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Information Technology and the Organization of Securities Markets

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Introduction

What the future holds for securities markets is of course a remarkably broad question, and undoubtedly designed by the conference organizers to be so. In order to keep from lapsing into free association, therefore, I will take the issue of technology and its implications for the future of securities markets to include the following pair of questions: First, will technology tend to increase or decrease the importance of securities as a financing vehicle in comparison to such alternative financial transactions as bank loans, capital leases, franchising relationships, and so on? Second, what changes will technology produce in the structure of primary and secondary securities markets? I take up these questions in order.

I. *Securities versus other financing methods*

The question of the relative importance of securities as a financing vehicle is, I believe, the easier of the two. By increasing the size and decreasing the costs of trading in secondary securities markets, technology will play to the strengths of securities and lead even more financial transactions to take place through securities markets.

The comparative strengths of securities as a means of financing a project are obvious. All of the essential features of securities are designed to facilitate their trading on a secondary market. Their terms are standardized so that a single piece of paper can alert a purchaser to the principal ways in which one differs from another. The bulk of the detailed rights and obligations that attach to a share of stock are found in the corporate

code of the state of incorporation of the issuer and in the issuer's charter. Both are publicly available and usually contain familiar provisions. Statutory and judge-made corporate law provide a few default settings that a charter may alter, but again the range of choices is well-known. Although the details vary, the same basic arrangement holds for debt securities. Debt securities are issued in the U.S. markets under an indenture, a contract between the issuer and a trustee for the benefit of investors. The indenture, although lengthy, is highly standardized and deviations from the typical default settings can ordinarily be identified on the certificate itself.

Other features of securities also make their transfer a simple matter. They are one-sided obligations—the initial purchaser complies with all its material obligations by paying the purchase price, and accordingly the identity of the holder is a matter of indifference to the issuer (except in circumstances such as takeovers and restructurings, but there the issuer's concern is not that the holder has obligations, but that it may have amassed formidable rights to control the issuer's decisions). They can be broken into retail-sized pieces, and a transfer agent is provided to record transfers, provide certificates registered to the new owner, and if necessary exchange, say, a certificate representing 500 shares for 5 certificates representing 100 shares each.

In short, these simple features—so simple it is easy to overlook them—make securities, in contrast to other contracts, transferable at a trivial marginal cost to the holder. Most of the cost of transfer is sunk—it consists of the resources devoted to the development of corporate law, standard-form indentures, Articles 3 and 8 of the Uniform Commercial Code, and the creation of transfer agencies and the contracts they enter into

with issuers. Among the myriad forms of contracts, only bank checks have had a similarly extensive infrastructure created to facilitate transfers.

Technology is rapidly decreasing the marginal costs of transfer. Trading systems now permit securities sellers and buyers to transact for fees that would have been impossibly low a generation ago. In that sense, technology has reinforced the principal advantage of securities compared to other financing vehicles.

One might still ask, however, whether technology is having a disparate impact on securities markets compared to, say, banking markets. Surely technology makes it as easy for bankers to gather, analyze and disseminate the information necessary to their business as it is for brokers and investment bankers to do so. If so, it is not obvious that technology affects the *relative* costs of different methods of financing, as opposed to simply making all methods less expensive.

To help analyze the question whether advances in information technology will affect the way in which businesses obtain financing, we might turn to Adam Smith's observation that the division of labor is limited by the extent of the market.[1] While that may seem far removed from present concerns, on further examination it is quite relevant. The extent of the market is, of course, determined partly by transportation and communications technology. The villagers of Smith's analysis are isolated because it is prohibitively expensive to inquire about prices in distant villages or to ship goods there. The geographical extent of a financial market is also sensitive to technology, particularly communications technology. Indeed, securities and commodities professionals have historically been among the first to adopt new communications technologies as a means

of arbitraging between markets. Holding all else equal, advances in communications and data processing technology tend to increase the geographical scope of financial markets.

Moreover, the use of securities as opposed to other financing vehicles is a form of specialization, or division of labor. Contrast a debt security to a bank loan. The latter typically comes bundled with other financial services. The disbursement of funds takes place in the first instance through a credit to the borrower's deposit account at the bank. The bank may require that the borrower maintain its principal demand deposit account at the lending bank so the bank can monitor the movement of funds. Other forms of financing, such as a franchisor's advance of credit to a franchisee, necessarily come bundled with other goods or services.

Securities do not come so bundled. The holder and issuer of a debt security occupy a debtor-creditor relationship, but no other. In effect, securities represent a higher degree of division of labor in contrast to other forms of financing. We might, then, predict that as technology expands the territorial reach of financial, managerial, product, and other markets, the type of specialization represented by a securities transaction will expand as well. That expansion, we might predict, will come at the expense of other forms of financing that come bundled with other services.

A hint of this has come in the remarkable growth of asset securitization over roughly the past twenty years. The market for asset-backed securities in the United States is very young. It began in the 1970s as a consequence of the federal government's attempts to create a secondary market for residential mortgages.[2] The technique spread to student loans, automobile loans, credit card receivables, and equipment leases, among others.[3] The past decade has witnessed still more innovative uses of securitization,

including the highly-publicized "Bowie Bonds" that permitted rock star David Bowie to securitize future music royalties[4] and securities backed by taxi cab medallions and health care receivables.[5]

There are several reasons for the growth of asset-backed securities. Banks need to pay attention to capital rules and to avoid dramatic mismatches between maturities on the asset and liability sides of their balance sheets. Developments in the law of secured financing, including revisions to Article 9 of the Uniform Commercial Code, have made it easier to create "bankruptcy remote" special purpose vehicles that issue asset-backed securities.[6]

One important reason, however, is precisely the desire mentioned above to separate the tasks of monitoring and other transactional services, on the one hand, and risk bearing, on the other. Many banks are increasingly in the business of originating and servicing loans, but not bearing the risk associated with their ownership. The latter is done by investors who purchase securities backed by residential or commercial mortgages or automobile, credit card, or student loan receivables. As technology makes it easier both to keep track of the performance of the underlying receivables and to reach investors around the world, we will likely see further examples of decoupling risk bearing from providing goods and services.

II. *Securities Market Structure*

Predicting how technology will affect the organization of securities markets is more complicated. At a minimum, it involves separate analyses for primary and secondary markets. But the most interesting issue underlying each, in my view, is the same. The structure of securities markets, at the highest level of abstraction, is

determined by the level and type of intermediation. As a definitional matter, one can say that organized securities markets first came into being when there arose a class of professional intermediaries for dealing in securities. Since then, a defining element of securities markets is their large number of specialized intermediaries, including brokers, market makers, money managers, analysts, mutual fund managers, securities information processors, and clearing houses, to name a few. So a question—perhaps *the* question—to ask when considering the effects of technology on market structure is whether the extent and types of intermediation will increase, decrease, or stay about the same. I will take up that question first with respect to primary markets, then secondary markets.

A. *Primary markets*

Technology has had a broad impact on the way investment banks get information in the hands of investors. Electronic versions of a prospectus can now often be downloaded from a web site or received by e-mail. Institutional investors may participate in roadshows through a webcast rather than in person.

These developments have presented the Securities and Exchange Commission (SEC) with a steady stream of questions regarding how statutes drafted for a paper world are to be intepreted and administered in the electronic world. To its credit, the SEC has tackled these questions promptly and reached pragmatic accommodations with underwriters on electronic prospectuses, road shows, and the like.[7]

Most of this activity, however, has taken place within the traditional framework of underwritten public offerings. With a few minor exceptions, technology has not enabled issuers and investors to deal directly with one another and thereby avoid the presence and

fees of underwriters. In short, technology has reduced the costs of selling securities but has not resulted in a substantially different level of intermediation.

The likely reason is straightforward. A company's sale of newly-issued stock to the public creates a classic "lemons" problem.[8] The company's officers inevitably know things about the firm that investors do not. (It is common to say that the company knows its quality or prospects better than investors do, but this is not quite right—investors in the aggregate may understand the relative quality of a company's products and management better than a small group of company insiders. It is certainly true, however, that company insiders on any given day have access to *some* information of which investors are unaware.) A rational investor, recognizing the informational asymmetry, will assume the worst. The worst, in this context, is that management's desire to sell at a given price implies that management's hidden information would, if disclosed, show the securities to be worth less than that price. Unfortunately, there is no logical stopping point to this analysis, and unless the informational asymmetry can be alleviated, there is no price at which managers would be willing to sell and investors would be willing to buy.

It is well-known that underwriters serve, in part, to resolve the asymmetry. Management gives underwriters extensive access to the company's internal information. The underwriters, in turn, rent out their reputation. That is, they implicitly represent to investors that the price at which the stock is offered is not too high, given the information available to the underwriters. If investors believe the underwriters are good at uncovering the information in management's possession and care about maintaining their

reputation, then investors will be willing to purchase at the price set by negotiations between the underwriters and issuer.

It may be that issuers will come up with some creative use of technology that permits them to solve the pricing problem without using the (expensive) services of underwriters. That solution, however, has not yet been devised and is not on the horizon.

B. *Secondary markets*

Technology has made a significant mark on secondary securities markets. Several electronic communications networks (ECNs), such as Instinet, Archipelago, Island, and others, offer trade execution and order routing services in competition with traditional exchanges and the National Association of Securities Dealers Automated Quotation System (NASDAQ).[9] Instinet, the largest ECN, reported a trading volume of 66.7 billion shares in 2000, or about one-fourth as much as the New York Stock Exchange.[10] Clearly, ECNs are a substantial force in the U.S. equity markets.

Do these developments represent a present or prospective change in the extent of intermediation in the securities markets or simply a means by which intermediaries use technology to compete more effectively and reduce the cost of providing their services? Put more bluntly, will the stock market some day look like eBay, with buyers and sellers interacting through a web site without the aid of brokers and dealers?[11]

One way to approach this question is to ask what has happened to date and then try to extrapolate. Technology has not, so far, reduced the extent of intermediation in securities markets. Electronic communications and trading networks have proliferated, but these are generally owned by exchanges, broker-dealers, securities information processors (such as Reuters, which owns Instinet), and other intermediaries.

Technology does, however, seem to be increasing the amount of specialization in intermediation. For example, a few years ago, the New York Stock Exchange and National Association of Securities Dealers amended their rules to permit the matching of trades (that is, comparison of the buyer's and seller's information about the terms of the trade) to be done electronically by a vendor separate from the clearing agencies that have traditionally performed the task.[12] There has also been some segmentation between primary markets, in which price discovery takes place, and markets like Instinet's Crossing Network, in which trades are made at prices taken from the primary network. An important reason for that segmentation is that some traders are willing to give up the immediacy available in the primary market in order to trade anonymously and without price impact.

One might ask whether this segmentation is also, in part, a result of regulation. A key distinction to keep in mind is the difference between a trading system regulated as an exchange and one regulated as a broker-dealer. Under the SEC's transaction and quotation dissemination rules, exchanges are required to make substantial and continuous disclosures of pre- and post-trade information.[13] Mandatory pre-trade information includes the best bid and offer and associated aggregate quotation sizes for each listed security. Mandatory post-trade information includes the price and volume of each round lot transaction. A broker is subject to less stringent disclosure requirements compared to an exchange. For example, it is not required to disclose the prices and sizes of orders its customers have given it.

Consider the position of a large liquidity trader, such as a mutual fund or pension fund. Occasionally it has to make a very large purchase or sale. Hypothetically, if the

fund attempts to purchase 100,000 shares of a particular stock, it may find that the price moves against it. Perhaps other traders suspect it of having information. Or perhaps the combination of the size of the order and the time within which it must be filled mean that the market the fund faces does not resemble perfect competition, and other traders are able to behave strategically.

The fund can choose from among a number of solutions to the problem, each of which entails transaction costs. It may conduct the trade off-exchange in the so-called "upstairs" market. There, it may intentionally forego anonymity in order to convince other traders that it is uninformed.[14] By revealing, say, that the purchaser is a large mutual fund that had a substantial inflow of new money during the day, the purchaser's broker can assure a seller that the purchase is not prompted by information.

Another solution is patience, which means accepting slower execution. By waiting patiently for sellers to arrive and executing the order in parts over time, the purchaser's broker can reduce its price effect. The intuition here is simple: even though a market as a whole is highly competitive, the more I limit my search for transacting partners to a specific time and place, the more uncompetitive the market will seem. The reverse is also true. If I spread the search over a larger time period—if I am patient—the more competitive the market will be.

A related strategy is to use secrecy as a complement or substitute for patience. The purchaser may wish to hide the price and/or size of the order for as long as possible. This may not, however, be fully possible if the order is submitted to a regulated exchange or inter-dealer system (that is, NASDAQ). Exchanges and inter-dealer systems are required to collect and make publicly available the best bid and offer and associated

aggregate quotation size. The purchaser might break the order into several smaller pieces and use multiple brokers. That will ensure that the individual size of any bid is relatively small, but the aggregate size of orders at the best bid will be revealed.

An alternative trading system regulated as a broker-dealer, however, may give the fund the opportunity to enter an order while disclosing price and not size, or size and not price, or without disclosing either.[15] If the system then automatically executes matching orders, the fund could purchase stock at its bid price without anyone knowing prior to execution that it had entered a bid at that price.

Exchanges have argued that the reduced transparency of orders in trading systems that are regulated as brokers gives the latter a built-in competitive advantage.[16] This regulatory advantage, however, is being chipped away. In 1996, the SEC amended its rule on quotation dissemination to require that market makers disclose to the relevant exchange or inter-dealer system any orders they submit to an electronic trading network.[17] Thus, one type of large liquidity trader, a market maker, can no longer use alternative trading systems to hide the details of its orders. It appears, furthermore, that the SEC's ultimate objective is to bring electronic trading systems into the national market system, thus assuring that they operate with the same amount of pre- and post-trade transparency as the regulated exchanges and NASDAQ.

In part, then, the future structure of trading systems will be shaped by how ardently the SEC pursues the goal of a fully integrated national market. Congress set that goal in 1975, and the SEC has in the interim become an enthusiastic supporter. It is perhaps worth noting that it is not self-evidently obvious that mandated transparency is always a good idea. Following the market microstructure literature, we can note that a

fully transparent market is "consolidated" in the sense that all participants have access to the same information about past transactions and past and present order flow and will therefore quote identical prices. On the other hand, a less transparent market is "fragmented" in the sense that different traders have access to different information and may quote different prices.[18] The policy question that must be answered in order to determine whether and how to regulate is whether competing securities markets left to their own devices will provide more nearly optimal levels of transparency and consolidation compared to what a regulator might mandate. Those who desire greater regulation presumably believe one of two things. First, they may think that large traders prefer less transparency than do retail investors, and exchanges will cater to the large traders. Alternatively, they may have concluded that the optimal amount of fragmentation is zero, so that the very idea of allowing trading systems to compete by offering differing levels of transparency is harmful.

The market microstructure literature has not produced definitive answers to these questions. However, one observation is worth noting. When consolidation has been the consequence of the actions of profit-seeking individuals responding to new technologies, the results have been beneficial. For example, the use of the trans-Atlantic cable to transmit information between New York and London in the nineteenth century produced greater consolidation between the New York and London bond markets by reducing price differentials between those markets.[19] By contrast, regulatory mandate has been less successful at creating consolidation. The establishment of the Consolidated Tape Association in 1975 at the behest of Congress and the SEC did not reduce price differentials between the New York Stock Exchange and the regional exchanges.[20]

A second way of thinking about the future of securities intermediaries is to ask what functions they perform and whether technology might make those functions unnecessary. In a prior article, I argued that the human capital-intensive world of traditional exchanges was designed in part to make trading attractive both to informed and liquidity traders.[21] Drawing on the market microstructure literature, I noted that the floor trading environment appears to make it possible for specialists to (on average) identify and quote wider spreads to informed traders. This, in turn, makes it possible for uninformed traders to trade at narrower spreads, alleviating an adverse selection problem that would otherwise exist. More automated systems, I argued, had yet to demonstrate that they could also solve the adverse selection problem and accordingly become the primary market for trading in a significant number of securities.

Rather than repeat that argument in detail, I will focus here on another feature of the relationship between technology and intermediation. That is the role of intermediaries as a substitute for formal contract enforcement. A simple example will suffice to set the stage for the discussion. On the three trading days September 6, 7 and 10, 2001, an aggregate of 3,816,800 shares of AMR Corp., the parent company of American Airlines, were traded at prices ranging from $29.25 to $31.62. The ordinary settlement cycle in the U.S. equity market is three business days. Thus, on the morning of September 11, 2001, various individuals and institutions had agreed to purchase nearly 4 million shares of AMR for which they had not yet paid. By mid-morning, those purchasers could have had no doubt that these shares were now worth considerably less than $30 per share. Indeed, when trading re-opened on September 17, AMR Corp.

opened at $16 per share and closed at $18. What kept those purchasers from avoiding roughly $50 million of losses by defaulting on their payment obligations?

The fear of suit for nonperformance cannot be the entire story. Assuming an average trade size of 1,000 shares, these 4 million shares may have been purchased by as many as 4,000 investors. It is difficult to imagine that so many lawsuits could have been filed and disposed of in any reasonable time frame. Some of the trades, moreover, would have been small enough not to be worth pursuing individually, yet some sellers, such as market makers or specialists, could have been on the wrong side of enough of them to have suffered a large aggregate loss.

A large part of the answer, of course, is that the entire system of trading equities is designed with this sort of problem in mind. Exchange rules typically provide that when two exchange members enter into a trade on the exchange floor, each can look to the other for performance in case the customer fails to perform.[22] Member brokers, therefore, have every incentive to assure that the customer will perform, as the broker will have to make good on the contract if the customer does not. Brokers may therefore protect themselves through their own agreements with their customers. The broker may, for example, require that the customer have on deposit with the broker sufficient shares or cash to perform a contract before the broker will bring the order to the exchange floor. The procedures for protecting against default are even more highly refined on futures exchanges, where the performance date for a contract may be months, rather than days, in the future. All contracts are assigned to a central clearinghouse so that no buyer or seller need inquire into the creditworthiness of the counterparty. The contracts are marked to market daily, and the party against whom the market has moved must deposit with the

clearinghouse cash in the amount of the prior day's gain or loss. The failure to do so results in the contract being closed out by an offsetting transaction. This assures that a defaulting customer can impose on the clearinghouse the loss of at most one day's price movement per contract.

We must also ask what incentives an exchange has to strictly enforce its rules against its member brokers. Go back to our executory contracts for the purchase or sale of AMR stock. In the short run, it may not be in the exchange's best interests to insist that brokers personally make good on these contracts if their customers default. Each contract has a buyer and a seller, one of which will gain and one of which will lose by enforcement. The exchange can't reduce the amount of these ex post trading gains and losses. On average, the impact of enforcing the contracts on its members is therefore zero, and the exchange must expend resources in the effort. The exchange does, however, affect the distribution of the gains and losses by its decision to enforce or not enforce the contracts. Imagine that, by chance, on the relevant days retail investors were net sellers and the exchange specialist was a net buyer. Here the exchange's short-run interest is not to insist on performance.

Clearly, however, it is better for the exchange's members in the long run that these contracts be enforced. In this respect, it may be that traditional, floor-based exchanges have a subtle advantage over electronic networks. The exchange's substantial investment in assets that are useful for securities trading but much less valuable in any other use functions as a quasi-rent in the hands of members of the public who transact with exchange members.[23] These investments reduce the likelihood of opportunistic defaults by the exchange. Assume, for example, that the difference between the

exchange's assets when used to trade stocks and in their next-best use is $10 billion. If the exchange develops a reputation for opportunistic defaults, investors may desert it for other trading systems, thereby imposing a $10 billion loss on exchange members collectively.

At present electronic trading systems offer services directly to exchange or NASDAQ market makers and institutional investors. These traders transact in sufficiently large amounts to be worth pursuing in court in the event of default. Moreover, each trades with sufficient frequency to be constrained by reputational concerns. Finally, market makers, as registered broker-dealers, are subject to enforcement actions by an exchange and/or the NASD if they fail to perform, and those self-regulatory organizations in turn face constant scrutiny from the SEC.

The position of retail investors, by contrast, is quite different. An individual investor typically does not trade in sufficiently large quantities to make suit a cost-effective enforcement device and is constrained only lightly, if at all, by reputational concerns. In order to offer services to retail investors without the interposition of a broker, therefore, a trading system will likely have to rely on collateral for all trades. That, in turn, will imply a substantial infrastructure similar to what brokers and clearing brokers currently provide. At the same time, the system would have to monitor the orders customers enter in order to avoid errors as well as to satisfy regulators that the system can detect attempted manipulation or insider trading.

Once we consider these extra services, it is not clear that anything new is happening in our hypothetical retail electronic trading network. Brokers have always internalized some trading that would otherwise take place on an exchange or inter-dealer

system. Our trading network, then, would look very much like a traditional retail brokerage that happened to view its ability to internalize trades through an automated process as a competitive advantage.

Conclusion

Advances in communications and data processing technology have always had an impact on securities markets. The most common and predictable is to reduce price variations between close substitutes traded in different markets. In effect, technology extends the geographical reach of securities markets. In doing so, it also makes it possible for even more financial transactions to take place through securities markets. In that sense, technology changes the form of intermediation in credit markets.

Nevertheless, the overall impact of technology on the extent and type of intermediation in securities markets is difficult to predict. It is tempting to hypothesize that future securities markets will not require brokers, exchange specialists, OTC market makers, and so on. But those intermediaries solve a host of informational and strategic problems that will continue to exist so long as private information, opportunism, human error, and other essentially fixed features of the landscape exist as well.

Endnotes

[1] Adam Smith, The Wealth of Nations, Book 1, Chapter III.

[2] See Lynn M. LoPucki, The Death of Liability, 106 Yale L J 1, 24 (1996).

[3] Id.

[4] See Jennifer Burke Sylva, Comment, *Bowie Bonds Sold for Far More Than a Song: The Securitization of Intellectual Property as a Super-Charged Vehicle for High Technology Financing*, 15 Santa Clara Computer & High Tech L J 195 (1999).

[5] See Lois R. Lupica, *Asset Securitization: The Unsecured Creditor's Perspective*, 76 Tex L Rev 595, 601-03 (1998).

[6] See Steven Schwarcz, *The Impact on Securitization of Revised UCC Article 9*, 74 Chi.-Kent L Rev 947 (1999).

[7] See, e.g., Securities Act Release No. 7233 (Oct. 6, 1995) (concept release on electronic delivery); Securities Act Release No. 7234 (Oct. 6, 1995) (various technical amendments to rules and forms to accommodate electronic delivery).

[8] See George Akerlof, The Market for "Lemons": Quality Uncertainty and the Market Mechanism, 84 Q.J. Econ. 488 (1970), for the classic analysis of the lemons problem in markets with asymmetric information.

[9] An excellent discussion of traditional and non-traditional exchanges appears in Ruben Lee, What is an Exchange? (Oxford University Press, 1998).

[10] Instinet volume was obtained from its web site, www.Instinet.com, visited Nov. 24, 2001. NYSE volume of 262.5 billion shares is from New York Stock Exchange, Inc., Fact Book for the Year 2000, at 3 (2001).

[11] A recent news article described eBay as "creating an efficient worldwide pricing mechanism for collectibles similar to the stock market." See "Dispenser of Instant Treasures," L.A. Times, Nov. 22, 2001, at A1, col. 1. One could turn the idea on its head and ask whether the stock exchange could come to look like eBay.

[12] See "Confirmation and Affirmation of Securities Trades; Matching," Securities Exchange Act Release No. 39829 (1998).

[13] See Exchange Act Rules 11Aa3-1, 11Aa3-2, and 11Ac1-1.

[14] See Kenneth Burdett & Maureen O'Hara, Building Blocks: An Introduction to Block Trading, 11 J. Banking & Fin. 193 (1987).

[15] For example, when Instinet requested that the SEC staff take a no-action position on Instinet's decision not to register as a securities exchange, it stated that the size of orders in Instinet's order book would not be revealed to other traders unless desired. See Instinet Corporation, 1986 LEXIS SEC No-Act 1 (Inquiry dated April 23, 1986). The Arizona Stock Exchange permits hidden orders. See Lee, supra note 9, at 99.

[16] See Regulation of Exchanges, Exchange Act Rel. No. 38672, 1997 SEC Lexis 1178 (May 23, 1997) (SEC concept release on regulation of alternative trading systems).

[17] See Exchange Act Rule 11Ac1-1(c)(5).

[18] See Ananth Madhavan, Consolidation, Fragmentation, and the Disclosure of Trading Information, 8 Rev. Fin. Stud. 579 (1995).

[19] See Garbade and Silber, Technology, Communication and the Performance of Financial Markets 1840-1975, 33 J. Fin. 819 (1978).

[20] Id.

[21] See Paul G. Mahoney, Technology, Property Rights in Information, and Securities Regulation, 75 Wash U L Q 815, 823-35 (1997).

[22] See, e.g., New York Stock Exchange, Constitution, Article VII, Sec. 3.

[23] For a discussion of quasi-rents and their consequences for long-term contracting, see Armen A. Alchian and Harold Demsetz, Production, Information Costs, and Economic Organization, 62 Am Econ Rev Pap & Proc 777 (1972).