

THE STOCK EXCHANGES OF THE UNITED STATES AND EUROPE: AUTOMATION, GLOBALIZATION, AND CONSOLIDATION

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1. INTRODUCTION

The stock market has become an important part of our lives. The New York Stock Exchange ("NYSE") estimates that in 1998, 84 million Americans, or 44% of the adult population, owned shares of stock directly or through mutual funds or pension plans.¹ And adults are not the only people who own shares. The New York Times reports that 200,000 American teenagers may be speculating in the stock market and that brokerage-firm officials are giving investment seminars to third graders, thus assuring the existence of the next generation of investors.² Stock market fever has also spread to Europe, where many people who had previously put their savings in bank accounts or real estate are now buying shares of stock.³ During the past decade, the equity markets of the west-

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¹ Data collected by the NYSE showed that in 1998, 34 million individuals directly owned shares in publicly traded companies, 27 million owned shares in equity mutual funds, 34 million owned shares through self-directed retirement plans, and 48 million owned shares through defined contribution pension plans. After accounting for the overlap among these four methods of ownership, the NYSE estimated that 84 million individuals held shares of stock through at least one of these channels, and 3 million hold stock through all four channels. NYSE, *SHAREOWNERSHIP 2000*, 10 (2000).

² Randall Lane, *In High School, Hallways Buzz With Stock Tips*, N.Y. TIMES, Jan. 14, 2001, § 3, at 1.

³ For example, between 1997 and 2000 the number of shareholders in Germany increased from 3.9 million to 6.2 million. Bettina Wassener, *International Capital Markets: Deutsche Börse to Put Prices Online*, FIN. TIMES (London), Dec. 6, 2000, at 40.

ern European companies have, for the first time, become an important factor in the economies of these countries.

As the world moves toward a global economy, the movement of capital through the stock exchanges is no longer limited by national boundaries. The European stock exchanges are rushing headlong to consolidate.⁴ The adoption of the euro as the common currency of eleven of the countries in the European Union has stimulated cross-border trading of securities by eliminating currency risks.⁵ The international investment banks and institutional managers that control a large proportion of the flow of orders to buy and sell securities are pushing the European national stock exchanges toward a Pan-European stock exchange, with the goals of reducing transaction costs and enabling investors throughout Europe to buy and sell stocks of leading European companies in a single electronic market.⁶

Taking the notion of international consolidation one step further, international investment banks and institutional investors envision a unified market for the stocks of the world's largest companies, which would be accessible to investors everywhere.⁷ Furthermore, the two largest American stock markets, the NYSE and the Nasdaq over-the-counter market, i.e., the market for stocks

⁴ Terzah Ewing & Silvia Ascarelli, *One World, How Many Stock Exchanges?*, WALL ST. J., May 15, 2000, at C1 (explaining the push toward global stock market consolidation).

⁵ The consequences of eleven countries adopting the euro has been described as follows:

[T]he creation of a currency shared by 11 countries is creating bigger and more-liquid European stock and bond markets, including a junk-bond market that is opening global financial markets to companies that were never before welcomed. The maturing capital market is reducing the cost of capital in Europe, liberating corporate borrowers from dependence on banks, and making acquisitions much easier to finance.

G. Thomas Sims & David Wessel, *The Euro: A Dismal Failure, a Ringing Success*, WALL ST. J., Nov. 6, 2000, at A29.

⁶ See Silvia Ascarelli, *New Consolidation Wave Likely Will Hit European Exchanges*, WALL ST. J., June 25, 2001, at C11; Vincent Boland, *Heat is on to Create Pan-Regional Market*, FIN. TIMES (London), Mar. 31, 2000, at II (discussing potential consolidation of European stock exchanges); Nicholas George, *'Blue Chip Exchange is Needed'*, FIN. TIMES (London), Jan. 18, 2000, at 26 (discussing the demand for a single pan-European blue chip stock exchange).

⁷ Astrid Wendlandt, *Winner Gets to Rule the World*, FIN. TIMES (London), Mar. 31, 2000, at 5 ("For me, the end game will be the creation of a centralized stock market that will trade the world's top 300 to 500 stocks.") (quoting Barry Marshall, head of dealing at Gartmore Investment Management).

that are not listed on any exchange, appear to be moving toward establishing links with European stock markets.⁸ In theory, a unified world stock market would enable pools of capital, wherever they are to be found, to be directed into the most productive uses available anywhere in the world, a result that should enhance efficiency and productivity.

Faced with competition from a growing number of electronic communications networks ("ECNs"), which are organized as business corporations and are able to offer speedier execution of transactions and lower costs, the world's stock exchanges have had to reexamine their functions and their very identities.⁹ Traditionally, stock exchanges were comfortable membership organizations, which received a measure of protection from competition from their national governments.¹⁰ Today, stock exchanges increasingly see themselves as facilities for executing (and perhaps clearing and settling) transactions, which must compete aggressively in offering their services, not only with other exchanges, but with ECNs as well. In fact, the world's stock exchanges, many of which have al-

⁸ See Aline van Duyn, Bayan Rahman, & John Labate, *Ten Stock Exchanges Consider Alliance*, FIN. TIMES (London), June 8, 2000, at 1 (stating that the NYSE is in talks with stock exchanges in Europe, Asia, Canada, and Latin America to create a global market where blue-chip stocks can be traded around the clock); Greg Ip, *Nasdaq Looks to Europe: Are Preparations A Prelude to a Bid for London Exchange?*, WALL ST. J., Nov. 1, 2000, at C1 [hereinafter Ip, *Nasdaq Looks to Europe?*] (discussing Nasdaq's efforts to establish itself in Europe); John Labate & Vincent Boland, *Nasdaq Attempts to Lure London Exchange*, FIN. TIMES (London), Dec. 16, 2000, at 16 (explaining the Nasdaq CEO's efforts to realize his vision of a twenty-four hour global stock market).

⁹ Technology has led to advances in the way stock exchanges function.

Technology has made it possible for information regarding stock prices to be sent all over the world in seconds. Presently, computers route orders and execute small trades directly from the brokerage firm's terminal to the exchange. Computers now link together various stock exchanges, a practice which is helping to create a single global market for the trading of securities. The continuing improvements in technology will make it possible to execute trades globally by electronic trading systems.

Lewis D. Solomon & Louise Corso, *The Impact of Technology on the Trading of Securities: the Emerging Global Market and the Implications for Regulation*, 24 J. MARSHALL L. REV. 299, 299 (1991).

¹⁰ See James K. Glassman, *Manager's Journal: Who Needs Stock Exchanges? Not Investors.*, WALL ST. J., May 8, 2000, at A42 ("Exchanges are at last being exposed as anachronisms, sustained by inertia and by the desire of incumbents, with help from regulators, to keep raking in monopoly rents. But the curtain is coming down.").

ready become for-profit business corporations, are transforming themselves into ECNs.

This essay examines the structural and regulatory changes that have already taken place, and that are currently taking place, in the U.S. and European stock exchanges. These changes are dramatic, and they are occurring with breathtaking speed. As in other industries, we are seeing the forces of consolidation and globalization at work, made possible by a technology that has already enabled most of the world's stock exchanges to replace their trading floors with ECNs. This essay also examines the institutional, structural, and regulatory obstacles that inhibit movement toward a world stock market.

2. THE STOCK EXCHANGES OF THE UNITED STATES AND EUROPE

The world's two largest stock markets, measured by market capitalization,¹¹ are in the United States: the NYSE, with a market capitalization of \$12.4 trillion, and Nasdaq, with a market capitalization of \$3.6 trillion.¹² Approximately 3,000 companies, of which approximately 400 are foreign companies, have their common stocks listed on the NYSE, while the stocks of approximately 5,000 companies are traded on Nasdaq.¹³ Technically speaking, the Nasdaq market is not an exchange; it is an electronic market run by the National Association of Securities Dealers ("NASD"),¹⁴ the self-regulatory organization that regulates the U.S. over-the-counter market.¹⁵ For purposes of this essay, however, Nasdaq may be

¹¹ Market capitalization means the aggregate number of issued and outstanding shares of common stock of companies that are listed on the exchange, multiplied by the current market price of these shares. JOHN DOWNES & JORDAN ELLIOT GOODMAN, *DICTIONARY OF FINANCE AND INVESTMENT TERMS* 349 (5th ed. 1998).

¹² SEC. INDUS. ASS'N, *SECURITIES INDUSTRY FACT BOOK* 48 (2001).

¹³ *Id.*; see also NYSE FACT BOOK, 2000 DATA 42, 62 (2001) (providing NYSE statistics).

¹⁴ Unlike the NYSE and other U.S. exchanges, the NASD is registered with the SEC as a national securities association, not as a national securities exchange. However, the legal obligations imposed on exchanges and associations are comparable. See Securities Exchange Act §§ 6, 11A, 15 U.S.C. §§ 78f, 78k-1 (1994) (listing terms and conditions required for registration as a national securities exchange as well as legal obligations of securities information processors).

¹⁵ There is also a substantial amount of Nasdaq trading in stocks listed on the NYSE. For example, on February 16, 2001, of the total volume of trading in NYSE-listed stocks of 1.48 billion shares, 1.26 billion shares, or 85.1%, were traded on the NYSE and 106 million shares, or 7.2%, were traded on Nasdaq. The remaining

considered an exchange, since its economic function—providing liquidity and setting securities prices—is identical to that of a stock exchange. In fact, Nasdaq's trading system is similar to that of some of the European stock exchanges, including the London Stock Exchange ("LSE").¹⁶

The European exchanges no longer look anything like traditional stock exchanges. Unlike the major stock exchanges in the United States, they have eliminated their trading floors in favor of electronic trading. The colorful, noisy, and exciting atmosphere of the trading floor, shown in countless movies and still photographs, has given way to a less dramatic picture of people sitting at their desks, watching screens, and punching keys on a keyboard. Also, most of the European exchanges have demutualized; that is, they have transformed themselves from membership organizations into stock companies, and some of them have taken the additional step of selling their shares to the public with plans to become listed companies themselves.¹⁷

As of October 2000, the largest European stock exchange was the LSE, with a market capitalization of \$2.9 trillion.¹⁸ More than

7.7% of the trading in NYSE-listed stocks was executed on five regional stock exchanges. A total of 1.85 billion shares were traded on Nasdaq that day. *Market Indicators*, N.Y. TIMES, Feb. 17, 2001, at C4.

¹⁶ Nasdaq was established in 1971 as an electronic system for disseminating bid and asked quotations of competing market-makers, but market participants actually executed transactions by contacting each other over the telephone. Beginning in 1984, however, Nasdaq has operated several trading systems that automatically execute transactions. The principal trading systems used are the Small Order Execution System ("SOES"), which is used to execute orders of up to 1,000 shares, and SelectNet, which can be used to execute orders of any size. See JEFFREY W. SMITH ET. AL, *THE NASDAQ STOCK MARKET: HISTORICAL BACKGROUND AND CURRENT OPERATION* 7, 32-36 (NASD Working Paper 98-01, 1998), at 7, 32-36, available at http://www.academic.nasdaq.com/docs/wp98_01.pdf (discussing the history, governance, operation, and future of Nasdaq operations).

¹⁷ As of October 2001, seven major stock exchanges are run by publicly owned companies: London; Frankfurt; Stockholm; Hong Kong; Singapore; Australia; and Euronext, the combined Paris, Brussels, and Amsterdam exchange. Vincent Boland, *Takeover Premium Likely to Keep LSE Shares on a High*, FIN. TIMES (London), July 20, 2001, at 25; Raphael Minder, *Flotation by Euronext to Raise £700M*, FIN. TIMES (London), July 5, 2001, at 28; *Deutsche Börse Shares Jump*, N.Y. TIMES, Feb. 6, 2001, at W1; see Bettina Wassener, *Driving Ambition for a Listed Deutsche Börse*, FIN. TIMES (London), Jan. 22, 2001, at 32 [hereinafter Wassener, *Driving Ambition*] (explaining company's ambition to consolidate European stock markets).

¹⁸ Federation of European Stock Exchanges, *Information and Statistics, October 2000*, Table 2, at <http://www.fese.be/statistics/home.htm> (last visited October 26, 2001) [hereinafter *Federation of European Stock Exchanges*].

12,160 securities are traded on the LSE, which provides a market for the stocks of many foreign companies as well as U.K. companies.¹⁹ In 1986, the LSE led the way towards the modernization of the European stock exchanges by becoming the first major exchange to abandon the traditional trading floor in favor of electronic trading.²⁰ Nevertheless, the LSE has stumbled in recent years. Once the "king" of European exchanges, "[the LSE] has blown what once appeared an unassailable lead through technological missteps and botched projects."²¹ Unlike most of the other European exchanges, it does not offer an integrated trading, clearing, and settlement service, and its costs of trading are higher than on other exchanges.²²

The year 2000 was traumatic for the LSE. The exchange demutualized, transforming itself from a member-owned organization into a publicly-held company, whose shares are traded in the over-the-counter market. Later in the year, the LSE and Deutsche Börse, the company that owns the Frankfurt Stock Exchange, proposed to merge.²³ If the merger had been consummated, the re-

¹⁹ London Stock Exchange, Membership and Trading Services *The Exchange's Market*, at <http://www.londonstockexchange.com/trading/market/default.asp> (last visited Nov. 15, 2000).

²⁰ See NORMAN S. POSER, INTERNATIONAL SECURITIES REGULATION: LONDON'S "BIG BANG" AND THE EUROPEAN SECURITIES MARKETS 47-49 (1991) [hereinafter POSER, BIG BANG] (describing LSE's motives for switching to electronic trading); David White, *Predator Exchange that Became the Prey*, FIN. TIMES (London), Oct. 20, 2000, at 12 (discussing a hostile cross-border takeover bid for the LSE, the abandonment of plans to merge with Frankfurt, insurgency among shareholders, and the resignation of the LSE's chief executive).

²¹ Erik Portanger & Vanessa Fuhrmans, *How It Became a Foggy Day on the London Exchange*, WALL ST. J., Nov. 2, 2000, at C1.

Until European bourses began investing heavily in technology in the early 1990s, Seaq International [the LSE's trading system] was the main platform for international share trading. But the LSE stopped investing in it and surrendered its market share without a fight—evidence of how out of touch it has been since Big Bang.

Vincent Boland, *Securing a Future*, FIN. TIMES (London), Mar. 5, 2001, at 22.

²² See Vincent Boland, *A Share in the Future*, FIN. TIMES (London), Jan. 18, 2000, at 19 [hereinafter Boland, *A Share in the Future*] (exploring whether the LSE can cast off conservatism to dominate pan-European trading).

²³ See *After iX*, FIN. TIMES (London), Sept. 11, 2000, at 24 (discussing vague future of exchanges if iX deal fails); Silvia Ascarelli & Vanessa Fuhrmans, *LSE Abandons Plan to Merge With Frankfurt*, WALL ST. J., Sept. 13, 2000, at A21 (discussing LSE's retreat from proposed merger); Silvia Ascarelli & James R. Hagerty, *London Stock Exchange Leaders Raked Over the Coals by Brokers*, WALL ST. J., Sept. 15, 2000, at A17 (discussing anger of exchange owners stemming from failure of

sulting market, which was to be named "iX," might well have expanded into other countries and become a pan-European stock market. It would probably have been dominated by Deutsche Börse and its aggressive chief executive, Werner Seifert. Nevertheless, the iX merger would not have created an integrated market for the securities traded on the two exchanges. Under the plan, blue chip stocks would have been traded in London, while the stocks of smaller growth companies would have been traded in Frankfurt. In September 2000, however, the LSE abandoned the proposed merger.²⁴

The London-Frankfurt merger failed partly because several LSE members were unwilling to lose the business of trading in growth stocks, partly because the LSE managers were reluctant to cede control of the exchange to Deutsche Börse, and partly because of the incompatibility of German and U.K. regulations.²⁵ Following the collapse of the merger, OM Gruppen, a Swedish company that operates the Stockholm Stock Exchange, made a \$1.19 billion bid to take over the LSE, but this too failed because of opposition from the LSE's shareholders.²⁶ Although the LSE's management

merger efforts); James R. Hagerty & Vanessa Fuhrmans, *Pan-European Stock-Market Plans Shaky*, WALL ST. J., Aug. 24, 2000, at A19 (exploring shareholder disapproval of proposed merger).

²⁴ Ascarelli & Fuhrmans, *supra* note 23, at A21.

²⁵ Vincent Boland & Francesco Guerrera, *FSA Staff Brand iX Plan 'A Nightmare'*, FIN. TIMES (London), Sept. 8, 2000, at 1; Francesco Guerrera & Aline van Duyn, *Unsinkable Merger Now Titanic of Big Deals*, FIN. TIMES (London), Sept. 13, 2000, at 5. Following the demise of the iX merger, shareholders "berate[d] the LSE's board and call[ed] for senior officials to resign." Ascarelli & Hagerty, *supra* note 23, at A17. In January 2001, the LSE appointed as its new chief executive, a former commodities trader (and a woman) and replaced several members of its governing board with persons from outside the financial industry. These moves were seen by many as reflecting a desire by the exchange to break with its traditional past. See Silvia Ascarelli, *London Bourse is Set to Trade Tradition For Neutrality, Naming Outsider as CEO*, WALL ST. J., Jan. 24, 2001, at A17 (discussing the appointment of Clara Furse as CEO of the London Stock Exchange); Silvia Ascarelli, *London Bourse Veers Further From Bankers*, WALL ST. J., Jan. 25, 2001, at A16 (discussing appointment of Clara Furse as CEO of the LSE and the replacement of four nonexecutive members of the LSE's management board with nonbankers); Vincent Boland, *A Single-Minded Manager*, FIN. TIMES (London), Jan. 27, 2001, at 11 (stating that the first female CEO of the LSE, Clara Furse is "one tough woman" and she will need to "combine that with a sense of strategy").

For more on the proposed merger and its aftermath, see *After iX*, *supra* note 23, at 24; Ascarelli & Fuhrmans, *supra* note 23, at A21; Ascarelli & Hagerty, *supra* note 23, at A17; Hagerty & Fuhrmans, *supra* note 23, at A19.

²⁶ Erik Portanger, *Exchange in London Now in Play*, WALL ST. J., Aug. 30, 2000, at A18; see Silvia Ascarelli, *Swedes Set Formal Bid for the LSE*, WALL ST. J., Sept. 12,

expressed a determination to keep the exchange independent, rumors of foreign entities interested in acquiring the exchange were fueled by dissension between the exchange's management and its shareholders, most of whom are brokerage firms.²⁷

Euronext, with a market capitalization of \$2.4 trillion, is the second largest European exchange. This new exchange reflects the Paris Bourse's effort to direct and control the development of a pan-European securities market, and to create a single market for equities, options, derivatives, and commodities.²⁸ Euronext is the result of a September 2000 merger of the Paris, Amsterdam, and Brussels exchanges.²⁹ Euronext claims to be the first integrated European stock and derivatives market. It has a centralized, order-driven trading system and a central clearing organization, which not only will clear and settle transactions on a net basis, but will also guarantee their performance. However, stocks will be divided into four groups, according to the size of their capitalization and amount of trading activity, and each group will be traded somewhat differently.³⁰ Euronext estimates that it will accomplish cost savings "to Euro 50 million a year mainly from savings in infor-

2000, at A21 (discussing the LSE's rejection of OM's offer); Vincent Boland, *LSE Sees Off OM's Takeover Attempt*, FIN. TIMES (London), Nov. 11, 2000, at 1 (talking about keeping the LSE independent after shareholders rejected a possible takeover by OM Group).

²⁷ Silvia Ascarelli, *London Bourse Has Long Row To Hoe as Bid By OM Lapses*, WALL ST. J., Nov. 10, 2000, at A15; Vincent Boland, *LSE Chairman 'Doubts Prospect' of Merger*, FIN. TIMES (London), Oct. 26, 2000, at 2; Vincent Boland, *LSE to 'Go-it-Alone' for Trading Shares in Europe*, FIN. TIMES (London), Oct. 20, 2000, at 25; Vincent Boland & John Labate, *Nasdaq Steps Up Pressure on LSE*, FIN. TIMES (London), Dec. 14, 2000, at 26; Nicholas George, *OM Group Wants to Renew Offer for LSE*, FIN. TIMES (London), Dec. 22, 2000, at 24; Hagerty & Fuhrmans, *supra* note 23, at A19 (discussing potential buyers of the LSE); James R. Hagerty, Charles Goldsmith, & John Carreyou, *New Suitors Are Circling U.K. Bourse*, WALL ST. J., Sept. 5, 2000, at A25; Ip, *Nasdaq Looks to Europe*, *supra* note 8, at C1; Portanger, *supra* note 26, at A18; see also Vincent Boland, *LSE Rift on Chief Executive*, FIN. TIMES (London), Dec. 20, 2000, at 27 (discussing the potential for a further delay in the appointment of a new chief executive due to LSE directors' disagreement).

²⁸ See Samer Iskandar, *Paris Bids for Europe's Crown*, FIN. TIMES (London), Nov. 10, 2000, at 1 (deploring the modernization of French capitalism as France's blue-chip companies create a platform to challenge their European rivals).

²⁹ *Federation of European Stock Exchanges*, *supra* note 18 (stating that euros have been converted into dollars at the current rate of exchange).

³⁰ Euronext, *Euronext Comprehensive Paper*, at http://www.euronext.com/nl/euronextinfo/publications/comprehensive_paper/ (last visited Oct. 13, 2001) [hereinafter *Euronext Comprehensive Paper*].

mation technology.”³¹ A demutualized stock exchange, Euronext made a public offering of its own shares in July 2001.³²

A broker who has been admitted to membership in any of Euronext’s three component exchanges will have access to all products traded in the Euronext market. Trading regulations and listing requirements of the three exchanges will be harmonized. A broker licensed in one market “will automatically receive a passport to operate in another Euronext country as well.” Nevertheless, a brokerage firm which participates in the Euronext market will continue to be subject to the supervision of the regulator of the country in which it was granted its license. Euronext envisages extending its operations to other European exchanges, with the goal of becoming the nucleus of a single financial market for the countries of the European Union.³³

The Frankfurt Stock Exchange, with a market capitalization of \$1.4 trillion, is Europe’s third largest exchange.³⁴ The exchange is owned by Deutsche Börse (“DB”), whose principal shareholder is Deutsche Bank. DB also operates the Neuer Markt, a market for the stocks of high-growth companies. In addition, DB and the Swiss Exchange jointly own Eurex, the world’s largest futures market.³⁵ DB also licenses its Xetra electronic trading system to

³¹ Euronext, *In Brief*, at http://www.euronext.com/en/euronext/in_brief/ (last visited Oct. 13, 2001) [hereinafter *Euronext History*].

³² See Minder, *supra* note 17, at 28.

³³ *Euronext Comprehensive Paper*, *supra* note 30. Euronext announced that it intended “to interconnect the trading systems of [the NYSE, Australian Stock Exchange and the exchanges of Tokyo, Toronto, Mexico, and Sao Paulo] to form a transparent market with one single orderbook.” *Euronext History*, *supra* note 31; see also Philip Davis, *Three Goes into One Exchange*, FIN. TIMES (London), Nov. 21, 2000, at 5 (“Euronext sees itself as a ‘consolidator’”); Deborah Hargreaves, *Europe: Plea on Single Financial Market*, FIN. TIMES (London), Nov. 8, 2000, at 11 (“The European Commission will . . . call for countries to make a ‘quantum leap’ by agreeing measures to complete the single financial market by 2005.”).

The Warsaw Stock Exchange, whose trading system uses the same technology as Euronext, is considering a plan to establish a linkage with that exchange. John Reed, *Warsaw Bourse Considers Two Alliances*, FIN. TIMES (London), Mar. 19, 2001, at 20.

³⁴ *Federation of European Stock Exchanges*, *supra* note 18 (discussing how euros have been converted into dollars at the current rate of exchange).

³⁵ See Iskandar, *supra* note 28, at I (emphasizing Eurex’s position as the world’s largest derivatives market); Eurex, *The World’s Leading Derivatives Exchange*, at http://www.eurexchange.com/index2.html?eh&1&entrancehall/about_mission_en.html (last visited Oct. 13, 2001) (asserting that Eurex is the world’s leading derivatives exchange).

other exchanges.³⁶ In 2000, DB joined with Wiener Börse, the Viennese exchange, to establish Newex, a new electronic stock exchange, which is aimed at capturing a slice of the trading in Polish, Czech, and Hungarian stocks.³⁷ In February 2001, DB became a publicly owned company through a successful offering of its shares.³⁸ Although the merger with the LSE fell through, DB is considered by many to be Europe's most dynamic stock exchange.³⁹

After London, Euronext, and Frankfurt, the other leading European stock exchanges are the Italian Exchange, with a market capitalization of \$806 billion, and the Swiss Exchange, with a market capitalization of \$791 billion.⁴⁰ Another potentially important factor in the European securities markets is OM Group, a Swedish company that controls the Stockholm Stock Exchange. Although OM Group failed in its bid to take over the LSE, it created Norex in 1999. Norex is a strategic combination of the Stockholm and Copenhagen exchanges, which became the world's first cross-border equity market operating under common rules and a common trading system. Furthermore, under OM Group's leadership,

³⁶ Hoover's Online, *Deutsche Börse AG*, at <http://www.hoovers.com/uk/co/capsule/5/0,2163,100725,00.html> (last visited Dec. 6, 2000) [hereinafter *Deutsche Börse AG*].

³⁷ John Reed et al., *Unified Trading Faces Battle to Justify Worth*, FIN. TIMES (London), Nov. 2, 2000, at 43.

³⁸ Silvia Ascarelli, *Deutsche Boerse Stages its IPO; Shares Climb 11% in First Session*, WALL ST. J., Feb. 6, 2001, at C20; Bettina Wassener, *Deutsche Börse Climbs 10% on Opening Day*, FIN. TIMES (London), Feb. 6, 2001, at 19; Bettina Wassener, *Deutsche Börse IPO in Demand*, FIN. TIMES (London), Feb. 5, 2001, at 15.

³⁹ Nevertheless, after the failure of the proposed merger with the LSE, Deutsche Börse has, at least for the time being, abandoned its ambition of being the nucleus of a pan-European market. Instead, it is concentrating on acting "as the operator—but not owner—of smaller national stock exchanges . . ." Silvia Ascarelli, *German Bourse Cuts Back Plans As Net Doubles*, WALL ST. J., Mar. 21, 2001, at A19; see also Vincent Boland, *Deutsche Börse Puts Sentiment on New Issue Market to the Test*, FIN. TIMES (London), Feb. 2, 2001, at 29 (raising concerns regarding Deutsche Börse's ability to strike agreement with its global partners); Wassener, *Driving Ambition*, *supra* note 17, at 24 (commenting upon the failure to merge the Frankfurt Exchange and the London Stock Exchange and evaluating its effect upon the Deutsche Börse); Bettina Wassener & Vincent Boland, *Deutsche Börse Chief Awaits Chance to Test the Market*, FIN. TIMES (London), Jan. 18, 2001, at 29 (debating the feasibility of Deutsche Börse's alleged plans regarding consolidation of the European Stock Exchange).

⁴⁰ *Federation of European Stock Exchanges*, *supra* note 18 (discussing how euros have been converted into dollars at the current rate of exchange).

Norex promises to become the nucleus of a broader Nordic exchange.⁴¹

3. ELECTRONIC COMMUNICATIONS NETWORKS

The late 1990s saw the appearance of several ECNs, both in the United States and in Europe, which promised to compete with the established securities markets by offering cheaper, quicker, and more efficient execution of transactions than could be effected on an organized stock exchange.⁴² ECNs are similar to stock exchanges, in that they are designed to allow buyers and sellers to meet and are operated by a third party.⁴³ By September 1999, an estimated thirty percent of the trading in securities admitted to the Nasdaq system, and four percent of the trading in exchange-listed securities, was done on ECNs.⁴⁴ The competitiveness of ECNs in listed securities is likely to be enhanced by the NYSE's repeal, in 2000, of its Rule 390, which severely limited the ability of member firms to trade in listed stocks off the exchange.⁴⁵

⁴¹ Copenhagen Stock Exchange, *Membership*, at <http://www.xcse.dk/uk/arked/medlemskab/index.asp> (last visited Oct. 13, 2001). In market capitalization, Norex is the fifth largest equity market. *Id.* The stock exchanges of Norway, Iceland, and the Baltic countries have expressed their intent to join Norex, and Finland has been invited to join. Clare MacCarthy, *Team Spirit Brings Gains All Round*, FIN. TIMES (London), Oct. 31, 2000, at 4.

⁴² In late 1999, there were nine ECNs in the United States, the largest (and oldest) of which, Instinet, accounted for fifty percent of the shares that traded on ECNs. The next largest after Instinet was Island, which accounted for twenty percent, and then Archipelago, which accounted for eight percent. *Rethinking Wall Street*, BUS. WK., Oct. 11, 1999, at 146.

⁴³ See SMITH ET AL., *supra* note 16, at 36 (discussing how alternative trading systems are similar to exchanges). In its recent releases, the Department of Economic Research uses the term "alternative trading system" ("ATS"), which refers both to ECNs and to other types of trading systems that provide facilities for matching buy and sell orders "but do not widely or continuously disseminate accessible firm orders." *Id.* at 38; see also *Regulation of Exchanges and Alternative Trading Systems*, Exchange Act Release No. 34-40760, 1998 WL 849548 (Dec. 8, 1998) [hereinafter *Regulation of Exchanges*] (providing rules to incorporate alternative trading systems into the national market system).

⁴⁴ See Michael Schroeder & Greg Ip, *Levitt Urges Central Market To Price Stocks*, WALL ST. J., Sept. 24, 1999, at A1 ("ECNs account for about 30% of the volume of Nasdaq trading but an insignificant share of Big Board trading partly because of rules limiting trading Big Board away from a stock exchange.").

⁴⁵ Rule 390 prohibited NYSE members from trading in listed stocks in the over-the-counter market, but not on another stock exchange. See *Self Regulatory Organizations; New York Stock Exchange, Inc., Order Approving Proposed Rule Change to Rescind Exchange Rule 390*, Exchange Act Release No. 34-42758, 2000 WL 649013 (May 5, 2000). Since most ECNs in the United States are not registered

In March 2000, one American ECN, Archipelago (founded in 1997) announced that it would merge with the Pacific Exchange ("PCX"), a national securities exchange registered with the SEC. The merger contemplated that Archipelago, which was trading a daily average of 50 million shares in March 2000, would acquire the stock-trading business of the PCX, with an average daily volume of 23 million shares, and that PCX would provide regulatory and management services.⁴⁶ This new market will combine features of an ECN with those of a traditional stock exchange. As planned, buy and sell orders will be matched electronically, giving time and price to the orders as they are entered, but market-makers will continue to participate in the market by trading for their own account in order to improve prices.⁴⁷

Although ECNs have been established in Europe, their inroads into the business of the stock exchanges are less advanced than in the United States. One reason for this is the fact that the European exchanges themselves operate electronic trading markets. Trade-point, an ECN that began its trading operations in 1995, is registered as a Recognized Investment Exchange in the United Kingdom, and this registration permits it to operate throughout Europe under the Investment Services Directive of the European Union.⁴⁸ In 1999, the SEC granted Tradepoint an exemption, on account of its limited trading volume, from the registration requirements of the 1934 Act.⁴⁹ Thus, Tradepoint became the first foreign exchange

as national securities exchanges, transactions executed on them are not considered stock exchange transactions. For a discussion of Rule 390 and its background, see Norman S. Poser, *Restructuring the Stock Markets: A Critical Look at the SEC's National Market System*, 56 N.Y.U. L. REV. 883, 931-41 (1981) [hereinafter Poser, *Restructuring the Stock Markets*].

⁴⁶ Self-Regulatory Organizations; Notice of Filing of a Proposed Rule Change by the Pacific Exchange, Inc. and Amendment No. 1 Thereto Relating to the Archipelago Exchange, Exchange Act Release No. 34-43608, 2000 WL 1730888 (Nov. 21, 2000); Greg Ip, *Archipelago to Set Up New Stock Market*, WALL ST. J., Mar. 15, 2000, at C1. As of February 2001, however, the SEC had not approved the rule changes that would be necessary to effect the merger. *PCX Concerned About SEC Moratorium on Rulemaking Delaying E-Exchange*, 33 Sec. Reg. & L. Rep. (BNA) 164 (Feb. 5, 2001) [hereinafter *PCX Concerned About SEC Moratorium*].

⁴⁷ John Labate, *Hoping to Leapfrog the Regulators*, FIN. TIMES (London), Mar. 31, 2000, at 7.

⁴⁸ Virt-x, FAQ, at <http://www.tradepoint.co.uk/index.html> (last visited Oct. 13, 2001) [hereinafter *Tradepoint*].

⁴⁹ Tradepoint Financial Networks PLC: Order Granting Limited Volume Exemption from Registration as an Exchange Under Section 5 of the Securities Ex-

to be granted permission to operate in the United States and to give American institutional investors direct access to the European markets.⁵⁰

At the beginning of 2000, Tradepoint had a worldwide membership of about 150, consisting of fund managers, market-makers, traders, and brokers. Members can access Tradepoint directly and can trade in the shares of about 2,000 companies listed on the LSE and other stock exchanges of the European Union.⁵¹ In addition, Tradepoint has joined with the Swiss Stock Exchange to create a new exchange, called Virt-x, based in London, for trading in Swiss blue-chip stocks and the clearing and settlement of these transactions.⁵² Tradepoint is controlled by a consortium of eleven investors, including investment banks, such as J.P. Morgan and Merrill Lynch, and other ECNs, such as Archipelago.

Another European ECN is Jiway, which was established in 2000 jointly by OM Group, the Swedish company that controls the Stockholm exchange, and Morgan Stanley Dean Witter. Jiway plans eventually to trade and settle transactions in about 6,000 U.S. and European stocks.⁵³ When Jiway began operations in November 2000, it initially offered investors the opportunity to trade in 180 U.K., French, and German blue chips, but had plans to expand quickly. Like Tradepoint, Jiway is a Recognized Investment Exchange in the U.K., a status that enables it to operate throughout the European Union.⁵⁴

Thus far, the impact of ECNs on the stock exchanges has been relatively slight. Potentially, however, they are a force to be reck-

change Act, Exchange Act Release No. 34-41199, 1999 SEC Lexis 612 (Mar. 22, 1999).

⁵⁰ The terms of the exemption granted to Tradepoint by the SEC require that bids and offers may be made generally in the United States only in securities that are registered under the 1934 Act. Bids and offers for other securities may be made to qualified institutional buyers, international agencies, and non-U.S. persons. *Id.* at *10.

⁵¹ *Tradepoint*, *supra* note 48.

⁵² Vincent Boland, *Swiss Exchange Set to Move Blue Chip Trading to London Base*, FIN. TIMES (London), July 11, 2000, at 27. In June 2001, the SEC staff permitted Virt-X to extend trading privileges to U.S. members. *See* 33 Sec. Reg. & L. Rep. (BNA) 1027 (July 9, 2001).

⁵³ In September 2001, Morgan Stanley sold its 40% interest in Jiway to OM Group, leaving the latter with full control. *See* Christopher Brown-Humes, *Jiway Thrown Lifeline as OM Takes Control*, FIN. TIMES (London), Sept. 28, 2001, at 27.

⁵⁴ Jiway Ltd., *Jiway Limited and the Market Place*, at <http://www.jiway.com/insidejiway/aboutjiway/jiwayltd.asp> (last visited Oct. 13, 2001).

oned with. It is significant that, by and large, the ECNs are owned and controlled by large international investment banks, which have the ability to channel their institutional customers' orders to the market that offers the greatest liquidity and the lowest cost.⁵⁵ Some of these banks have invested in more than one ECN, thus hedging their bets as to who will control the future world stock market that they envision. Although the market share that the ECNs have taken away from the stock exchanges thus far is relatively slight, their very existence conveys an urgent warning message to the stock exchanges from their most important customers: become competitive in terms of cost, speed, and efficiency, or we will send our orders, and those of our customers, to an ECN.

4. WHAT STOCK EXCHANGES DO

Stock exchanges are a highly visible symbol of a market economy. Every nation worth its salt—even Communist China—has at least one, and some have more than one.⁵⁶ In the past, although the legal status of stock exchanges was different from country to country, the exchanges were permitted to engage in various kinds of anti-competitive practices. National governments protected practices such as fixing the commission rates that members charged the public and placing restrictions on who could become exchange members.⁵⁷ Beginning in the 1970s, under pressure from the growing power of institutional investors, principally mutual funds and pension funds, and the consequent unwillingness of governments to tolerate the aforementioned practices, the stock exchanges were opened to competition. “May Day” in the United States in 1975 and “Big Bang” in the United Kingdom in 1986

⁵⁵ For example, the consortium that controls Tradepoint includes the ECNs Archipelago and Instinet and the investment banks Credit Suisse First Boston, Deutsche Bank (the largest shareholder of Deutsche Börse), Chase J.P. Morgan, Merrill Lynch, Morgan Stanley Dean Witter, and UBS Warburg. *Tradepoint*, *supra* note 48.

⁵⁶ See, e.g., Vincent Boland, *World's Bourses Jostle for Position as Upstarts Elbow In*, FIN. TIMES (London), Mar. 31, 2000, at I [hereinafter Boland, *Bourses Jostle*] (explaining that ECNs are a threat to stock exchanges); MacCarthy, *supra* note 41, at 4 (comparing the stock exchanges of Nordic nations); Richard McGregor, *China Sets its Sights on Stock Market Efficiency*, FIN. TIMES (London), Jan. 26, 2001, at 19 (showing government regulation of the Chinese stock market); Elizabeth Williamson, *Warsaw Exchange Looks Westward for Expansion*, WALL ST. J., Dec. 6, 2000, at B12C (stating that Europe's post-communist landscape has several national, regional, and even city stock exchanges).

⁵⁷ POSER, BIG BANG, *supra* note 20, at 12-20.

marked the end of fixed commission rates and restrictive membership.⁵⁸ The countries of continental Europe soon followed the lead of New York and London.⁵⁹

Beginning in the 1990s and moving into the twenty-first century, new pressures from the development of technology, combined with a new competitive atmosphere, have led to a partial unbundling of the variety of different functions that stock exchanges have traditionally performed. For example, the leading European stock exchanges have demutualized; they have ceased to be membership organizations and become proprietary, profit-making corporations. Stock exchanges have begun to engage in cross-border mergers or alliances with other stock exchanges or with ECNs. These developments have left the exchanges with something like an identity crisis. What is their proper role in the economy? Who are their competitors? More fundamentally, what, today, is a stock exchange?

The traditional functions of a stock exchange were as follows:

4.1. Operate Trading Markets

Financial markets are vital to the health of an economy. The primary function of these markets is to allocate capital. They move capital from savers to those who have productive uses for capital (i.e., opportunities to invest and to receive high returns).⁶⁰ Financial markets are divided into two distinct parts. The first part is the new issue market, where companies raise capital by issuing securities to the public, typically through syndicates of investment banking firms acting as underwriters and dealers. The second part is the trading market, where these securities may be bought and sold after their issuance.

Stock exchanges are trading markets.⁶¹ The principal economic function of a stock exchange is to create liquidity—"the ability to

⁵⁸ *Id.* at 14-18, 27-32.

⁵⁹ See White, *supra* note 20, at 12 ("London's Big Bang reforms of 1986 opened a trail of liberalisation across continental exchanges.").

⁶⁰ Lucy F. Ackert & Bryan K. Church, *Competitiveness and Price Setting in Dealer Markets*, FED. RES. BANK OF ATLANTA ECON. REV. 5, 5 (Third Quarter 1998).

⁶¹ The Securities Exchange Act of 1934, section 3(a)(1), 15 U.S.C. § 78(c)(a)(1) (1994), defines "exchange" as an entity that "provides a market place or facilities for bringing together purchasers and sellers of securities or for otherwise performing with respect to securities the functions commonly performed by a stock exchange as that term is generally understood"

buy or sell an asset quickly and in large volume without substantially affecting the asset's price."⁶² For the sale of a new issue of securities to succeed, prospective purchasers require a reasonable assurance of liquidity in the future.⁶³ A well-functioning stock exchange provides assurance to investors that they will be able to enter and exit the market whenever they need to, or when it suits their convenience.⁶⁴ Today, "[e]ach exchange is involved in a bitter struggle with every other exchange for that most precious of financial commodities: liquidity. If an exchange loses it . . . it is dead."⁶⁵

Closely related to the stock exchanges' function of providing liquidity is the fact that they are price-setting mechanisms. An efficient stock market facilitates price discovery, enabling prices to quickly reflect information and reveal this information to market participants and other interested observers.⁶⁶ By establishing securities prices, stock exchanges enable securities to be used as collateral for loans, determine the price at which a company is able to issue additional securities, and provide a basis for the valuation of securities for taxation and other purposes.⁶⁷

In 1998, the SEC adopted a rule defining an "exchange" as an organization, association, or group of persons that: (1) brings together the orders of multiple buyers and sellers; and (2) uses established, non-discretionary methods (whether by providing a trading facility or by setting rules) for such orders to interact with each other. Specifically excluded from the definition of "exchange" are trading systems that perform only traditional broker-dealer activities. These are: (1) systems that merely route orders to other facilities for execution; (2) systems operated by a single registered market-maker to display its own bids and offers and the limit orders of its customers; and (3) systems that allow persons to enter orders for execution against the bids and offers of a single dealer. 17 C.F.R. § 240.3b-16 (2001); *Regulation of Exchanges*, *supra* note 43, at 23.

⁶² DOWNES & GOODMAN, *supra* note 11, at 329.

⁶³ Liquidity also is supplied by the trading desks of investment banking firms, which support the prices of securities that the firms have underwritten, as a service to their customers who have purchased the securities. Daniel K. Orlow, *Market Structure: How 'Wall Street' Works*, 21 J. RETAIL BANKING SERV. 57-58 (Spring 1999).

⁶⁴ See Ackert & Church, *supra* note 60, at 5 (stating that a well-functioning securities market allows investors to enter and exit when necessary).

⁶⁵ Charles Cox & Douglas C. Michael, *The Market for Markets: Development of International Securities and Commodities Trading*, 36 CATH. U. L. REV. 833, 834 (1987) (quoting Clements, *A Whale of a Sales Drive*, EUROMONEY, May 1986, at 176).

⁶⁶ See Ackert & Church, *supra* note 60, at 5 (stating that in an effective securities market, prices quickly reflect information and reveal this news to market observers and participants).

⁶⁷ See Poser, *Restructuring the Stock Markets*, *supra* note 45, at 886 (arguing that because markets are price setting mechanisms, they facilitate the use of securities

Stock exchanges perform the highly useful function of enabling individuals to transfer their consumption throughout their life cycles.⁶⁸ By setting securities prices, stock exchanges also create a way of measuring wealth. As we have seen in recent years, high stock prices give people a feeling of wealth and encourage spending, thereby increasing the demand for goods and services, stimulating investment, and fueling the economy.⁶⁹ This “wealth effect,” however, is not without its problems. As Chairman Alan Greenspan of the Federal Reserve Board warned in January 2000:

Productivity-driven supply growth has, by raising long-term profit expectations, engendered a huge gain in equity prices. Through the so-called “wealth effect,” these gains have tended to foster increases in aggregate demand beyond the increases in supply. It is this imbalance between growth of supply and growth of demand that contains the potential seeds of rising inflationary and financial pressures that could undermine the current expansion.⁷⁰

Whether or not it is seen as being beneficial, the linkage between the stock market and the economy is twofold: stock prices *reflect* economic conditions, and they also *affect* them.

Although creating and operating securities markets is their primary function, stock exchanges are complex organizations that have traditionally performed four other roles.

as collateral, determine the price at which a company can issue additional securities, and establish a basis for valuation).

⁶⁸ See Ackert & Church, *supra* note 60, at 5 (arguing that “financial markets also permit individuals to transfer consumption across time.”).

⁶⁹ During the stock market boom of the late 1990s, there was considerable public discussion of the “wealth effect” on the economy caused by rising stock prices. See Eileen Kinsella, *The Wealth Effect: Greenspan Factors Bull Market into Fed's Soft-Landing Calculations*, *The Street.com*, at <http://www.abcnews.go.com/sections/business/TheStreet/wealtheffect000229.html> (last modified Mar. 3, 2000) (explaining that the Federal Reserve hoped to counter the wealth effect without severely impacting stock calculations).

⁷⁰ Federal Reserve Chairman Alan Greenspan, *Technology and the Economy*, Address Before the Economic Club of New York (Jan. 13, 2000), available at <http://www.federalreserve.gov/boarddocs/speeches/2000/200001132.htm> (last visited Oct. 13, 2001).

4.2. Clear and Settle Transactions

Many stock exchanges (or organizations affiliated with them) clear and settle securities transactions after they have been executed.⁷¹ The clearing function performed by the clearing house consists of three steps: first, it "compares" the buyer's order with that of the seller to confirm that they agree on the terms of the trade; second, it "clears" the transaction by informing the parties of their payment and delivery obligations; and, third, it "settles" the transaction by delivering the securities to the buyer and transferring cash in payment to the seller.⁷² The success or failure of a

⁷¹ The functions of a clearing agency have been described as follows:

When two brokers agree on the floor of an exchange, or over the counter (i.e., usually, over the telephone), to a buy-sell transaction for their clients, the actual transaction has only begun. Thereafter, several steps must be taken to complete the course of dealing. These steps are typically the responsibility of a clearing agency, one of which traditionally has been linked to each of the national and regional exchanges, and one of which has served the over-the-counter market.

The clearing agency has three functions. First, the agency "compares" submissions of the seller's broker with those of the buyer's to make sure that there is a common understanding of the terms of the trade. Following this process, the resulting "compared trade" is "cleared." Most simply, this amounts to the clearing agency advising the selling and buying brokers, respectively, of their delivery and payment obligations. The system becomes far more complicated—although, with the help of computers, also more efficient—insofar as the clearing agency attempts, for a given period of time, to net all of a broker's transactions in each security as well as all of his monetary obligations. By this means, and by making all rights and duties run between the broker on either side of the transaction and the clearing agency, rather than between the brokers themselves, each broker is reduced to making or receiving one delivery for each security traded, and one cash payment, per day. In addition to reducing transactions costs, this latter method of clearing, referred to as "continuous netting," eases the risk to each broker and his client that the other party will become insolvent or otherwise fail to complete the transaction. The final, "settlement," stage in the process involves the delivery of securities certificates to the purchasing broker and the payment of money to the selling broker. Modernization of this task has led to storage of most stock certificates in a depository affiliated with the clearing agency. Thus, "delivery" amounts to a bookkeeping entry that removes the security from one account and places it in another.

The breakdown in these processes during the late 1960's largely antedated, and supplied the impetus for, the modern computerization and netting trends.

Bradford Nat'l Clearing Corp. v. SEC, 590 F.2d 1085, 1091 n.2 (11th Cir. 1978).

⁷² *Id.*

stock exchange may depend on its ability to perform, at a reasonable cost, the essential back-office operations without which the financial system cannot function.⁷³ Following the back-office crisis of the United States in the late 1960s and early 1970s, the major securities exchanges joined forces to create the National Securities Clearing Corporation, a highly integrated and sophisticated clearing and settlement system, which today clears transactions in three business days. Settlement is on a "net" basis, in the sense that each broker's receipts and deliveries of securities and transfers of cash are "netted," so as to reduce the number of deliveries and transfers. Furthermore, most transfers are done electronically, thus reducing the necessity to move millions of pieces of paper around every business day.⁷⁴ In Europe, the stock exchanges have traditionally had their own clearing and settlement arrangements, and the processing of transactions has been more expensive than in the United States.⁷⁵ Reduction of processing costs in order to attract and stimulate securities business has been a powerful spur to the consolidation of the European exchanges.⁷⁶

Some clearing houses perform an additional related function: they guarantee the performance of transactions, thereby relieving the buying and selling brokers and their customers of the risk that the party on the other side will not perform. After a transaction is executed, the clearing house accepts the obligation of the opposite party to the transaction and becomes the counter-party, both to the buyer and to the seller. By stepping between the buyer and the seller, the clearing house performs an additional function: it enables the parties to the transaction to remain anonymous. In the United States, the Options Clearing Corporation, which is the clearing house for the options markets, acts as a guarantor, but the

⁷³ Boland, *Bourses Jostle*, *supra* note 56, at 1.

⁷⁴ See DAVID M. WEISS, *AFTER THE TRADE IS MADE* 69-70, 309-10, 356-58 (2d ed. 1993) (outlining some of the back-office operations that are necessary to complete a transaction).

⁷⁵ See Boland, *Bourses Jostle*, *supra* note 56, at 1 (elucidating the threats to European stock exchanges and the appropriate present and future response).

⁷⁶ See White, *supra* note 20, at 12. Two international clearing houses, Euroclear and Cedel, that were created under the auspices of investment banking firms in the 1970s to process bond transactions, have begun to clear and settle equity transactions, in association with European stock exchanges. Euroclear has merged with the settlement operation of the Paris Bourse, while Cedel has merged with Deutsche Börse's clearing house to form Clearstream. Aline van Duyn, *European Links Push Exchange Towards US Costs*, *FIN. TIMES* (London), Sept. 1, 2000, at 9.

clearing houses for transactions in stocks do not. Some European clearing houses, however, act as guarantors and counter-parties in both the stock and the options markets.⁷⁷

4.3. Represent Their Members

Stock exchanges traditionally are membership organizations, whose members are brokerage firms and individual brokers and dealers. Most stock exchanges limit the number of their members and restrict access to the facilities of the exchange to persons who have been admitted to membership.⁷⁸ They have often been described as private clubs because of their exclusive membership and because their primary concern has often been to protect and advance their members' interests, and to represent these interests before the government, other groups, and the public.⁷⁹ Sometimes, the interests of the members clash with those of the investing public, and government controls have been seen as necessary to protect investors and the public interest.⁸⁰

As will be discussed later, the recent trend has been for stock exchanges to demutualize, i.e., to turn themselves into business corporations, which are owned by their shareholders. In addition, after demutualizing, some of the principal European exchanges

⁷⁷ The three exchanges comprising Euronext, the Paris, Brussels, and Amsterdam stock exchanges, have a central clearing organization that guarantees the performance of transactions. *Euronext Comprehensive Paper*, *supra* note 30, at 11.

⁷⁸ In the United States, the 1934 Act permits a stock exchange to limit the number of its members, but not to decrease the number of its members below the number in effect on May 1, 1975. Securities Exchange Act § 6(c)(4), 15 U.S.C. § 78f(c)(4) (1994).

⁷⁹ "For generations, stock exchanges were cosy clubs run by elites of institutions for other institutional elites." Boland, *Bourses Jostle*, *supra* note 56, at 1.

⁸⁰ In *Silver v. New York Stock Exchange*, 373 U.S. 341 (1963), the Supreme Court held that a stock exchange had an implied exemption from the antitrust laws, but only if necessary to make the Securities Exchange Act work, and even then only to the minimum extent necessary. *Id.* at 364-65. In that case, the exchange had prohibited its members from doing business with a non-member brokerage firm. Since NYSE members dominate the securities business in the United States, the effect of the exchange's action was effectively to put the non-member firm out of business. The exchange gave no reasons for its action and offered no opportunity for the firm to be heard. Nor did the Exchange Act give the SEC authority to intervene. The Court held that the exchange had violated the Sherman Act. In 1975, Congress amended the Act to require stock exchanges to provide fair procedures and to enable stock exchange actions to be reviewed by the SEC. *See* Securities Exchange Act §§ 6(b)(7) & 19(f), 15 U.S.C. §§ 78f(b)(7) & 78s(f) (providing rules concerning exchange membership and for review of the denial of membership).

have made public offerings of their stock, and the major U.S. exchanges are considering taking similar steps.⁸¹ Demutualization and going public are likely to reduce or even to end the role that stock exchanges play as membership organizations.

4.4. *Regulate Their Members and Listed Companies*

Since the nineteenth century, the stock exchanges have acted as regulators.⁸² They require their members to obey rules governing their conduct in connection with their activities on the stock exchange. To some extent the regulatory role is inevitable, since the operation of a market requires that the participants play by common rules and that these rules be enforced. Stock exchanges, however, also regulate the selling practices, financial responsibilities, and other aspects of their members' activities, even where these activities are not directly related to transactions executed on the stock exchange.⁸³ Some stock exchanges also regulate the companies whose securities are admitted to trading, including such matters as capital structure, voting rights, and disclosure policies.⁸⁴ Today, the regulatory activities of most stock exchanges are supervised by government agencies. Thus, although the United States and several European countries have self-regulatory systems, self-regulation is almost invariably subject to some form of government supervision.

4.5 *Collect and Distribute Information*

Stock exchanges collect and publish market information, principally quotations and limit orders (i.e., the prices at which professional market-makers and public investors are willing to buy and sell securities), and the prices of completed transactions. Public ac-

⁸¹ See *supra* text accompanying notes 23, 32, 38, and *infra* note 161.

⁸² In 1868, the NYSE began requiring its listed companies to submit financial reports to the exchange. See NORMAN S. POSER, *BROKER-DEALER LAW AND REGULATION* 13-5 (3d ed. Supp. 2001) [hereinafter POSER, *BROKER-DEALER LAW*].

⁸³ For example, NYSE regulation of its members' advertising and sales literature is not limited to communications about NYSE-listed stocks. See NYSE Rule 472, N.Y.S.E. Guide (CCH) ¶ 2472 (1999) (regulating members' communication with the public, including communications regarding individual companies' market conditions and industries).

⁸⁴ See *Business Roundtable v. SEC*, 905 F.2d 406 (D.C. Cir. 1990) (asserting that the SEC lacked the power to enact a rule preventing national securities exchanges and associations from listing stock of corporations that reduce shareholders' voting rights).

cess to these two types of market information on a real-time basis is essential in order for a stock exchange to provide liquidity.⁸⁵ The key event that led to broad participation in the U.S. equity markets was the installation of battery-powered NYSE stock tickers in brokerage-firm offices, beginning in 1867.⁸⁶ Some stock exchanges also publish information about the companies whose securities are listed on the exchange.⁸⁷

5. THE OPERATION OF THE TRADING MARKETS

Although stock exchanges perform several functions, their essential work, and their reason for existence, is to provide trading markets for securities. The changes that are taking place in the stock exchanges of the United States and Europe need to be seen in light of how these trading markets actually work. The market maintained by a stock exchange can be categorized in three different ways: first, it may be a call market or a continuous market; second, the market may be quote-driven or order-driven; and, third, it may operate by open outcry on a trading floor, or it may be an electronic market, without a physical trading floor.

5.1. Call Markets Versus Continuous Markets

If trading on an exchange is light, liquidity may be difficult to achieve: because of the sparseness of the market, a buyer may not be able to find a willing seller at the time it wants to buy. A call market maximizes liquidity by compressing all trading into a short period of time. All of the trading in each listed security is done in a few minutes each day, when each stock is "called" out, and brokers

⁸⁵ It is significant that, in its development of a national market system, the first two steps that the SEC took were to require the stock exchanges and the NASD to establish a consolidated tape, which discloses the prices of completed transactions throughout the system, and a composite quotation system, which discloses the prices at which dealers throughout the system are willing to buy and sell securities. Poser, *Restructuring the Stock Markets*, *supra* note 45, at 916-22. In 1996, the SEC adopted a rule requiring market-makers to display customers' limit orders. See Order Execution Obligations, Exchange Act Release No. 34-37619A, 62 S.E.C. Docket 2083 (Sept. 6, 1996) (adopting Rule 11Ac1-4, 17 C.F.R. § 240.11Ac1-4).

⁸⁶ See LEONARD SLOANE, *THE ANATOMY OF THE FLOOR* 26 (1980) ("By 1867 battery-powered New York Stock Exchange stock tickers were installed in brokerage firm offices . . .").

⁸⁷ In 1998, the NYSE derived \$111 million or 15% of its revenue, from market data fees. NYSE, 1998 ANNUAL REPORT 43 (1998).

representing buyers and sellers match their orders. The NYSE used the call method until the mid-19th century. According to a financial historian, “[u]ntil 1871 the call auction market was the process by which stocks were bought and sold on the Exchange. With just two calls a day for buying and selling stocks—at 10:30 A.M. and 1 P.M.—there were only two opportunities to trade in any individual issue.”⁸⁸

When trading on the NYSE became too active to be confined to the limitation of the call system, the exchange switched to a continuous trading system. Under continuous trading, all listed stocks are traded throughout the day, with each security being assigned to a particular location, or “post,” on the trading floor. Under this system, “[a]ll buying and selling interests are funneled to one place, where buyers have an opportunity to find the cheapest sellers, and sellers the most eager buyers.”⁸⁹

Although most major exchanges today have continuous trading, the call method is still used in some inactive markets. For example, Euronext, the international stock exchange which was formed in September 2000 through a merger of the Paris, Brussels, and Amsterdam stock exchanges, uses the call method for its less actively traded securities. Each trading day, there are two auctions for equities and one auction for bonds.⁹⁰

5.2. Quote-Driven Markets Versus Order-Driven Markets

In a quote-driven market, professional dealers known as market-makers compete with each other by making bids and offers, that is, publishing their willingness to buy and sell securities, as well as the prices at which they are willing to buy and sell.⁹¹ Investors (or the brokers who represent them) buy from and sell to the market-makers at their published prices. Thus, every transaction between two investors goes through a professional dealer,

⁸⁸ SLOANE, *supra* note 86, at 27-28.

⁸⁹ *Report of the Special Study of Securities Markets of the SEC*, H.R. DOC. NO. 88-95, pt. 2, at 40 (1963) [hereinafter *Report of the Special Study of Securities Markets*].

⁹⁰ *Euronext Comprehensive Paper*, *supra* note 30, at 11-12.

⁹¹ The U.S. Nasdaq market is by far the largest quote-driven market in the world. Easdaq, which was formed in 1996, is a European quote-driven market for small companies, was acquired by Nasdaq in 2001. See Vincent Boland, *Nasdaq's Lacklustre European Launch Leaves Executives Talking of Long Term*, FIN. TIMES (London), July 16, 2001, at 24 [hereinafter Boland, *Nasdaq's Lacklustre European Launch*] (discussing the lack of success of Nasdaq's expansion into Europe).

who buys the security from the seller and sells it to the buyer and is compensated for the risk he takes by the "spread," the difference in price between his bid and his offer. For example, an investor who wants to buy 100 shares of XYZ stock will give the order to a broker, who will ascertain that the lowest offer for the stock is 20.50. The broker will buy the stock from the market-maker at 20.50 on behalf of his customer, charging the customer a commission.⁹² An investor who wishes to sell the same stock will ascertain that the highest bid being made by any market-maker is 20.25. He will sell the stock to the market-maker at that price, charging the customer a commission. Thus, each customer pays the broker's commission, plus the market-maker's spread.⁹³ In return for paying the spread, the investor has an assurance that he will be able to buy or sell shares at any time the market is open.⁹⁴ Competition among market-makers should enable the investor to get the best execution (i.e., highest bid or lowest offer) available throughout the market for the security at that time.⁹⁵

In an order-driven market, brokers send their customers' buy and sell orders to a central location, where they can be executed with each other, without the intervention of a dealer. The NYSE has an order-driven market. An investor may give his broker a market order, which requires the broker to execute it promptly at

⁹² Instead of acting as agent and charging a commission, the broker may act as principal, buying the stock from the market-maker and reselling it to his customer. In that case, the broker would charge the customer a markup instead of a commission.

⁹³ More precisely, the bid-asked spread is twice the per share payment the market-maker receives. Puneet Handa et al., *The Ecology of an Order-Driven Market: Too Complicated for Regulators to have All the Answers*, 24 J. PORTFOLIO MGMT. 47, 47 (1998).

⁹⁴ *Id.*

⁹⁵ Competition among market-makers does not always work as it should. In 1996, the SEC found that many Nasdaq market-makers were colluding to keep bid-asked spreads artificially wide. This meant that investors were paying more for securities they bought and receiving less for securities they sold than they would have if competition had operated freely. See Nat'l Ass'n of Sec. Dealers, Inc., Exchange Act Release No. 37538, [1996-1997 Transfer Binder] Fed. SEC. L. Rep. (CCH) ¶ 85,825, at 88,362 (Aug. 8, 1996) ("Nasdaq market-makers have engaged in conduct which has resulted in artificially inflexible spreads . . . and unduly disadvantageous prices to investors . . ."). The difficulty of getting market-makers to compete rather than collude with each other was noted by the SEC as early as 1963. *Report of the Special Study of Securities Markets*, *supra* note 89, at 661-62; see Poser, *Restructuring the Stock Markets*, *supra* note 45, at 951-57 (noting that competing specialists, who stand next to each other on the floor, possess a natural tendency to collude rather than compete).

the best available price. Alternatively, the investor may use a limit order, which can be executed only at the limit price or a more favorable price. For example, an order to buy 100 shares of ABC stock with a limit of 20 can be executed only at a price of 20 or lower. If the limit order cannot be executed immediately (for example, if the current market price of the stock is 20.50), the limit order will be executed only if the market declines to 20. If another investor gives his broker a market order to sell 100 shares of ABC, this order may be executed against the limit order to buy at 20. In that case, the two orders will be executed against each other, without the interpositioning of a professional dealer. The two investors will pay a commission to their brokers, but the price they pay or receive will not include a market-maker's spread.

An order-driven market depends on the existence of limit orders, since a market order to buy a security cannot be matched with a market order to sell unless there is some mechanism to determine the price at which the transaction is to be executed.⁹⁶ In an order-driven market, limit orders establish transaction prices. An investor who places a market order obtains an immediate execution but gets a less favorable execution than one who places a limit order.⁹⁷ Conversely, an investor who places a limit order will get a more favorable price but runs the risk that his transaction will not be executed.⁹⁸

The NYSE is not a pure order-driven market, because the specialist firm, a member firm of the exchange that is given the exclusive right to deal in the stocks that are "allocated" to it, is required to step in and deal for its own account as a market-maker if there is an absence of investors' orders.⁹⁹ The specialist firm acts in a dual capacity. It holds, displays, and executes limit orders that are en-

⁹⁶ See Cox & Michael, *supra* note 65, at 843 ("[A] 'market' buy order and a 'market' sell order cannot be executed mechanically.").

⁹⁷ See Mike McNamee, *Taking Your Trade To the Limit*, BUS. WK., Apr. 17, 2000, at 204-05 (noting that with a market order, your order is usually filled, but with a limit order, one can get a better deal on a stock).

⁹⁸ For a more detailed explanation of how market orders and limit orders contribute to the successful operation of an order-driven market, see Handa et al., *supra* note 93, at 48-49.

⁹⁹ In 1998, "specialists acted as either the buyer or seller in 25.3% of the share volume executed on the NYSE." Self Regulatory Organizations, Commission Request for Comment on Issues Relating to Market Fragmentation, Exchange Act Release No. 34-42450, 71 S.E.C. Docket 1702 at 6 (Feb. 23, 2000) [hereinafter *Self Regulatory Organizations*].

trusted to it, and it acts as a market-maker, quoting its own bid and asked prices and executing transactions as a principal for its own account, but only to the extent necessary to maintain a fair and orderly market.¹⁰⁰ Although the NYSE specialist has a monopoly because there is only one market-maker for each stock, investors' limit orders provide competition for order flow and prevent excessive bid-asked spreads.¹⁰¹ Similarly, Euronext, although an order-driven market, uses specialists to supplement the liquidity-providing function of investors' limit orders.

Similarly, Nasdaq is not a pure quote-driven market, because it has the capacity to display the limit orders of customers, enabling investors to trade directly with each other. Over-the-counter market-makers are not required to accept limit orders from customers, but if they do, they are required to display the orders publicly if the orders are more favorable than the market-maker's own quotation or if they add to the size of the market-maker's quotation.¹⁰² Thus, if a market-maker's quotation for XYZ stock is 20 bid, 21 asked, the market-maker must display any limit orders that it holds to buy XYZ at 20 or above and any limit orders that it holds to sell XYZ at 21 or below. The market-maker is required to execute its customers' limit orders before it can trade for its own account at an inferior price (i.e., seller at a higher price or buy at a lower price).¹⁰³

Most of the European stock exchanges, including Euronext and Frankfurt, are order-driven markets.¹⁰⁴ Order-driven markets tend

¹⁰⁰ Securities Exchange Act of 1934, § 11(b), 15 U.S.C.A. § 78k(b) (1997); Regulation of Specialists 11b-1, 17 C.F.R. § 240.11b-1 (2001); NYSE Rule 104, N.Y.S.E. Guide (CCH) ¶ 2104 (1999); see Poser, *Restructuring the Stock Markets*, *supra* note 45, at 891 ("[M]ost NYSE member firms doing business with the public are also members of the Amex and one or more of the regional stock exchanges . . .").

¹⁰¹ Ackert & Church, *supra* note 60, at 5.

¹⁰² SEC Rule 11Ac1-4, 17 C.F.R. § 240.11Ac1-4. See *Order Execution Obligations*, *supra* note 85.

¹⁰³ In *E.F. Hutton & Co., Inc.*, Exchange Act Release No. 25887 [1988-1989 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 84,303, at 89,327 (July 6, 1988), the SEC affirmed an NASD disciplinary action against a market-maker for selling stock for its own account at a price above the limit price of a sell order that a customer had entrusted to the firm, without executing the customer's order. The SEC stated that when the firm accepted the customer's order it assumed a fiduciary obligation, which prohibited it from competing with the customer. *Id.* at 89,328-29.

¹⁰⁴ Euronext Listing and Trading Rules, Art. N.4.1.5 (Sept. 2000), available at http://www.euronext.com/en/euronext/in_brief/; see also Euronext History, *supra* note 31, at 1 (stating that Euronext will provide "a unified order driven trad-

to be less costly to investors than quote-driven markets, because investors can trade directly with each other, without having to pay the spread between bid and offer to a professional market-maker. However, in a pure order-driven market (i.e., without any participation by a market-maker or specialist), investors have no assurance that their buy and sell orders will be executed in a timely fashion or at a favorable price.¹⁰⁵

In Europe, the only important quote-driven market is the London Stock Exchange,¹⁰⁶ whose SEAQ trading system,¹⁰⁷ inaugurated in 1986, was modeled on the Nasdaq system.¹⁰⁸ In its struggle to compete with other European stock markets, however, in 1997 the London Stock Exchange established an order-driven trading system, called SETS, but only for its 200 largest stocks.¹⁰⁹ The fact that the quote-driven Nasdaq is basically incompatible with the order-driven trading systems of the major European exchanges is likely to create difficulties for Nasdaq in its efforts to establish a link with European trading systems.¹¹⁰

ing platform . . ."). The Frankfurt Exchange uses an electronic trading system called Xetra, which automatically matches customers' orders. *Deutsche Börse AG*, *supra* note 36.

¹⁰⁵ See Norman S. Poser, *Automation of Securities Markets and the European Community's Proposed Investment Services Directive*, 55-4 LAW & CONTEMP. PROBS 29, 43-45 (1992) (describing the characteristics of an order-driven market).

¹⁰⁶ Easdaq, the European quote-driven market for small issues that was established in 1996, has failed to gain much trading volume or liquidity during its first five years of operation. In 2001, Nasdaq acquired a majority stake in Easdaq. See Boland, *Nasdaq's Lacklustre European Launch*, *supra* note 91, at 24; see also Silvia Ascarelli, *Easdaq, Nasdaq Plan Faces Vote*, WALL ST. J., Mar. 21, 2001, at C12 (describing the takeover); John Labate, Peter Thai Larsen, & Juliana Ratner, *Nasdaq in Talks to Take Over Easdaq*, FIN. TIMES (London), Jan. 30, 2001, at 27 (discussing the takeover).

¹⁰⁷ SEAQ is an acronym for Stock Exchange Automated Quotations. POSER, BIG BANG, *supra* note 20, at 43.

¹⁰⁸ See *id.* at 39-42.

¹⁰⁹ Portanger & Fuhrmans, *supra* note 21, at C1. In early 2000, fifty-three percent of trades on the London exchange, by value, were executed automatically through the SETS system, rather than being carried out on the telephone or through market-makers. Boland, *A Share in the Future*, *supra* note 22, at 19. Since the stocks traded on SETS tend to be priced higher than other stocks, it is likely that the percentage of LSE transactions executed on SETS is smaller.

¹¹⁰ A study released by the SEC in January 2001 showed that spreads (i.e., the difference between what a buyer pays and a seller receives for a stock) were wider for Nasdaq stocks than for NYSE stocks on all but the very largest stocks. This indicates that the transaction costs on the NYSE's order-driven market tend to be less than the transaction costs on the Nasdaq's quote-driven market. Nasdaq costs tend to be about the same as NYSE's on those stocks in which ECNs have

5.3. Open-Outcry Markets Versus Electronic Markets

All of the major European stock exchanges (and many of the minor ones) have eliminated their trading floors in favor of electronic trading. The LSE, as part of its 1986 program of deregulation and restructuring known as "Big Bang," was the first European exchange to make the conversion.¹¹¹ Within a few years, the other European exchanges, notably Paris, Frankfurt, Milan, and Amsterdam, had converted to electronic trading. By contrast, the principal U.S. exchanges, the NYSE and the American Stock Exchange (which was acquired by the NASD in 1998),¹¹² have retained their trading floors and open-outcry systems, which go back to the mid-nineteenth century, before the telephone, let alone the computer, had been invented. Bids and offers are shouted out by hundreds of exchange members on the NYSE's 36,000-square-foot trading floor.¹¹³

Electronic trading systems have several advantages over traditional exchanges. They have the convenience of providing access from anywhere where there is a computer terminal; they offer investors real-time display of bids, offers, actual prices of transactions, and trading volume; they can be linked with other informational systems; they are cheaper to build and operate; they make clearing and settlement easier and more reliable; and they protect investors by their capacity to reconstruct transactions.¹¹⁴ An indication of their advantages is that, when the LSE switched to an electronic trading system, it cautiously decided to retain its trading floor as an alternative method of trading; within a few weeks, the volume of trading on the floor dried up, and floor trading was

made the biggest inroads into the business of the traditional U.S. securities markets. Greg Ip & Michael Schroeder, *SEC Price Study Deals Blow to Nasdaq*, WALL ST. J., Jan. 9, 2001, at C1.

¹¹¹ "Big Bang" was a comprehensive reform of the London Stock Exchange's structure and procedures. Besides changing the trading system, it also involved opening access to exchange membership to all qualified firms, including international commercial and investment banks; permitting member firms to act as both brokers and dealers; and abolishing fixed rates of commission. See POSER, *BIG BANG*, *supra* note 20, at 27-57.

¹¹² POSER, *BROKER-DEALER LAW*, *supra* note 82, § 13.02.

¹¹³ The NYSE Web site describes the trading floor as a "world unto itself, made up of its people, its unique lingo and its world-renowned technology." NYSE, *The Floor Community*, at <http://www.nyse.com/floor/floorcommunity.html>.

¹¹⁴ Solomon & Corso, *supra* note 9, at 318-19.

terminated.¹¹⁵ The LSE's traditional trading system simply could not compete with the computers.¹¹⁶

The trading systems of several of the European exchanges—as well as Asian exchanges, such as that in Singapore¹¹⁷—are based on an electronic centralized limit order book (“CLOB”). Orders to buy and sell securities are entered into a central computer, limit orders are displayed, and market orders are automatically executed against the limit orders displayed on the CLOB. The CLOB operates under a system of price and time priority. Priority is given to limit orders with the most favorable price (lowest bid or highest offer). If two limit orders are entered at the same price, the first order entered has priority. Brokers and investors participating in the system are thus able to get the best available execution of their orders. All orders for a particular security, no matter where they originated, are entered into the system and matched automatically. Limit orders are protected, in the sense that they are required to be executed before any order at an inferior price or entered at a later time may be executed.

CLOB is neither new nor revolutionary. In the 1970s, the SEC proposed that the U.S. markets adopt the CLOB as a central ingredient of the national market system that Congress had mandated.¹¹⁸ The proposal was quietly shelved, in the face of fierce opposition from many NYSE members, who believed (with some justification) that the CLOB would sound the death knell of the trading floor. Brokers would be impelled to enter the orders into the system rather than send them to the NYSE trading floor, in order to make sure their customers received the best available execution of their buy and sell orders.¹¹⁹ Thus, the NYSE claimed at the time, the time priority afforded public orders entered in CLOB “would eventually lead to the elimination of exchange trading floors by inexorably forcing all trading into a fully automated

¹¹⁵ POSER, *BIG BANG*, *supra* note 20, at 45.

¹¹⁶ See Gerald T. Nowak, Note, *A Failure of Communication: An Argument for the Closing of the NYSE Floor*, 26 U. MICH. J.L. REFORM 485 (1993) (arguing that a move by the NYSE to electronic trading is necessary if the United States is to retain its preeminence as a financial center).

¹¹⁷ Philip Coggan, *Survey of Singapore: Nominee Comes to the Aid of the Clob*, FIN. TIMES (London), Feb. 8, 1996, at V.

¹¹⁸ Development of a National Market System, Exchange Act Release No. 34-14,416, 14 S.E.C. Docket 31, 40-41 & 41 n.54 (Jan. 26, 1978).

¹¹⁹ Poser, *Restructuring the Stock Markets*, *supra* note 45, at 928-29.

trading system."¹²⁰ In February 2000, more than twenty years after it had originally proposed the CLOB, the SEC requested comment on the proposal as a way of avoiding the fragmentation of the markets for individual securities. Market fragmentation was threatened by the appearance during the 1990s of several proprietary trading systems, the ECNs.¹²¹ The ECNs compete with the established exchanges for order flow in listed as well as over-the-counter securities.¹²² They offer the public less expensive execution of their orders than that afforded by a traditional trading floor.¹²³ A year after it resurrected the CLOB proposal, the Commission had taken no further action on it.

The main attractions of electronic trading are that it is faster, less expensive, and less prone to error than open outcry on a trading floor. The technology to create a fully automated trading system is available and is, in fact, being used at exchanges throughout the world.¹²⁴ Clearly, there are "cheaper ways of trading shares than using armies of brokers and spending the day on the telephone, and technology is fast undermining the structure of traditional U.S. markets."¹²⁵ Electronic trading is also capable of executing more complex orders than manual trading methods. Electronic trading permits so-called "Boolean"¹²⁶ trades. For ex-

¹²⁰ Development of a National Market System, *supra* note 118, at 29.

¹²¹ *Self Regulatory Organizations*, *supra* note 99, at *21-22. Fragmentation of the U.S. markets was more of a threat than a reality. In September 1999, 74.4% of the trades and 83.9% of the share volume in NYSE-listed securities were executed on the NYSE. *Id.* at *6. The percentage of share volume in all listed securities that was executed on the NYSE actually rose from 81.9% in 1990 to 85.1% in 1999. 2000 SEC ANN. REP. 154.

¹²² ECNs have made substantial inroads in the over-the-counter market, accounting for an estimated 30% of the trading in Nasdaq securities in 1999; but they accounted for only a negligible percentage (an estimated 4%) of the trading in exchange-listed securities. POSER, *BROKER-DEALER LAW*, *supra* note 82, § 17.03.

¹²³ It has been pointed out that, before automation of the exchange market began, a total of seventeen human contacts were necessary to execute one trade on the floor of the NYSE. The NYSE's automated order-routing system, called Designated Order Turnaround ("DOT"), which is used for smaller orders, eliminates eight of the seventeen contacts. While DOT reduces some costs and opportunities for error, it is slower than electronic trading, and it still relies on floor brokers and specialists to execute transactions. Nowak, *supra* note 116, at 488-96.

¹²⁴ See *id.* at 486-87 (highlighting that the development of technology and supercomputers has allowed for an automated trading system).

¹²⁵ Boland, *Bourses Jostle*, *supra* note 56, at I.

¹²⁶ The word "Boolean" is defined as: "Of or relating to a logical combinatorial system treating variables, such as propositions and computer logic elements, through the operators AND, OR, NOT, IF, THEN, and EXCEPT" The word is

ample, an investor may instruct her broker to sell Microsoft at 50 if she can buy IBM at 95 and buy Intel at 30. Only a computer can match such orders, using algorithms that would be impossible, or much too time-consuming, for a floor trader to execute efficiently.¹²⁷

The vision of a world stock market, where securities of international interest are traded in a single system, and where investors would receive the best execution of their buy and sell orders, is incompatible with the NYSE's open outcry method of trading. Yet, despite the advantages of electronic trading, the NYSE has resisted proposals that it give up its trading floor.¹²⁸ On the contrary, plans are underway to build a new trading floor in New York across Broad Street from the NYSE's present location, which will be subsidized by New York taxpayers to the extent of over \$600 million. This project has met with strenuous opposition, and whether it will be implemented remains to be seen.¹²⁹

One possible explanation for the NYSE's reluctance to move to electronic trading is concern about the unreliability of computers. All of the large European electronic stock exchanges have experienced technical failures, which have caused trading delays.¹³⁰ A second explanation is that transaction costs for doing trades on the NYSE are already competitively low, chiefly because the U.S. markets have a sophisticated and integrated system in place for clearing and settling transactions.¹³¹ If it were not for the efficiency of

derived from George Boole, a British mathematician and logician who developed a calculus of symbolic logic. *THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE* 217 (3d ed. 1992).

¹²⁷ See Hal R. Varian, *Boolean Trades and Hurricane Bonds*, *WALL ST. J.*, May 8, 2000, at A42 (discussing the future of electronic exchanges).

¹²⁸ As discussed below, the NYSE is deeply divided on the question. See *infra* text accompanying notes 136-39.

¹²⁹ Charles V. Bagli, *Doubts Rise on New Site for Big Board*, *N.Y. TIMES*, June 6, 2000, at B3; Greg Ip & Peter Grant, *NYSE's Deal for Staying in New York Draws Fire*, *WALL ST. J.*, Dec. 6, 2000, at C22; Linda Sandler & Greg Ip, *Taking Stock of Big Board's Pricey 'Big Box'*, *WALL ST. J.*, Mar. 15, 2000, at B12. The attack on the World Trade Center on September 11, 2001, exposed the vulnerability of the exchange's trading floor to terrorism. After the attack, the NYSE stated that it may postpone its building plans. See Alex Berenson, *A Nation Challenged: The Exchange; Feeling Vulnerable at Heart of Wall St.*, *N.Y. TIMES*, Oct. 12, 2001, at C1.

¹³⁰ The Paris, Amsterdam, Brussels, Madrid, Milan, and Lisbon exchanges had to suspend trading several times during 2000 because of technical problems. Alex Skorecki, *Technical Problems Dog Stock Exchanges*, *FIN. TIMES (London)*, July 7, 2000, at 21.

¹³¹ See Boland, *Bourses Jostle*, *supra* note 56, at 1.

this system, which was developed in the 1970s as a result of the "back office" crisis of that era, it would have been impossible for Wall Street to process combined NYSE and Nasdaq daily trading volume, which in the year 2000 sometimes exceeded three billion shares.

But these are at best only partial explanations. To understand why the NYSE clings to the open-outcry trading method, it is necessary to examine the internal structure of the exchange and the different constituencies that it serves.

6. THE CONSTITUENCIES OF THE STOCK EXCHANGE

The traditional stock exchange is not a monolith. It is composed of several constituencies, each with different interests and concerns. The forces that are buffeting the world's stock exchanges, particularly the move from open-outcry systems on trading floors to electronic trading systems, have different impacts on the different constituencies. Paradoxically, the largest stock exchange, the NYSE, is the most resistant to change, because its powerful floor-member constituency has the most to lose from the introduction of an electronic trading system.¹³²

The membership of the NYSE is limited to 1,366 seat holders.¹³³ Because the number is limited, a membership is a valuable franchise. In 2000, a seat on the exchange was sold for as much as \$2 million.¹³⁴ Thus, more than two-and-a-half billion dollars is at stake, just in seat values, in any major change in the structure of the NYSE.

It would be erroneous, however, to conclude that all exchange members have the same interests, or that the key issues confront-

¹³² Portanger & Fuhrmans, *supra* note 21, at C15. Although the floor members of the LSE did not block that exchange's transition to electronic trading in 1986, the exchange's market-makers subsequently did impede the exchange's transition from a quote-driven market to an order-driven market. *Id.*

¹³³ This number has remained the same since 1953. In addition, there are fifty-eight individuals who, through payment of an annual fee, are entitled to physical or electronic access to the exchange's trading floor. These latter members, however, do not have distributive rights to the exchange's net assets. NYSE FACT BOOK 2000 DATA (2001), at 83.

¹³⁴ In 1990, an NYSE seat sold for as little as \$250,000, and in 1999 the highest price paid for a seat was \$2,650,000. *Id.* at 110. In part, the increase in seat prices reflects the increase in trading volume during the same period. The average daily volume of trading on the NYSE rose from 157 million shares in 1990 to 1.4 billion shares in 2000. *Id.* at 100.

ing the stock exchanges today necessarily pit members against non-members. It is more accurate to think of the NYSE in terms of its various constituencies, and to divide these constituencies between the providers of the exchange's services, on the one hand, and the users of these services, on the other. The service providers are, first, the members (i.e., specialists and floor brokers) who spend their working days on the floor of the exchange; and, second, the exchange's paid administrators, the bureaucrats and regulators who make the exchange run. The users are, first, its member firms, including large investment banking and brokerage firms, that deal directly with the public; second, the institutional and individual investors who are customers of these firms; and, third, the exchange's listed companies which are the investment banking clients of these firms.¹³⁵ Thus, different categories of members are providers and users of the exchange's services.

An electronic system, particularly if it takes the form of a CLOB with time and price priority, would make the function of the floor members superfluous, because all customers' buy and sell orders would very likely be swept into the electronic system. Being an NYSE specialist is an extremely lucrative business, so it is hardly surprising that the specialists have vigorously opposed the introduction of a CLOB.¹³⁶ To protect their customers' orders adequately and to assure that they received time priority, brokers would be impelled to enter their customers orders into the system, thus bypassing the specialists and floor brokers on the exchange floor.

¹³⁵ Greg Ip & Randall Smith, *Tense Exchange: Big Board's Members Face Off on the Issue of Automated Trading*, WALL ST. J., Nov. 15, 1999, at A1.

In the past year, the heads of the major firms have begun wondering if the floor traders are an anachronistic barrier to change in an increasingly electronic world. Wondering, in other words, if the people who most symbolize America's free markets are themselves resisting freemarket forces simply to protect their own livelihoods. To some floor traders, though, it is the big firms that are giving short shrift to a principle: that of loyalty.

Id.

¹³⁶ "Most private specialist firms . . . have returns on equity that can exceed 35%, compared with around 25% for brokerage firms . . ." Charles Gasparino, *Bear Stearns to Acquire Specialist*, WALL ST. J., Feb. 15, 2001, at C1. According to the Wall Street Journal, the profits of Spear, Leeds & Kellogg, one of the largest specialists firms, averaged \$16 million per partner in just nine months during the year 2000. Greg Ip, *If Big Board Specialists Are an Anachronism, They're a Profitable One*, WALL ST. J., Mar. 12, 2001, at A1.

On the other hand, many of the member firms of the exchange that do business with the public and direct the flow of customers' orders see electronic trading not as a threat but rather as an opportunity to reduce costs (and perhaps to pass some of the savings on to their customers).¹³⁷ In early 2000, three of the largest of these member firms, Goldman Sachs, Morgan Stanley Dean Witter, and Merrill Lynch, filed a confidential "white paper" with the SEC proposing that the Commission approve the establishment of a national electronic system, including a CLOB, for trading U.S. stocks.¹³⁸ The proposal contained an implicit threat that the firms would establish a national electronic trading system for NYSE stocks if the exchange does not do so. These three firms and other large international banks already control some of the new electronic systems that are challenging the old-line stock exchanges.¹³⁹

It is likely that the NYSE will resolve its membership conflict by demutualizing, i.e., by turning itself into a shareholder-owned, for-profit company and then selling its shares to the public.¹⁴⁰ A public offering of stock exchange shares would enable the NYSE's floor members to liquidate their financial stake in the exchange and thus free the exchange to modernize its trading operation, in order

¹³⁷ A plan developed by the NYSE in 1999 to set up an electronic communications network of its own to automatically match orders of up to 1,000 shares would cost the specialists an estimated \$100 million in commissions. These commissions represent potential savings to the exchange's member firms. The exchange's plan was expected to face strong resistance from its specialists. Heike Wipperfurth, *Beset by Rivals, the NYSE Considers Two Broad Electronic Trading Counterattacks*, INV. DEALERS' DIGEST, Nov. 8, 1999, at 3. Similarly, the LSE's plan to switch from a quote-driven to an order-driven market was delayed by opposition from the exchange's market-makers. See Portanger & Fuhrmans, *supra* note 21, at C1 (discussing the LSE's reluctance to adopt new technology for trading).

¹³⁸ Michael Schroeder & Randall Smith, *Sweeping Change in Market Structure Sought*, WALL ST. J., Feb. 29, 2000, at C1. The firms modified their proposal, after several market participants criticized it on the grounds that a single system for trading stocks would stifle competition and innovation. See Michael Schroeder, *Powerhouses Change Tune on Overhaul*, WALL ST. J., June 2, 2000, at C1 (explaining the change in overhaul plans as an attempt to speed up the pace of change).

¹³⁹ For example, Tradepoint is an electronic system, registered as a stock exchange in Britain, which is controlled by a consortium of 11 investors, including J.P. Morgan, Merrill Lynch, and Morgan Stanley. *Tradepoint*, *supra* note 48.

¹⁴⁰ Professor Karmel believes that demutualization may actually be a "cover for shifting the power structure of the NYSE and Nasdaq further away from the specialists and market-makers to the large securities firms." Roberta S. Karmel, *Turning Seats Into Shares: Implications of Demutualization for the Regulation of Stock and Futures Exchanges* 64 (Dec. 22, 2000) (unpublished paper, on file with author).

to compete successfully for order flow both with electronic communications networks in the United States and electronic stock exchanges in Europe.¹⁴¹

Another development that is likely to reduce the conflict among exchange members is the acquisition of specialist firms by large investment and commercial banks. In 2000 and 2001, FleetBoston Financial, a banking and brokerage conglomerate, which already owned a specialist firm, acquired M.J. Meehan & Co. for an estimated \$200 million, to form the NYSE's largest specialist firm, measured by the number of listings; Goldman Sachs acquired Spear, Leads & Kellogg, one of the largest specialist firms, for \$6.5 billion and Benjamin Jacobson & Sons, another large firm, for \$250 million; and Bear Stearns acquired Wagner Stott, the fifth largest specialist firm, for \$625 million. To the extent that the exchange's specialists are controlled by the users of the services that the exchange provides, the floor-generated resistance to electronic trading may weaken.¹⁴²

A publicly owned NYSE (or NASD) would have to be responsive to its shareholders and more willing to meet the competition from Europe and from electronic trading systems in this country. To a stock exchange, public ownership has the additional advantage of providing it with the cash it needs to invest in the technology that would enable it to compete effectively with its more efficient competitors in the United States and Europe. Furthermore, a publicly owned stock exchange can use the cash generated by a public offering, or its publicly-held stock, as currency to make acquisitions.¹⁴³ For this reason, a membership organization such as the NASD, even though it does not have the NYSE's conflict be-

¹⁴¹ Nevertheless, many independent traders are skeptical about demutualization for the reason that it would speed the push toward electronic trading and jeopardize their jobs. Peter A. McKay, *For-Profit Plans by Exchanges Hit a Big Wall: Member Firms*, WALL ST. J., Feb. 3, 2000, at C1.

¹⁴² See Gasparino, *supra* note 136, at C1 (discussing Goldman's agreement to acquire Benjamin Jacobson & Sons); Greg Ip & John Hechinger, *FleetBoston is Set to Buy M.J. Meehan & Co., Creating Largest Specialist Firm on NYSE Floor*, WALL ST. J., July 25, 2000, at C18 (discussing FleetBoston's acquisition of M.J. Meehan & Co.); Jeff D. Opdyke, *Goldman Boosts Clout In Trading*, WALL ST. J., Jan. 30, 2001, at C1 (discussing Bear Stearns' plans to buy Wagner Scott Mercator).

¹⁴³ One of the purposes of the initial public offering made in February 2001 by Deutsche Börse, the owner of the Frankfurt Stock Exchange, was to "give it an acquisition currency it will almost certainly use to buy other operators, putting itself at the centre of a European hub." Wassener & Boland, *supra* note 39, at 29.

tween floor members and "upstairs" members, will have difficulty taking over a major European exchange unless it demutualizes.¹⁴⁴

Demutualization, however, has potential drawbacks. The recent attempt by the Swedish OM Group to take over the London exchange, although unsuccessful, shows that a publicly owned stock exchange can be prey as well as predator. The London exchange managed to remain independent, largely because its charter did not allow any single shareholder to own more than 4.9% of its shares. Equally important, regulators see a conflict between the duty of the managers of a publicly owned stock exchange to maximize profits for the benefit of its shareholders and their regulatory obligation to protect investors, even if regulation means reducing profits. For this reason, it is possible that the government will reduce its reliance on self-regulation by the exchanges to protect investors, and will take an increasingly assertive role in regulating the securities industry.¹⁴⁵

7. REGULATION OF TRANSNATIONAL MARKETS

This brings us to the question of the role of government: first, in the development of the markets of the future, and, second, in the regulation of these markets. Government regulators, both in the United States and abroad, have expressed uncertainty as to what their role should be in shaping the structure of the markets. In 1975, Congress directed the SEC to "use its authority . . . to facilitate the establishment of a national market system for securities . . ." ¹⁴⁶ It has always been unclear what this mandate means, and the Commission's degree of assertiveness in restructuring the markets has varied from time to time. Under the leadership of Chairman Harold Williams in the 1970s, the SEC attempted to shape the markets of the future by requiring the various market centers to create unified facilities for communication of quotations and transaction prices, market linkage, order routing, and protec-

¹⁴⁴ See Jim McTague, *A Stockholder-Owned Big Board: Too Famous to Fail? Banking Reform and Life Insurers*, BARRON'S, Nov. 1, 1999, at 34 ("Congress and the regulators think its brand name is so closely identified with American capitalism that the government would never allow it to fail.").

¹⁴⁵ Before the LSE demutualized, the U.K. government relieved it of most of its regulatory duties. Boland, *A Share in the Future*, *supra* note 22, at 19.

¹⁴⁶ Securities Exchange Act of 1934, § 11(a)(2), 15 U.S.C. § 78k-1(a)(2) (1994).

tion of limit orders.¹⁴⁷ Not all of these initiatives came to fruition, and in later years the SEC has taken a less active approach to its role as a facilitator of the development of a national market system. Most recently, the Commission stated:

[T]he Commission has not attempted to dictate the ultimate structure of the securities markets. Instead, it has sought to establish, monitor, and strengthen a framework that gives the forces of competition sufficient room to flourish and that allows the markets to develop according to their own genius. The Commission remains committed to allowing the forces of competition to shape market structure in the first instance.¹⁴⁸

In conformance with this policy, the SEC has not required ECNs to register as national securities exchanges, a requirement that would have inhibited the growth of ECNs because of the costs involved.¹⁴⁹ Nevertheless, the SEC, on occasion, has not hesitated to use its authority to require the exchanges and the NASD to make structural changes that the agency deems necessary.¹⁵⁰

¹⁴⁷ For a critique of the role of the SEC in implementing the national market system, see Poser, *Restructuring the Stock Markets*, *supra* note 45, at 946-51. On important questions relating to market structure, the SEC's approach in recent years has been more cautious than it was in the 1970s, consisting of issuing "concept releases," requesting public comment on general issues, and inviting the market centers to develop plans, rather than itself adopting rules. *See, e.g., Self Regulatory Organizations*, *supra* note 99, at *21-22 (discussing the solicitation of responses concerning the NYSE's proposed rule change and the Commission's request for comment on market fragmentation).

¹⁴⁸ *Self Regulatory Organizations*, *supra* note 99, at *15.

¹⁴⁹ Under rules adopted by the SEC in 1998, an ECN may choose to register either as a broker-dealer or as a national securities exchange. An ECN that registers as a broker-dealer is required to comply with a new Regulation ATS, which imposes certain reporting and record-keeping requirements. An ECN that registers as a stock exchange becomes a self-regulatory organization and is subject to a panoply of regulatory requirements. *See* Regulation of Exchanges, *supra* note 43, at *25 (explaining regulation of exchanges and of ATS); *see also* Board of Trade of the City of Chicago v. SEC, 923 F.2d 1270 (7th Cir. 1991) (deferring to determination by SEC that a proprietary system for the electronic execution, clearing, and guarantee of transactions in put and call options on government bonds is not an exchange).

¹⁵⁰ For example, the SEC has required the U.S. securities markets to replace the traditional method of pricing securities in fractions with a decimal system. *See* Decimalization Implementation Plan Order, SEC Release No. 34-42360, 2000 WL

The European Commission ("EC"), lacking the direct power enjoyed by the SEC, has not played a significant role in the development of cross-border linkages of securities markets. The EC recently set up a working group to advise it on how best to integrate the markets of Europe and how to avoid the delays of its cumbersome current rulemaking procedures.¹⁵¹ It is questionable, however, whether the EC's deliberations will progress fast enough to have an effect on the fast-moving changes in the structure of the markets. It is more likely that the shape of the markets of the future will be determined by the business decisions of market participants, rather than by government regulators.

Even if it were possible to create an "international SEC," it is not at all clear that it would be desirable for such an agency to have plenary power over market structure. Government agencies are not well suited to make the kind of business decisions that would be involved in establishing an international securities market. In general, their role should be confined to protecting investors and the market against fraud and anti-competitive practices.¹⁵² The fact that the implementation of the proposed Archipelago-Pacific Exchange merger, referred to earlier,¹⁵³ has been delayed by the SEC for nearly a year, for political or bureaucratic reasons that may have little or nothing to do with its merits, highlights the defects of regulatory control over market developments.¹⁵⁴

Turning to the question of how cross-border securities markets are to be regulated, the fundamental question is the extent to which regulation will be left to the exchanges themselves and to what extent it will be performed by the government. The United States has a long tradition of self-regulation. Although the countries of Europe (with the exception of the United Kingdom) do not have this tradition, it is likely that self-regulation will be an im-

91915 (Jan. 28, 2000) (ordering the submission of a decimalization implementation plan from the exchanges and the NASD).

¹⁵¹ Bengt Ljung, *EU 'Wise Men' Group Cool to Creating SEC-Style Agency to Streamline System*, 32 Sec. Reg. & L. Rep. (BNA) 1588-89 (July 3, 2000).

¹⁵² I set forth this view in more detail in 1981, and the developments of the past twenty years have not changed my mind. See Poser, *Restructuring the Stock Markets*, *supra* note 45, at 946-51 (explaining the role of federal regulatory agencies, with a focus on the SEC).

¹⁵³ See *supra* text accompanying note 43.

¹⁵⁴ See *PCX Concerned About SEC Moratorium*, *supra* note 46 (discussing PCX's concern that the actions of the SEC, particularly its delay on rulemaking, could delay its plans to create the first open, electronic U.S. stock market).

portant element of any regulatory scheme covering cross-border markets.

In the United States, the stock exchanges have been required to be self-regulators since the enactment of the Exchange Act in 1934.¹⁵⁵ Self-regulation, however, has not been an altogether happy story. From the Whitney scandal of the 1930s, when the president of the NYSE was found guilty of embezzling a fund established for the widows and orphans of deceased members, to the NASD scandal of the 1990s, when market-makers colluded on a grand scale to fix bid-and-asked quotes, the self-regulatory organizations have often been too willing to look away, even when directly confronted by continued and egregious misconduct by their members.¹⁵⁶

Furthermore, when regulatory power is given to members of an industry, it is likely to be abused, to the detriment of the public. The economist Adam Smith, writing in 1776, put it well: "People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices."¹⁵⁷ Self-regulation thus produces a tension between the conflicting goals of the anti-trust laws, to preserve competition, and the securities laws, to protect investors. The Supreme Court has attempted to resolve this tension by giving the exchanges and the NASD a narrow exemption from antitrust liability, but only when they are actually performing their self-regulatory functions and only when the SEC is actively supervising their activities.¹⁵⁸

The exchanges and the NASD, being at the same time operators of a market and self-regulators, have a built-in conflict of interest. The combination of these two functions may be a factor causing the

¹⁵⁵ The 1934 Act, as originally enacted, required every stock exchange to register with the Commission, to file its rules with the Commission, to agree to comply with the Act and its rules, and to enforce compliance by its members, "so far as is within its powers." Philip A. Loomis, Jr., *The Securities Exchange Act of 1934 and the Investment Advisers Act of 1940*, 28 GEO. WASH. L. REV. 214, 221 (1959).

¹⁵⁶ See Nat'l Ass'n of Sec. Dealers, *supra* note 95, at 88,361 (discussing misconduct in Nasdaq); ROBERT SOBEL, NYSE 46-50 (1975) (outlining the Whitney scandal), Dale A. Oesterle, *Comments on the SEC's Market 2000 Report: On, Among Other Things, Deference to SROs, the Mirage of Price Improvement, the Arrogation of Property Rights in Order Flow, and SEC Incrementalism*, 19 J. CORP. L. 483, 488 (1993) (discussing the Whitney scandal and subsequent scandals concerning the SEC).

¹⁵⁷ ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS, *quoted in* THE OXFORD DICTIONARY OF QUOTATIONS 509 (3d ed. 1979).

¹⁵⁸ *Gordon v. NYSE*, 422 U.S. 659 (1975); *Silver v. NYSE*, 373 U.S. 341 (1963).

regulatory arm of the SRO, either consciously or subconsciously, to be less diligent than it should be in conducting its surveillance duties and in responding to warning signals of possible misconduct. In responding to the breakdown of self-regulation at the NASD in the 1990s, the SEC required the NASD to separate its regulatory function from its operation of the Nasdaq market by establishing a separate subsidiary for each of the two functions.¹⁵⁹ Curiously, the SEC has never required the NYSE to separate its regulatory functions from its operational functions, despite periodic and systemic collapses of its self-regulatory process.¹⁶⁰

It is not clear what impact stock exchange demutualization, which is already realized in Europe and all but inevitable in the United States, will have on the ability of stock exchanges to regulate themselves and the brokers and dealers who use their facilities. On the one hand, the regulatory staff of a stock exchange that is a publicly owned corporation will be one step further removed from

¹⁵⁹ The separation involves only the NASD staff. The Nasdaq Stock Market, Inc. and NASD Regulation, Inc. subsidiaries of NASD, Inc. have boards of directors that overlap with each other as well as with that of the parent company. See POSER, *BROKER-DEALER LAW*, *supra* note 82, at 13-16 (describing the overlap). In 2001, Nasdaq Stock Market, Inc. moved one step further away from NASD, Inc., its parent company, by completing a private placement of its stock. Following the private placement, the NASD owns forty percent of Nasdaq, while investors own sixty percent. *Nasdaq Completes Private Offering, Moving Toward Independence From NASD*, 33 *Sec. Reg. & L. Rep.* (BNA) 123 (Jan. 29, 2001).

¹⁶⁰ Aside from the Whitney scandal, referred to above, the NYSE self-regulatory system was unable or unwilling to deal effectively with the "back office" crisis of 1969-71 and the floor trading scandal of the late 1990s. See Special Subcomm. on Investigations of the House Comm. on Interstate and Foreign Commerce, 92d Cong., 1st Sess., *Review of SEC Records of the Demise of Selected Broker-Dealers*, 3, 18 (Subcomm. Print 1971) (proposing a need to improve eligibility requirements for becoming a broker-dealer); New York Stock Exchange, Exchange Act Release No. 34-41574, 1999 WL 430863, at *1 (June 29, 1999) (deliberating over the NYSE's failure to enforce compliance with § 11(a) of the Exchange Act, a section aimed at preventing independent floor brokers from taking advantage of their position on the floor); see also *United States v. Oakford Corp.*, 1999 WL 1201725, at *8 (S.D.N.Y. Dec. 13, 1999) (describing as "anorexic" the NYSE's enforcement of the statutory prohibition against a floor broker's trading for an account in which he held an interest).

In a separate case, the SEC found, in 1962, that self-regulation had almost totally collapsed at the American Stock Exchange ("ASE"), then the second-largest U.S. exchange, with the result that "manifold and prolonged abuses by specialists and floor traders" had occurred. SEC, *STAFF REPORT ON ORGANIZATION, MANAGEMENT, AND REGULATION OF CONDUCT OF MEMBERS OF THE AMERICAN STOCK EXCHANGE* 53-54 (1962). The ASE is now owned and operated by the NASD but run as a separate exchange.

the brokers and dealers who operate on the exchange than is the case today. Thus, it is likely that there will be less pressure on the staff to favor market participants over the public when their respective interests conflict. Under demutualization, the principal (or exclusive) loyalty of the staff of a publicly owned stock exchange will be to senior management and ultimately to the board of directors, whose interests may be more closely aligned with the investing public than would be the managers of a membership-owned exchange. On the other hand, a publicly owned stock exchange, whose stock is traded in the public securities market, may be under considerable pressure to maximize profits, even at the risk of reducing investor protections.¹⁶¹ On balance, the regulatory advantages of demutualization probably outweigh the drawbacks.

Despite its shortcomings and its non-reassuring history, self-regulation is likely to play an important role in the cross-border electronic stock exchanges of the future. There are two main reasons for this. First, although the lack of a supranational securities commission with the power to promulgate and enforce international standards for the increasingly international markets has been termed "a dangerous absurdity,"¹⁶² such a commission does not seem likely in the foreseeable future.¹⁶³ Even within the European

¹⁶¹ For example, the quest for profits may induce an exchange to seek listings of companies with little or no history of operations. Listing fees typically comprise a substantial portion of stock exchange revenues. In 1998, listing fees were the NYSE's largest single source of revenue, accounting for forty-one percent of its total revenues. NYSE, 1998 ANNUAL REPORT, *supra* note 87, at 43. In early 2001, the U.S. Government Accounting Office began an inquiry into whether the ASE, in its efforts to obtain new listings, was properly applying its own criteria for listing. GAO to Study Amex Listing Practices; Compare With Those of Other Markets, 33 Sec. Reg. & L. Rep. (BNA) 241 (Feb. 19, 2001).

Doubts as to whether a market that is under pressure for profits would be able to regulate itself have led to proposals that self-regulation be concentrated in a single industry-wide "superregulator," which would not be connected with any particular market. The superregulator proposal has been supported by the NASD but opposed by the NYSE, which is anxious to keep its "brand name" image. See *Rethinking Wall Street*, *supra* note 42, at 146 (discussing how the NYSE and Nasdaq intend to change to shareholder-owned, public companies).

¹⁶² Gilles Thieffry, *Towards a European Securities Commission*, INT'L. FIN. L. REV. (Oct. 1999), at 14.

¹⁶³ There have been many calls for a single regulatory agency to govern international markets, with power to enforce its decisions, but there has been little actual progress toward this goal. Aside from the reluctance of national governments to cede any part of their sovereignty, there is the difficulty that different countries have different institutional arrangements for the regulation of their securities markets. Solomon & Corso, *supra* note 9, at 329, 337; see Cox & Michael,

Union ("EU"), the enforcement of transnational standards has not been particularly effective. The current procedure requires the European Commission to adopt directives, which each member country implements by enacting national legislation.¹⁶⁴ This is by its nature a time-consuming and uncertain process. Changes in technology and in the securities business, on the other hand, are occurring with enormous speed. Of course, regulation by the EU, even if it were effective, would not govern participation in cross-border trading by residents of the United States and other non-European countries. Regulation can obstruct the use of technology that will reduce investors' costs, instead of protecting investors.

That leaves a lot of scope for self-regulation. We already see increased reliance on self-regulation of cross-border markets. Euronext provides an example. Although the securities firms participating in the system continue to be licensed and regulated by the regulatory agencies of their home countries, Euronext will have a central market surveillance department.¹⁶⁵ Furthermore, Euronext is developing a common set of rules to govern listing qualifications and disclosure requirements applicable to listed companies.¹⁶⁶ These are not rules promulgated by a government agency, but by contractual arrangements among the participants. This suggests that self-regulation has the ability to finesse the problems of national sovereignty and differing legal systems that stand in the way of developing and enforcing common governmental regulatory standards.

The second reason why self-regulation will continue to be important is that it is in the self-interest of the persons operating and participating in the securities markets to attract investors, and that can be done only if the markets are perceived to be open and fair. Any trading system, whether it is organized as a proprietary system or as a membership organization, must have rules governing

supra note 65, at 859-61 (discussing the role of regulation of international securities markets).

¹⁶⁴ See POSER, *BIG BANG*, *supra* note 20, at 346-53 (summarizing the European Union's directives dealing with investment services).

¹⁶⁵ See *Euronext Comprehensive Paper*, *supra* note 30, at 8 (depicting Euronext as a pan-European, integrated market in all of its aspects, including organization, regulation, and technology).

¹⁶⁶ See *id.* at 8, 10 (emphasizing that Euronext will require that the listing criteria for the three markets be harmonized); see also Vincent Boland, *Merger Reshapes the Financial Landscape*, *FIN. TIMES* (London), Mar. 31, 2000, at 2 (describing Euronext's vision of a single rulebook).

the conduct of its members and the means of enforcing these rules. For example, the rules of Tradepoint, the U.K. trading system, require that participating firms agree to comply with its rules, supervise their personnel, and provide Tradepoint with access to information and records necessary to carry out its regulatory functions.¹⁶⁷

8. CONCLUSION

In conclusion, the stock exchanges of the United States and Europe seem to be on a course of consolidation, largely driven by the need of the large firms and institutions that control order flow to reduce transaction costs. The result won't look much like the traditional exchanges that have existed since the nineteenth century. They will be electronic exchanges, and they will not be confined to national borders. They will be order-driven, in the sense that buy and sell orders or investors will be capable of being matched, although liquidity may be enhanced by NYSE-like specialists, at least for less active stocks. Finally, they will no longer be membership organizations, but will be business corporations, perhaps publicly owned, probably controlled by the international investment banks that control a large part of the flow of customers' buy and sell orders.

Despite the evident trend of the world's stock exchanges to consolidate, the appearance of a world stock exchange in the foreseeable future is by no means inevitable. Such a unitary market would require the participation and leadership of the two largest markets, NYSE and Nasdaq, both of which have trading systems that are basically incompatible with the leading European markets. The NYSE still uses an open outcry trading system, whereas the European markets are electronic; the NASD has a quote-driven system, whereas the leading European exchanges have order-driven systems. Because powerful constituencies in the governing structures of both of the U.S. markets—principally their specialists and market-makers—continue to resist change, a single international market for the world's leading stocks may be long in coming. Nevertheless, two recent developments—the move toward demutualization of the principal U.S. stock markets and the acqui-

¹⁶⁷ See *Tradepoint*, *supra* note 48, at Rules 4.1, 4.3, 4.11, 4.12, 4.20 (depicting the specifications of the Tradepoint rules of responsibility for compliance and regulatory cooperation).

sition of several NYSE specialist firms by large investment banks—may erode the NYSE's resistance to change.

As to the regulation of the markets of the future, it is unlikely that an international regulatory agency, with power to enforce its rules, will come into existence any time soon. Nevertheless, the difficulties inherent in coordinating different national rules and regulatory systems will not stand in the way of the creation of a world stock market. Despite the reluctance of national regulators to cede any part of their sovereignty, any economically feasible linkage of markets that is supported by the large international investment banks is likely to be implemented. The need for regulation of a world market will be met by self-regulation, despite its demonstrated shortcomings. Dependence upon self-regulation to keep the markets honest and competitive, and to continue to retain the confidence of investors, is likely to increase, if only for the absence of any feasible alternative to it.