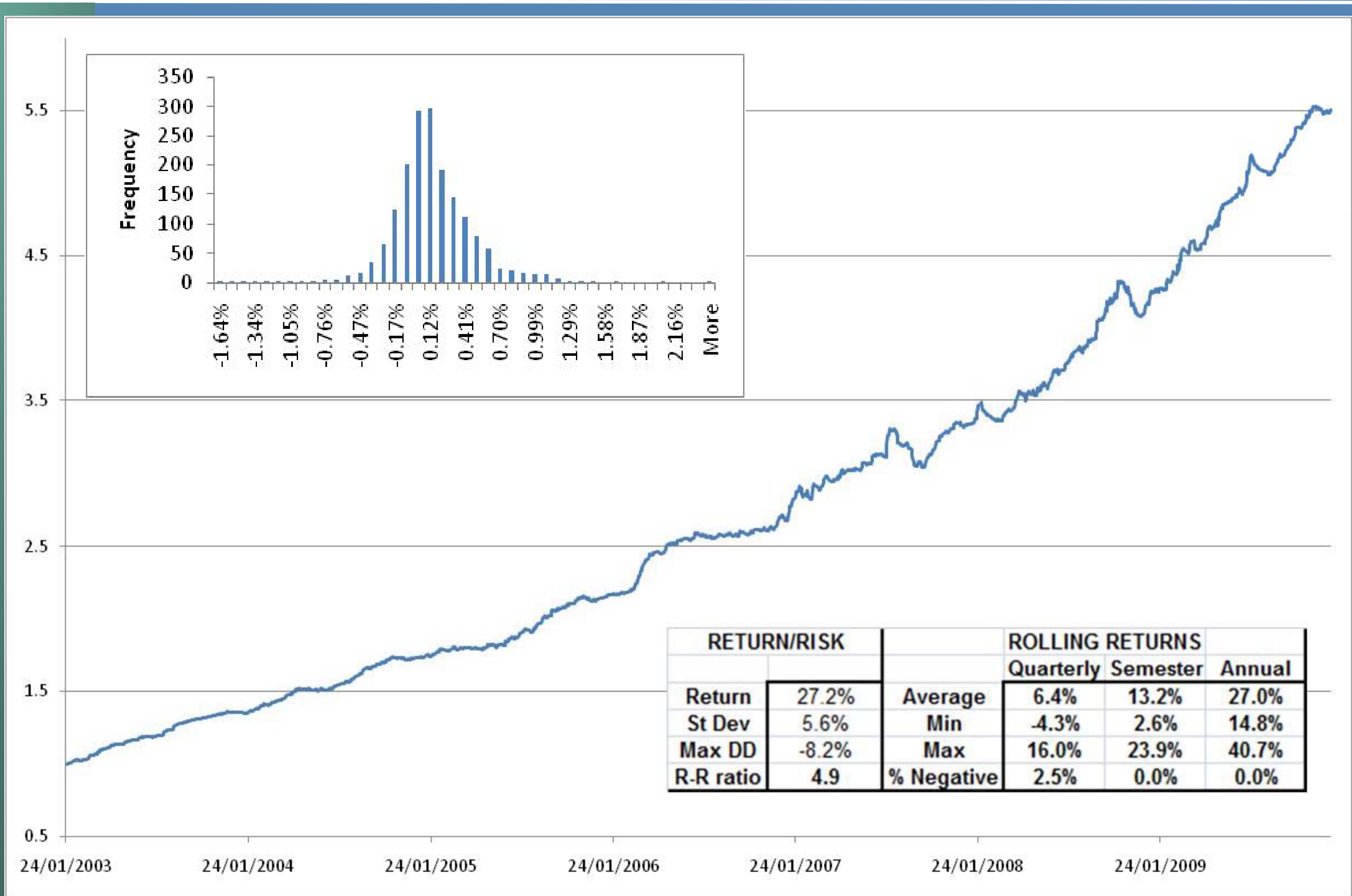
Intra-Day High-Frequency Trading
Example of Return Profile



RETURN/RISK			ROLLING RETURNS		
			Quarterly	Semester	Annual
Return	27.2%	Average	6.4%	13.2%	27.0%
St Dev	5.6%	Min	-4.3%	2.6%	14.8%
Max DD	-8.2%	Max	16.0%	23.9%	40.7%
R-R ratio	4.9	% Negative	2.5%	0.0%	0.0%

Source: Internal

High Frequency
Vs. Traditional Trading

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Winners and Losers from High-Frequency Equity Trading

Winners

- HFT firms, if good (high fees), and their clients (returns)
- Investment banks providing the pipes (commissions)
- Stock Exchanges/MTFs (higher trading volumes and fees)
- Buy-Side Execution (Increased liquidity, lower spreads)
- Retail investors (same as above)

Losers

- Bank Proprietary Trading Desks (no longer monopolists)
- Low-Tech, unaffiliated “research”-based brokers (theirs are the spreads HFT eats into)
- Traditional quant and systematic firms (old business/investment models, technology)

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High Frequency Trading: Current and Future Perspectives

- Increasing proportion of daily stock market turn-over (reportedly up to 60% in US)
- Leading to smaller average trade size, lower bid-ask spreads, higher liquidity – especially in high-volatility environment
- Expanding from US to Europe and Asia
- Larger presence of independent asset managers
- Reduction in bank proprietary trading – will it continue?
- Suitable to a wider investor pool if Black Box aversion and structural limitations (i.e. Capacity) are overcome
- Risks: overcrowding, being the next scapegoat – but managers memory of short-selling bans not gone away...

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