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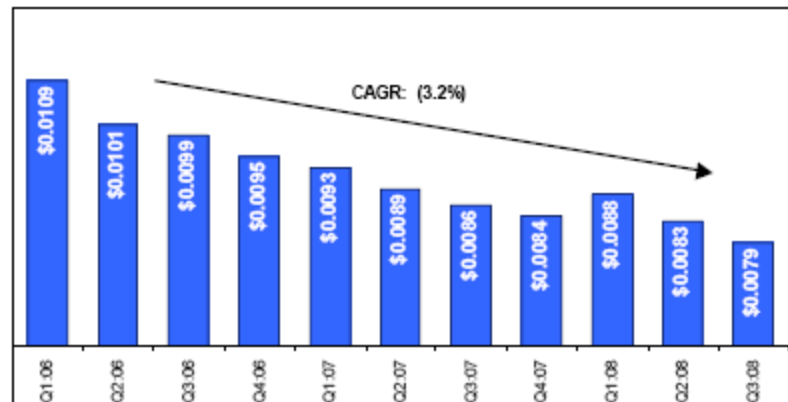
ATS, ECN, Dark-Pool, BATS, LiquidNet – What Next? SkyNet?

“Look... I am not stupid, you know. They cannot make things like that yet.” Sarah Connor, The Terminator (1984 movie).

In the same ways that the fictional Skynet – the computer system that created these android assassins - is antagonistic to the human race, electronic exchanges have a long unsympathetic history with human traders. They queue orders in voluminous batches, they match orders on real time, they report back faster, they're honest, and they provide a level ground field (alas, égalité over fraternité) for any common person who cares to trade. They also put jobbers and floor traders at NYSE, CME, LSE you name them out of their jobs.

In “Terminator-3: Rise of the Machines” the struggle between the human race and robots continue against a more powerful android T-X. In this context, Alternative Trading Systems (ATS) are the new-generation new-improved T-X of Exchanges. In the United States market alone, ATS trade some 40% share of total market equity trades.

ITG: US Revenue Per Trade.

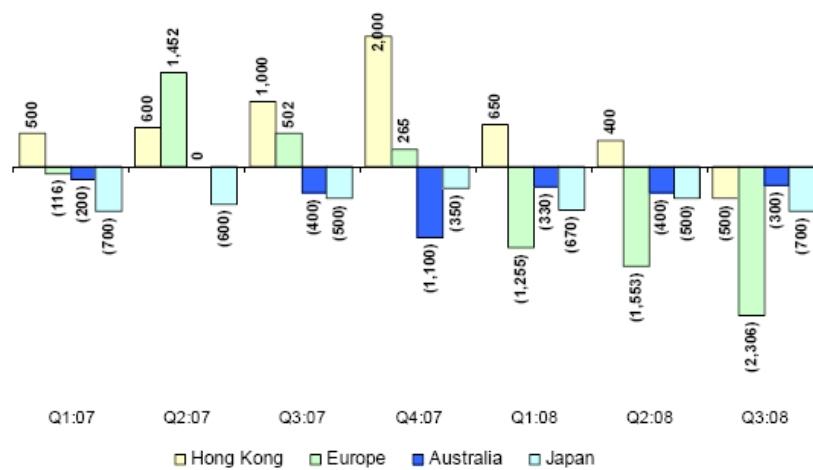


The two prominent features of ATS a.k.a. Multilateral Trading Facilities (MTF) are speed and trading costs which appeal particularly to the statistical arbitrage traders. Take Investment Technology Group (ITG): the revenue per trade in Q3/2008 costs a client for as low as US\$0.0079. This means that ITG traded, shut-an-eye, US\$100 billion in volume to make revenues of US\$790 million in commissions. ITG, however, still currently

command less than 3% market share of US total equity trades by YE2008.

Broadly speaking ATS are split into Crossing Network/Dark Pool and Electronic Communications Network (ECN). The ATS traditionally win their trades from Over-The-Counter (OTC) trades which are “off-market” trades. In markets around the world that are monopolized by an Exchange or oligopolized by Exchanges perhaps by regulations, and thus, no OTC volume, there is no fear of competition from ATS. In Asia, Japan and Hong Kong are the only countries with significant OTC volumes but even then ATS don’t make money out of these markets.

International Profitability By Geography (US\$ '000)



Crossing Network a.k.a. Dark Pools essentially capture their trading volume from OTC trades with a broker or within a pool of brokers. To be clear when Fund-A offers, say, 3 million shares of IBM common at, say, US\$80 a share via Broker-A who also receives an order for 2 million shares of IBM at the same price then 2 million shares will be matched at US\$80 a share. Both the buyer and the seller are in the dark over each other’s offer-bid prices, thus, the Dark Pool. Other algorithms for matching orders include using the mid-point price of National Best Bid and Offer. Because liquidity would be limited with a single broker, Broker-A might then pool itself with Broker-B, C, D and so on to create a larger Dark Pool.

ECNs are ATS that aspire to become full exchanges. ECNs typically act as passive order-matching systems, matching buy and sell orders that have the same prices. Where Dark Pools are “dark” on prices, an ECN is a displayed market just like the traditional exchanges like the NYSE. Dark Pools are “dark” because they are simply electronic orders-matching on the OTC which is not permitted to publish/display prices that might deviate from the traditional exchanges. Unlike stock exchanges, ECNs do not

employ specialists or market-makers to coordinate trades.

Another key to success to these ECNs involve the financial backings from the traditional brokers. After all they are the ones with the orders - OTC other otherwise. Committed order flow from a diverse group of trading entities has allowed these ATS/ECNs to extensively chip away at the New York Stock Exchange (NYSE) and NASDAQ equities duopoly in the U.S. which current stands at 43% combined.

Venue	Shares Traded (billions)	Market Share
Instinet CBX	0.92	0.52%
ITG Posit	1.18	0.66%
Liquidnet	1.74	0.98%
NYFIX Millennium	1.16	0.65%
Pipeline Trading	0.61	0.34%
BNY Convergenx Vortex	0.30	0.17%
Citi Match	2.12	1.19%
Goldman Sachs Sigma X	5.96	3.35%
UBS Pin Cross	1.05	0.59%
Credit Suisse Crossfinder	2.98	1.67%
Knight Link	2.16	1.21%
Lehman LX	2.14	1.20%
Morgan Stanley MS Pool	0.95	0.53%
BIDS Trading	0.52	0.29%
LevelL	1.85	1.04%
BATS	24.99	14.03%
DirectEdge	20.75	11.65%
Total ATS'	71.39	40.09%
NASDAQ Matched	21.72	12.20%
NYSE Matched	54.77	30.76%
Other	30.20	16.96%
Total NYSE & NASDAQ Consolidated Equity Volume	178.08	100%

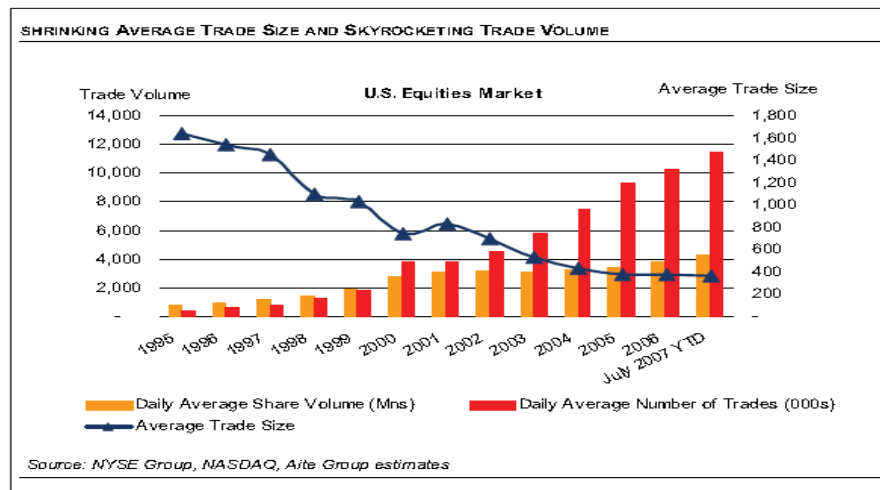
In America BATS and DirectEdge are the market-leaders in ECNs, having grabbed a combined 25% of all matched trades at last count. The leader in Europe is Chi-X, launched in March 2007, and the closest thing to a pan-European electronic market. Chi-X's share of British and German trades tops 13% and 6% respectively. Other platforms, such as the much-hyped

Project Turquoise, are preparing for their launches.

BATS which has 14% of the market is gunning for 20-25% of the total U.S. market for cash equities trading in the next few years, though it adds that the goal is obviously an ambitious one.

Most people talk about BATS' fast technology and innovative pricing, however, another BATS' key success factor is its investors. The most telling measure of the clout maybe the effect that ATS have had on the market share of NYSE and NASDAQ. Less than two years ago, the duopoly had approximately 80% market share, but now its combined market share is approximately 53%.

Alongside the bulge bracket firms on the list of BATS's major backers include: Lime Brokerage, GETCO, and Wedbush. Lime, Wedbush Morgan Securities, Citadel Derivatives Group, and Biremis were some of the top liquidity providers to the NYSE. Historically, the market has seen many big banks investing in a half dozen trading platforms, without committing order flow to one platform, those investments have been too spread out to make a significant difference. On the other hand, the new breed of players including Lime, GETCO and Citadel are really committing order flows to the platform that they either invest in.



With increasing competing platforms, losing the cash equity volume could also post a consequential lost on listing revenues and if the allure of the storied trading floor differentiator is lost, even the listings business may not be safe for neither the NYSE nor the NASDAQ. Both NYSE and NASDAQ realized that they won't win this game with a price war against the upstarts like BATS. It is very hard for them to compete against a firm like BATS, which has such a low cost structure, so going overseas and looking at other asset classes or exchanges to acquire is a strategy they have pursued.

Now that BATS has achieved such considerable market share, the next biggest initiative at BATS will be its registration plan at the Securities and Exchange Commission for exchange status, which was approved in August, 2008. Many believe that BATS is moving on the exchange registration to garner revenue pies that only exchanges can receive, from listing fee and saving money through self-clearing (allowed as an exchange). BATS also pointed out one more key benefit is the ability to control its own quotes in the market. Before becoming an exchange, BATS has to rely on National Stock Exchange or International Stock Exchange to get its quotes out to the consolidated tape. As an ECN it has no other option, but as an exchange, it can control its own quotes, and that may increase the comfort level of some trading business that has stayed away from BATS because of its non-exchange status.

Now that the key users of traditional stock exchange are turning their back away from the stock market, one of the key concerns is what would happen to the market efficiency of the main board that listed the securities themselves. The deterioration of liquidity will likely affect the displayed stock price on the main board. The competition is likely to become even fiercer as these smaller brokers are being allured to become shareholders in the ATS or the ATS themselves could possibly merge.