



Electronic or Floor-Based Trading

A Comprehensive Analysis of the NYSE, Chicago Mercantile Exchange, and the
EuroNext

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Introduction

At a time when the New York Stock Exchange continues its commitment to its trading floor, large and small exchanges throughout the world are replacing their floor-based trading systems with computerized systems. Most of the people at the NYSE believe that the tremendous success of the NYSE is due in large part to its floor-based market structure. Many competitors to the NYSE have electronic screen-based trading systems. These include both domestic and foreign markets like NASDAQ, the Cincinnati Stock Exchange, the Paris Bourse, the Tokyo Stock Exchange and TradePoint. The NYSE also competes with electronic communication networks (ECN's) such as The Island ECN, Archipelago, Reuters' Instinet, POSIT and Optimark. Some of the NYSE's electronic competitors are quickly gaining market share. Concerns about electronic competition coupled with a natural desire to reduce costs and increase efficiency have led the NYSE to invest more than a billion dollars in the last ten years in new electronic technologies to support its floor-based trading systems.

This paper tries to analyze why NYSE and Chicago Mercantile Exchange continue to use their floor based trading in spite of the intense pressure from various Electronic Communications Networks and completely automated exchange like the EuroNext. We will examine the arguments for and against these two trading systems. We will consider how the systems differ in fairness, convenience, capacity, speed, efficiency and cost.

While focusing on automation as the primary parallel movement, the paper also tries to delve into various aspects of market consolidation, as has occurred with the strengthening of the Euro. The role of automated floors such as Euronext in offering more liquidity by bringing together trading volume from different markets is also examined.

Issues at Hand

The discussion of the two types of trading systems can be done by considering issues of fairness, convenience of access, speed, information exchange, cost, listing rules and differences in clearing house rules.

Fairness

Most traders believe that automated trading systems are the fairest of all since the system does what it's programmed to do. On the contrary, fairness in floor trading is dependent on the skill and honesty of the trader who must follow trading rules without fault when the market is active. Even though all oral auctions are fair for the most part, there are well-documented scandals involving front-running, inappropriate order exposure and fraudulent trade assignment.

EuroNext as an exchange is a harmonized floor for trading equities in all European markets. The rulebook is a merged book of rules from various European markets and is compatible and facilitating. Trading hours are designed to accommodate trading hours for most exchanges. The result is the creation of a single order book. The order book contains limit orders from markets from all over Europe, including non-European equities. Less liquid securities will be traded continuously throughout the day as well, provided they are supported by a professional institution that is prepared to add liquidity to the market (liquidity provider). Less liquid securities that have not contracted a liquidity provider will be traded in intra-day auctions (non-continuous trading). This way EuroNext ensures that there is liquidity at any given moment in time. At the same time Euronext creates segments for listed member companies. Segmentation divides the company-space into different sections based on investors' expectations of financial communication and transparency. A very good example is the "Next Economy" segment where in companies wishing to join the segment undertake towards Euronext the fulfillment of additional requirements in terms of trading and accounting.

An important feature in Euronext is a categorized tick size by price level. This is not seen in most large exchanges, For example, for a price level between 0 – 50 euros, the tick size is 0.01 euros and between 250 – 500 euros is 0.5 euro.

Convenience of Access

The biggest plus in moving to an ECN like EuroNext is the consolidation of multiple markets, Paris, Belgium and Netherlands to enhance the ability of investors in these markets greatly.

EuroNext has achieved this by creating a comprehensive database that spans multiple countries. Data vendors, investors, intermediaries and other end-customers, across borders can be offered unique, tailor-made packages of information services. The single derivatives market in EuroNext is a totally screen based market. With this facility private and professional investors can trade optimally in futures and options. This system is available to EuroNext's global alliance members and to other futures and options exchanges. All this leads to enhanced liquidity.

Euronext also allows members to register themselves as offsite terminal providers. This means that members themselves can allow parties to have access to trades on Euronext on their behalf, by installing offsite – terminals at their premises. Violations by the related parties are held against the members that provided the access. A very good implication of offsite is that members of one country can easily expand into another country by designating a related party , and not having to register themselves.

Speed of Negotiation

Although automated trading systems can arrange trades faster than floor-based systems, the latter is suited very well when the traders want to negotiate large orders. When the orders are large, the automated system may not be able to find a willing counter party to fulfill the trade. This can be circumvented by placing hidden limit orders etc but may not match the speed with which an oral auction can be completed.

For Block trades, however, electronic markets such as the Euronext, can provide additional liquidity by classifying block trading into segments, such as the following:

- Exceeds EUR 500,000 in Euronext 100
- Exceeds EUR 250,000 in case of shares included in Next 100 segments
- Exceeds EUR 100,000 in the case of all other shares trading on a continuous basis

Information Exchange

Technology adoption can be considered to be another distinctive characteristic of the EuroNext. Throughout its evolution during the past few years, the exchange has been heavy in the creating of trading products that can be used across platforms and across borders. This way EuroNext has also set financial standards across markets. The **NSC trading system**, developed by EuroNext Paris, and now owned by EuroNext's joint venture ATOS-EuroNext, is the electronic exchange trading system used by more of the world's exchanges than any other. It is a flexible, scalable system with an open architecture.

Clearing activities are provided by **Clearent21**, a consortium formed by the Dutch, Belgium and French clearing agencies. This way a standardized clearing system is used which behind the scenes, ensures individual country driven clearing regulations has been adopted, another way of ensuring that trades are cleared in fairness.

The CME has moved partially into the electronic trading age by implementing its GLOBEX, which has increased in volume 137% from 2000 to 2001. By having this system in place, it allows CME to offer trading nearly 23 hours per day, 5 days a week. In addition, GLOBEX gives CME a global reach across borders to increase its trading volume. Although the majority of transactions still occur via the floor trading method, CME is realizing it must move more towards GLOBEX electronic trading in order to compete with other exchanges.

Costs

Several measures specialize in determining transaction costs at different exchanges. One such measure is the quoted spread. **Kumar Venkatraman** finds that for EuroNext, the average percentage quoted spreads (0.26 %) are significantly lower than NYSE before the reduction in tick size in 1997 (0.31 %). Since trades can occur within the quotes at the NYSE and since quoted spreads only measure execution costs for small trades, a better measure of execution cost is effective spread. The effective spreads are higher in Paris than on NYSE and this difference is even more pronounced after the NYSE reduced its tick size. The difference is about 9 basis points for small trades, 6 basis points for medium size trades and 15 basis points for large orders.

A good gauge if the cost advantages of going to an Electronic Floor such as EuroNext are achieved by comparing it to cost of trading at other European exchanges. The average cost of a trade at the EuroNext is second only to the NYSE. The low costs can be attributed to several factors: Expenses related to floor based trading can be eliminated, a single derivatives trading system, a shared clearing and netting system, one settlement process, and the same membership system, rule book and data dissemination process., gives rise to huge economies of scale and costs can be kept low. For example, cost savings in Information Technology alone due to the consolidation of multiple exchanges amount to Euro 50M a year. The following table summarized the costs at major exchanges:

Rank	Country	1999 Trading Costs (basis points)
1	USA – NYSE	24.55
2	France	24.87
3	Japan	25.07
4	Belgium	27.9
5	USA – AMEX	28
6	Netherlands	28.43
7	Germany	28.73

All of EuroNext’s exchanges (France, Belgium and Netherlands) are within the top 7 exchanges in terms of costs.

Since the CME is share-company, instead of membership, its cost to join varies with the market. Below is a chart of the price of the Class-A membership (shares), as the market dictates.

100% Restricted A Shares + Membership Interest Sales	Bid	Offer	Last	Date
17,999 A + CME	\$695,000	\$800,000	\$750,000	8/1/2002
11,999 A + IMM	\$590,000	\$699,000	\$600,000	7/19/2002
5,999 A + IOM	\$386,000	\$425,000	\$400,000	8/1/2002
99 A + GEM	\$30,000	\$45,000	\$33,000	6/17/2002

Source: <http://www.cme.com>

The following chart shows the different levels of membership the CME offers.

Membership Level	Membership Privileges
Full CME Membership	<ul style="list-style-type: none"> o Can execute trades in: Any contract listed on CME o Trading floor badge: Gold (indicates who they are and what they can trade) o Number of memberships: 625
International Monetary Market Membership (IMM)	<ul style="list-style-type: none"> o Can execute trades in: Foreign exchange, interest rate and stock index futures, and all IMM and IOM (see below) futures and all options. o Trading floor badge: Green o Number of memberships: 813

Index & Option Membership (IOM)	<ul style="list-style-type: none"> ○ Can execute trades in: Index futures contracts, random length lumber contracts, and all options. ○ Trading floor badge: Blue ○ Number of memberships: 1,287
Growth & Emerging Markets Membership (GEM)	<ul style="list-style-type: none"> ○ Can execute trades in: Various products, including those related to emerging market countries ○ Trading floor badge: Gray ○ Number of memberships: 413

Source: <http://www.cme.com>

Listing Rules

NYSE and EuroNext apply strict rules for a company to be listed on its exchange. For example, the NYSE has different listing rules for domestic companies and Non-US companies. The rules are specified in terms of the earnings, average monthly trading volume, global market capitalization etc. A listing of the rules on NYSE for US based companies is provided below.

NYSE Listing Rules

Distribution and Size Criteria

2000 round lot holders (A) or 2200 total-shareholders together with average monthly trading volume of 100,000 shares for the past six months or 500 total shareholders with average monthly trading volume of 1,000,000 shares for the most recent 12 months

Financial Criteria

Aggregate pretax earnings (D) over the last three years of \$6,500,000 achievable as the following:

- Most Recent Year -- \$2,500,000
- Each of Two Preceding Years -- \$2,000,000
- Or Most Recent Year (All three years must be profitable) -- \$4,500,000

Operating Cash Flow Criteria

For Companies with not less than \$500 million in Global market capitalization and \$100 million in revenues in the last 12 months

- Aggregate for the Three Years Operating Cash Flow (E) (each year must report a positive amount) ---- \$25,000,000.

- Global Market Capitalization Revenues for the Last Fiscal Year---\$100,000,000 and Average Global Market Capitalization (F) - \$1,000,000,000

EuroNext Listing Rules

The Euronext approach is based on local access for IPO's and on a common price list for listed securities. Companies seeking a listing on Euronext can choose their entry point from one of the three member exchanges (Amsterdam, Brussels, Paris). This choice then determines their home market and jurisdiction.

Rather than segmenting companies on the basis of regulatory status, Euronext organizes its list in three new segments based on marketing considerations, regardless of the nationality of the issuer. The segments have different rules of jurisdiction and categorize companies based on capital and growth potential – a phenomenon known as exchange within an exchange.

Role of Specialist

Specialists in floor based trading manage the auction process, providing a conduit of information -- electronically quoting and recording current bid and asked prices for the stocks assigned to them. This enables current price information to be transmitted worldwide, keeping all market participants informed of the total supply and demand for any particular listed stock. To a large degree the specialist is responsible for maintaining the market's fairness, competitiveness and efficiency. Specifically, the specialist performs four vital functions: act as catalysts, and auctioneers, stabilize prices, and provide capital.

As a catalyst, the specialists bring buyers and sellers together so that offers to buy can be matched with offer to sell. As auctioneers the specialists establish a fair market price for each of their stocks. The specialists base that price on the supply and demand for the stock. They ensure that trading in the stocks moves smoothly throughout the day, with minimal fluctuation in price.

Specialists act as the liquidity providers of last resort - if buy orders temporarily outpace sell orders in a stock or if sell orders outpace buy orders the specialist is required to use his firm's own capital to minimize the imbalance. This is done by buying or selling against the trend of the market, until a price is reached at which public supply and demand are once again in balance at the Clearing House

The clearinghouse for the CME is different than other exchanges since it primarily trades futures contracts. The CME clearinghouse clears, settles, and guarantees performance of all of the matched transactions. Each day it marks all open positions to market at least twice a day, which includes calling for payments from clearing members whose positions have lost value, and paying clearing members whose positions have gained value.

The CME clearinghouse is set up to ensure all contractual obligations are fulfilled and will only do business with its designated transaction partners. CME serves as the Buyer to every Seller and the Seller to every Buyer, with a clearing member assuming the opposite side of each trade. Each clearinghouse member is fully responsible for all trades he or she executes, whether for their own account or a non-member customer

Exchanges At A Glance

Chicago Mercantile Exchange

The CME is one of the largest futures and options exchanges in the world. Founded in 1898, the CME recently demutualized to become a for-profit shareholder company. The CME owns its own clearinghouse, which enables it to guarantee and clear contracts that are traded on its exchange.

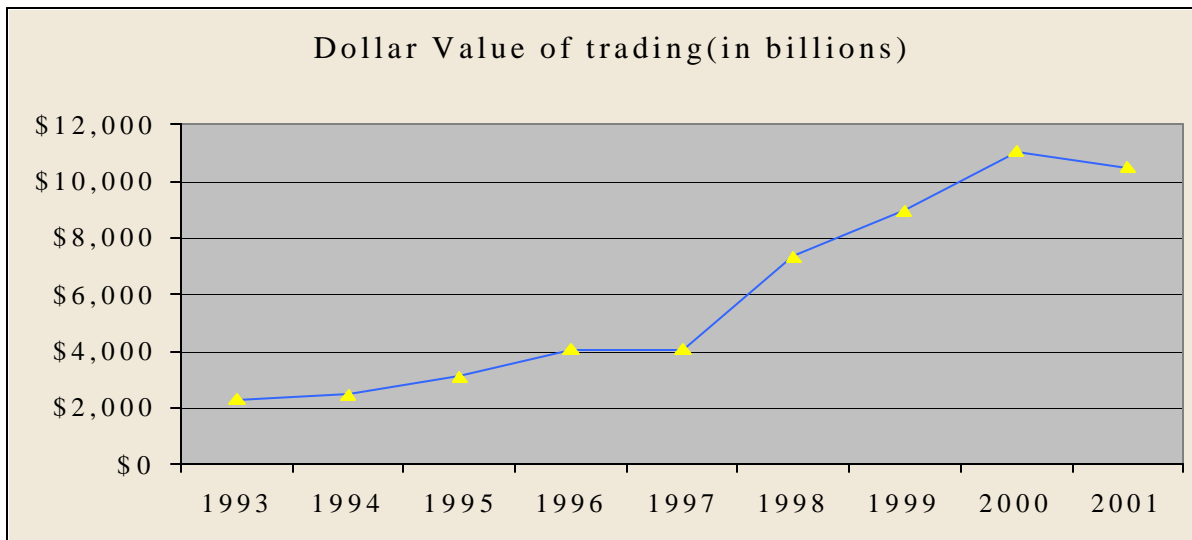
The CME specializes in four product areas: interest rates, stock indexes, foreign exchange and commodities. In 2001, a record 411.7 million contracts with an underlying value of \$294 trillion changed hands at CME. In addition, the CME move an average of \$1.5 billion a day in settlement payments.

At the Chicago Mercantile Exchange (CME), trading is still done as it has been done for decades. “Open Outcry” is the term used as each trade is done face to face. Although CME has ventured into the electronic age, it has yet to implement a full electronic trading floor. In 1989, the CBOT and the CME had a combined 46% market share of futures trading. As of the close of 2001, the market share for these exchanges had dropped to a combined share of 21%. New electronic futures exchanges have started to take market share away by providing lower costs to the investors and faster trades. Currently, electronic trading at the CME accounts for only 20%; however, electronic trading volume is up 137% from the previous year, while floor-trading volume for the same time period increased only 70%. The primary issue for CME to resolve is whether or not to phase out floor trading and migrate to electronic trading. Clearly the technology is available and competition from other electronic exchanges is forcing the CME to take a close look at this issue.

NYSE

The New York Stock Exchange (NYSE), the largest equities marketplace in the world, is home to some 2,800 companies valued at about \$15 trillion in global market capitalization. These companies include a cross-section of leading U.S. companies, midsize and small capitalization companies. Non-U.S. issuer’s plays an increasingly important role on the NYSE with more than 465 non-U.S. companies is valued at nearly \$5 trillion.

The NYSE reported share volume in round lots totaled 307.5 billion shares, a 17.1% increase over the 262.5 billion shares in 2000. Dollar value of reported volume totaled \$10,489.3 billion, a decrease of 5.2% from the previous year. Following is some data about the NYSE volume in terms of number shares traded and the dollar value of the shares traded.

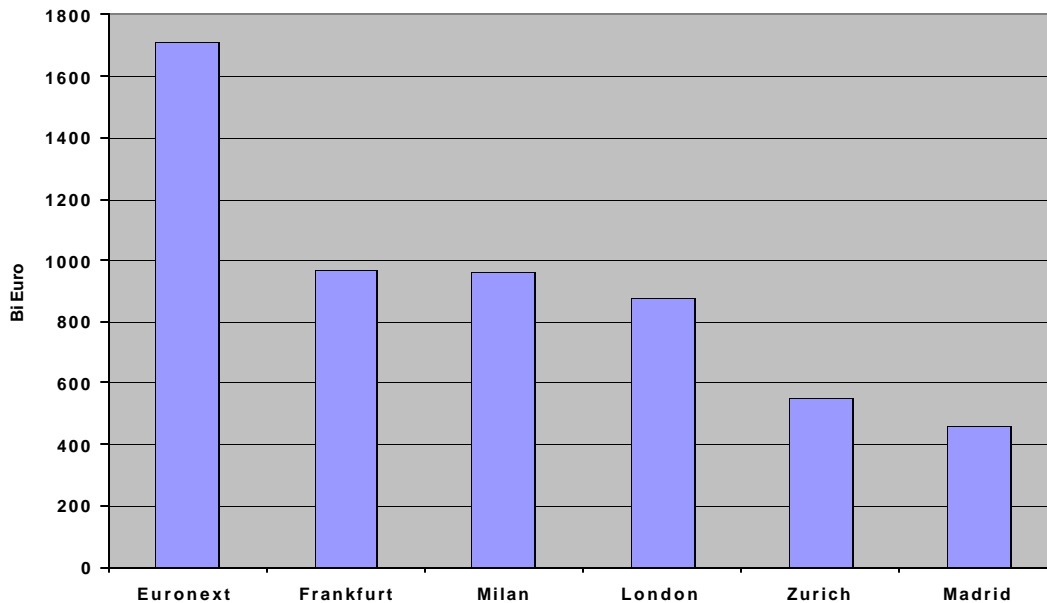


EuroNext

The EuroNext can truly be considered to be a gateway for Europe's fast growth companies to achieve the volume of three major markets and also minimize on trading costs. As a result, over 40% of companies registered in the Euronext were companies in the technology/software sector. In the entire Europe, this volume represents about 40% of world trade and 10 million retail investors. The volume of trading is about 30 % of NASDAQ in its first two years of existence.

The following table reflects the high paced growth of the Euronext compared to traditional European markets. Clearly consolidation of the multi – market volumes has provided much more liquidity overall.

European Cash Markets 2001



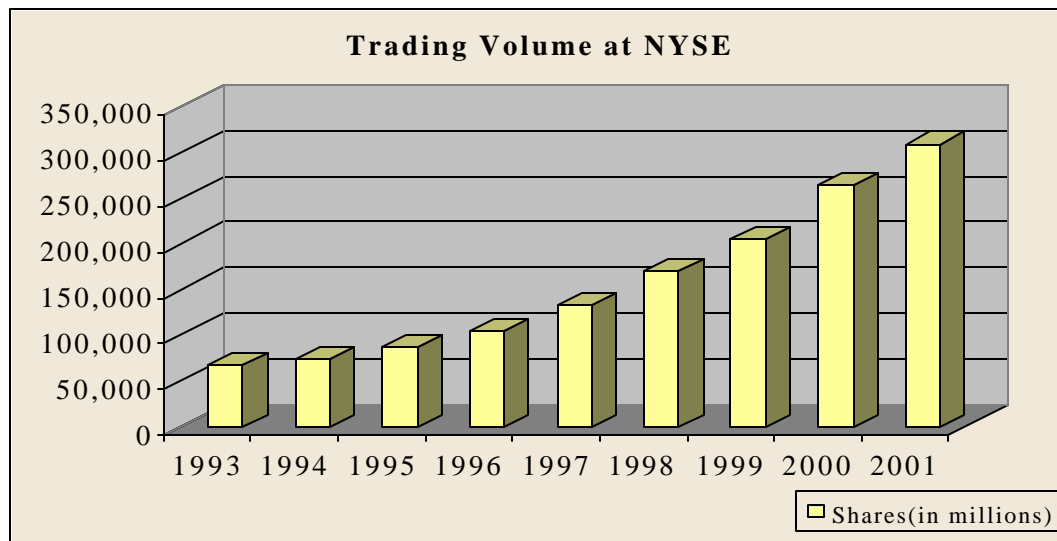
Conclusion

In analyzing the three major exchanges, this paper has placed them next to each other and compared them on the basis of attributes, investors look at when deciding to enroll or list their firms in an exchange. Prominently, whereas the NYSE still commands the highest volume among all three, Euronext clearly supersedes in the relative growth. However we feel that this could be because of more lenient listing rules and incentives for low market cap. – high growth firms – a phenomenon similar to the emergence of NASDAQ in the US.

In terms of cost we have seen how, consolidation and technology adoption could dramatically bring down costs, but have yet to see this in reality, since average costs of execution are lower at the NYSE.

The movement of exchanges towards instant information has been rapid, starting with the subsecond trade disclosure at NYSE, to the concept of the electronic – specialist at Euronext. This is clearly a direction exchanges are headed in, and the Euronext and other ECNs have a huge competitive

advantage. Consolidation of financial markets into large volume specific markets may result in the exit of smaller exchanges and we believe most markets are headed in that direction.



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