

ISSN 1045-6333

U.S. SECONDARY STOCK MARKETS:
A SURVEY OF CURRENT REGULATORY
AND STRUCTURAL ISSUES AND A REFORM
PROPOSAL TO ENHANCE COMPETITION

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Discussion Paper No. 331

07/2001

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Cambridge, MA 02138

The Center for Law, Economics, and Business is supported by
a grant from the John M. Olin Foundation.

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U.S. Secondary Stock Markets: A Survey of Current Regulatory and Structural Issues and a Reform Proposal to Enhance Competition

Laura N. Beny*

Abstract

U.S. stocks trade on an increasing number of structurally diverse and competitive stock markets. However, there is concern about the type of competition that has emerged and its implications for investor protection and market efficiency. For instance, the increasing challenge posed to the principal stock exchanges (like the NYSE) by alternative markets raise concerns about excessive order flow fragmentation and its implications for stock price efficiency and liquidity. The controversial practice of payment for order flow (POF), whereby dealers pay brokers to route customers' orders to them whether or not such a routing results in the best price for the customer, also causes concern because it significantly reduces investors' choice over where their trades will occur. The paper considers these and other contemporary issues (like market transparency and collusion in dealer markets) in considerable detail. It also provides a useful survey of the financial economics literature on these topics.

The paper argues that the current regulatory framework (the National Market System) inadequately addresses the above concerns. In light of technological and regulatory changes over the past two decades, the theoretical framework upon which the present regulatory system is based is no longer appropriate. In particular, recent developments cast doubt on the view that the primary exchanges are natural monopolies. Therefore, I propose a fundamentally different approach to the regulation of U.S. secondary trading markets: a genuinely competitive regime that gives issuers and, derivatively, investors a genuine choice over where their shares will trade.

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I. Introduction

U.S. equity securities can trade on a variety of structurally diverse markets. For example, they can trade on any one or more of the following markets: the national exchanges (New York Stock Exchange (NYSE) or American Stock Exchange (AMEX)), the five regional exchanges¹ the over-the-counter market (OTC)/NASDAQ,² proprietary or alternative trading systems (PTSs or ATSS), and the foreign markets. Furthermore, over the past two decades the different markets have become increasingly competitive with one another. While the NYSE once unambiguously dominated U.S. secondary market order flow, this is no longer true as a significant share of trading volume has flowed to the other market centers (especially to the regional exchanges and NASDAQ).³

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¹ The five U.S. regional exchanges include the Boston, Chicago, Cincinnati, Pacific, and Philadelphia stock exchanges. See U.S. Securities and Exchange Commission, Division of Market Regulation, MARKET 2000: AN EXAMINATION OF CURRENT EQUITY MARKET DEVELOPMENTS, Washington, D.C.: U.S. Government Printing Office, at 8 (1994) [hereinafter MARKET 2000].

² NASDAQ stands for the National Association of Securities Dealers Automated Quotation system. Unlike the national and regional exchanges, which are auction markets for the most part, this market is a dealership market. See Part I.A.2, *infra*, for a discussion of the difference between these two structures.

³ See MARKET 2000, *supra* note 1, at 8.

These twin phenomena – structural diversity and greater competition –are largely due to regulatory and technological changes that have occurred over the past twenty years. These changes include the 1975 Amendments to the Securities Exchange Act and the computerization of trading services.⁴ Investor demand has also played an important role in the evolving competitive structure of secondary markets:

The equity markets have changed in response to users' desires for better services, greater efficiency, and more competitive prices. Users have pressed the organized markets and entrepreneurs operating independently of the markets to improve traditional trading services. The result has been a multitude of new services and products.⁵

In spite of the standard economic argument that more competition is always better, however, there is concern about the form that competition among the different market centers has taken. For example, the increasing challenge posed to the dominant exchanges (like the NYSE) by other market centers has raised concerns about excessive order flow fragmentation and its implications for liquidity and efficiency.⁶ Part of the concern stems from the nature of the regulatory system. In particular, some commentators claim that the regulatory centerpiece of U.S. secondary markets, the National Market System (NMS), has led to more fragmentation of order flow than is desirable from the standpoint of economic efficiency.⁷ Other policy concerns focus on dubious practices that have emerged alongside the increasing contestability of order flow. A case in point is

⁴ See generally MARKET 2000, *supra* note 1.

⁵ *Id.* at 7.

⁶ See generally Morris Mendelson and Junius W. Peake, *Intermediaries' or Investors': Whose Market is it Anyway?* 19 J. CORP. L. 443, 459 (1994) [hereinafter Mendelson and Peake] (discussing order flow fragmentation of the U.S. markets).

⁷ See *Id.* at 447.

payment for order flow (POF).⁸ POF, it is argued, reduces if not wholly eliminates investors' choice over where their trades will take place. Thus, the argument runs, increased competition for order flow has not led to a correspondent increase in investor choice, contrary to basic economic theory.

Market transparency raises additional policy concerns.⁹ The debate over market transparency involves the question of optimal transparency rules in light of both efficiency and fairness and also in light of the fact that different investors and traders prefer different levels of transparency. Central to the transparency debate is the policy issue whether and to what extent (i.e., for what price) the law should mandate the traditional exchanges to distribute trade and price information to other market centers. Several commentators argue that transparency rules are unduly burdensome to the traditional exchanges, with negative competitive implications.¹⁰ This paper explores these current problems and others in considerable detail.

I will argue that the current regulatory framework does not adequately address these concerns. In particular, in light of the changes of the last twenty years, the theoretical framework that the current regulatory system is based upon is no longer an appropriate way to view the U.S. secondary trading environment. New theory and evidence call into question the monopoly view of primary

⁸ See generally Allen Ferrell, *Protecting Small Investors*, Paper delivered at the *Seminar in Law and Economics*, Harvard Law School (September 29, 1998) (discussing the legal and economic implications of payment for order flow).

⁹ See MARKET 2000, *supra* note 1, Study IV.

¹⁰ See, e.g., J. Harold Mulherin and Jeffrey Netter, *Prices are Property: The Organization of Financial Exchanges from a Transaction Cost Perspective*, 34 J. L. & ECON. (1991).

exchanges upon which this system is significantly based.¹¹ Therefore, I propose a fundamentally different approach to the regulation of U.S. secondary trading markets: a genuinely competitive regime that gives issuers and investors a choice over where their shares will trade.

Part II provides a basic overview of the structural diversity of secondary trading markets for U.S. securities. Part III describes the centerpiece of the current regulatory framework, the NMS, in order to set the stage for discussion of current policy concerns in Part IV. Part IV is unique in the sense in that it presents the issues in survey format, relying on both theoretical and empirical findings from the microstructure literature of financial economics. Then, Part V assesses the current regulatory system's performance in addressing these issues. In Part VI, I consider new theories of the role of primary exchanges and trading markets in general and, based on these theories, propose a scheme of issuer and investor choice to supplant the current regulatory framework. Finally, Part VII concludes.

II. Structural Diversity of U.S. Secondary Markets

a. Periodic versus Continuous Markets

Secondary markets differ in the degree of trading continuity they offer. The two major regimes are continuous trading and periodic (or call/batch) trading. On call markets, trading (buying and selling) only takes place at discrete points in

¹¹ See generally Hideki Kanda and Jonathan Macey, *The Stock Exchange as a Firm: The Emergence of Close Substitutes for the New York and Tokyo Stock Exchanges*, 75 CORNELL L. REV. (1990) (rejecting the monopoly assumption).

time on a given trading day.¹² By contrast, as the name implies, continuous trading takes place continuously throughout a trading day.

Call auction markets have several drawbacks.¹³ First, they impose waiting costs on investors since trading occurs only periodically. Second, they may be characterized by excessive price volatility, since new information is impounded into prices with greater delay. Furthermore, because prices incorporate information with a delay, "the value of news is significantly less [and] much less incentive exists to research issuers."¹⁴

Continuous auction markets do not have these problems.¹⁵ First, they eliminate waiting costs, since trading occurs instantaneously. Second, every trader knows the market price instantaneously and can trade her preferred amount at a given moment of time at the market price at that instant. This reduces the likelihood of excessive price volatility due to strategic order placement. Finally, in continuous markets, new information is implicitly conveyed to the market on a continuous basis through instantaneous price changes.

However, the call market does have some advantages over a continuous market. First, it involves lower supervision costs relative to a continuously open market. This probably explains why thin stock markets are frequently organized as call auctions.¹⁶ Second, a call auction market may be a superior method for addressing asymmetric information: "by imposing delay, [it] may be a mechanism

¹² See Lawrence E. Harris, *LIQUIDITY, TRADING RULES, AND ELECTRONIC TRADING SYSTEMS* 27 (1990).

¹³ Hans Stoll, *Alternative Views of Market Making*, in *MARKET MAKING AND THE CHANGING STRUCTURE OF THE SECURITIES INDUSTRY* 67, 72 (Yakov Amihud et al. eds., 1985).

¹⁴ Mendelson and Peake, *supra* note 6, at 459.

¹⁵ Stoll, *Alternative Views*, *supra* note 13, at 73.

¹⁶ *Id.* at 69-70.

that forces information traders to reveal, by their order placements, the existence of information".¹⁷ Finally, Roll finds that periodic trading markets fared better during the 1987 stock market crash.¹⁸

In recent years, there has been a small trend toward call markets. The Arizona Stock Exchange, for example, "is the prototypical example of the new call market."¹⁹ These new call markets have been motivated largely by the growth of index trading by institutional investors:

Many large institutional investors now keep at least some percentage of their assets indexed – their portfolios are designed to track the overall price movement of the market as a whole . . . Those who index do not buy or sell on news. Instead, they execute transactions to [among other things] rebalance their portfolio keeping it closely weighted to track the particular index being followed, or to make changes in asset allocation formulas.²⁰

Index investors care less about the timing of their trades than about obtaining costs of execution as near to zero as possible. Some believe that these costs are lower on call markets. However, Mendelson and Peake argue that even money managers who index trade on information, i.e., engage in active portfolio management.²¹ Yet, since the value of news is considerably less in call markets, most institutional investors probably still prefer to trade in continuous markets.²²

Not surprisingly, then, most major world equity markets are organized as continuous markets. Moreover, many call markets are in the process of switching to continuous trading systems. This suggests that the benefits of call auctions probably outweigh their costs. Since most U.S. markets are continuous trading

¹⁷ *Id.* at 72.

¹⁸ See generally Richard Roll, *The International Crash of 1987*, FINANCIAL ANALYSTS JOURNAL, September 1988.

¹⁹ Mendelson and Peake, *supra* note 6, at 458.

²⁰ *Id.*

markets, the literature does not devote significant attention to this dimension of market structure.

b. Auction versus Dealer Markets

Several of the current policy issues considered below (e.g., payment for order flow and the fragmentation/consolidation debate) are fundamentally rooted in the distinction between auction and dealer markets. Therefore, it is useful to consider the two structures individually and in comparison. At the same time, however, one should bear in mind that few secondary markets fall purely into one of these categories; rather, most markets have features of both systems.²³

The traditional stock exchange is organized as an agency auction market.²⁴ This market structure allows investors to trade directly with one another, without a market maker acting as intervening principal (i.e., trading for its own account). All public orders are exposed to each other on the floor of the exchange: "[t]he agency-auction rules place dealer activity in a secondary role that supplements, rather than displaces the direct interaction of public orders."²⁵ Market makers' "orders are superseded by public market orders and limit orders."²⁶ Market makers' primary role (if any) is to smooth out order flow imbalances and thus maintain price stabilization. For example, each NYSE-listed stock is assigned to one or a few specialists who are responsible for making or maintaining the market

²¹ *Id.*

²² *Id.* at 459.

²³ For example, the NYSE has both auction and dealer features.

²⁴ Examples of traditional exchanges include the NYSE and the AMEX, in the United States, and the Tokyo Stock Exchange (TSE) in Japan.

²⁵ Letter from the NYSE to SEC in response to Market 2000 Study [hereinafter NYSE letter].

²⁶ William G. Christie and Roger D. Huang, *Market Structures and Liquidity: A Transactions Data Study of Exchange Listings*, 3 J. FIN. INTERMED'N 300, 303 (1994).

in that stock.²⁷ Specialists perform this function by "buying (selling) from their personal accounts when public buy (sell) orders are lacking."²⁸ The AMEX and the regional stock exchanges, like the NYSE, are structured on the auction principle. The Tokyo Stock Exchange (TSE) is a prominent international example of a "pure" auction market.²⁹

Dealer markets are more loosely organized than auction markets.³⁰ Any dealer can make markets in the stocks of her own choosing. More than one dealer per stock is a common occurrence. Moreover, in contrast to exchange markets, "buyers and sellers interact directly with dealers who take the opposite side of every trade as principals."³¹ Therefore, public traders do not interact directly with one another, as in exchange markets. Instead, they always trade against dealers who trade for their own accounts. A customer's order is not exposed to all of the other market participants, only to the dealer to whom she sends her order. In addition, order precedence rules tend not to be as important in dealership markets as they are in exchange markets where such rules are generally well-defined and seriously enforced. Therefore, public orders generally might not receive as high a priority as they do in agency-auction markets.³²

²⁷ See generally Kanda and Macey, *supra* note 11, at (discussing the structure of the NYSE).

²⁸ *Id.* at 303.

²⁹ TSE is a "pure" auction market because, unlike NYSE, it does not have specialists who are responsible for maintaining order flow balance. Rather, all trading occurs through the interaction of public orders. See Kanda and Macey, *supra* note 11, at 1044.

³⁰ See generally Christie and Huang, *supra* note 26, at 303-304.

³¹ Christie and Huang, *supra* note 26, at 303-304.

³² For example, the NYSE contends that the "NASD [National Association of Securities Dealers] recently institutionalized . . . explicitly allowing a dealer to trade ahead of a customer if the dealer provides certain boilerplate disclosure on the customer's confirmation." NYSE Letter, *supra* note 25. On the other hand, NASD has recently instituted new rules for limit order protection.

In addition, it is generally understood that agency-auction markets are inherently more transparent than dealer markets. According to the NYSE:

Agency-auction markets make regulations such as reliable last sale reporting – which benefit others but not necessarily oneself -- easy to enforce. Instantaneous last sale reporting and publication of prices are the norm. All transactions occur in one place.³³

Some academic commentators who, presumably, are more neutral share this assessment:

Auction markets are inherently more transparent than dealer markets, in the sense that more information can be made directly available to all market participants. They provide greater pretrade transparency, i.e., greater visibility of the best price at which any incoming order can be executed.... Post-trade transparency, i.e., the public visibility of recent trading history also tends to be lower in dealer markets. [Moreover, in] electronic auction markets, where all trade is centralized, real-time trade publication is feasible, and generally enforced.³⁴

This has led proponents of the auction exchange structure in the U.S. to "argue that their system offers lower trading costs since floor trading is more proficient at uncovering informed trades than the anonymous screen-based system" of the dealer market.³⁵

On the other hand, the dealer market is open to any dealer, provided it has the necessary capital and adequate profitability to stay in the business. Thus, there is free entry and exit into the dealership market, making it closer to the classical competitive market paradigm than the agency-auction structure. In fact,

³³ NYSE Letter, *supra* note 25, at 12.

³⁴ Marco Pagano and Ailsa Roell, *Transparency and Liquidity: A Comparison of Auction and Dealer Markets with Informed Trading*, 51 J. FIN. 579, 580 (1996).

³⁵ Christie and Huang, *supra* note 26, at 304.

proponents of the dealer structure emphasize "the increased competition characterized by a market open to all dealers, not just the specialist."³⁶

Examples of the dealer market structure in the U.S. include NASDAQ and the OTC markets. A prominent international example is the London Stock Exchange (SEAQ).

i. Empirical Evidence on the Relative Costs of Auction and Dealer Markets

Several recent empirical studies in the microstructure literature attempt to compare the performance of auction and dealer markets. De Jong, Nijman and Roell compare trading costs for dual listed European stocks that are traded on both London's SEAQ International (a dealership market) and the Paris Bourse (an automated continuous auction market). They find that effective spreads³⁷ are generally lower in Paris than in London, consistent with the theoretical predictions of Pagano and Roell.³⁸ Curiously, however, they find "that the effective spread in Paris is virtually flat in trade size, whereas the effective spread in London declines with size."³⁹ Their finding is consistent with that of Christie and Huang, who test "whether structurally-induced reductions in trading costs emerge when firms relocate from a dealer market to a specialist system."⁴⁰

³⁶ *Id.* For example, proponents of NASDAQ "object to NYSE Rule 390 that prohibits NYSE member trades from being executed on the NASDAQ/NMS" *Id.* at 304. But note that there has been considerable controversy recently over whether dealership markets are truly competitive. See generally William G. Christie and Paul H. Schultze, *Why Do NASDAQ Market Makers Avoid Odd-Eighth Quotes?* 49 J. FIN. 1813 (1994).

³⁷ The literature focuses on effective rather than posted spreads because effective spreads are generally smaller than posted spreads. See generally David Fialkowski and Mitchell A. Peterson, *Posted versus Effective Spreads: Good Prices or Bad Quotes?* 35 J. FIN. ECON. 269 (1994).

³⁸ Frank De Jong, Theo Nijman, and Ailsa Roell, *A Comparison of the Cost of Trading in French Shares on the Paris Bourse and Seaq International*, 39 EUR. ECON. REV. 1277, 1297(1995).

³⁹ *Id.* at 1298.

⁴⁰ Christie and Huang, *supra* note 26, at 301.

Christie and Huang find that the average trading cost reduction "for firms that move from the NASDAQ [dealership market] to the NYSE (AMEX) is 4.7 (5.2) cents per share."⁴¹

Given that trading costs seem to be lower in exchange markets, it seems somewhat puzzling that the trading volume of dealership markets continues to grow relative to the trading volume of exchange markets.⁴² Either of the following propositions might explain this apparent puzzle: dealership markets offer customers a package of economically beneficial services that are not captured in simple measures of trading costs (i.e., a measurement problem) or something is diverting the would-be natural flow of orders to exchange markets (i.e., a market failure problem). Those who hail the increased competition from "peripheral" markets as a welcome development tend to support the first view.⁴³ In contrast, the latter proposition is commonly propounded by those who believe that the increased competition facing centralized exchange markets has led to excessive market fragmentation, with adverse implications for investor protection, market efficiency and "best execution" of customers' orders.⁴⁴ I will explore this and related issues in further detail in Parts IV and V.

III. The National Market System

⁴¹ *Id.* at 323.

⁴² See generally David Easley, Nicholas M. Kiefer, and Maureen O'Hara, *Cream-Skimming or Profit-Sharing? The Curious Role of Purchased Order Flow*, 51 J. FIN. 811(1996) (noting the declining dominance of traditional exchange markets and asking whether it is due to genuine competition or "cream skimming" of particular orders from these markets by new markets).

⁴³ See, e.g., Hans Stoll, *The Causes and Consequences of the Rise in Third Market and Regional Trading*, 19 J. CORP. L. 509, 514 (1994) (arguing that the increased competition facing the traditional exchanges is beneficial); Richard G. Ketchum and Alden S. Adkins, *Investors Win with Competing Markets*, 7 NO. 4 INSIGHTS 17 (1993) (arguing that "investors' interests are best promoted by a regulatory system that encourages a variety of trading systems and services").

The National Market System (NMS) is the regulatory centerpiece of U.S. secondary markets. Through its 1975 amendments to the Securities and Exchange Act, specifically section 11A, Congress enacted legislation to facilitate the NMS. An understanding of the goals and elements of the NMS will set the background for a survey of the major current issues in Part IV and for the policy analysis in Parts V and VI.

a. Goals of the National Market System

Congress and the SEC were optimistic that the NMS would facilitate the achievement of the following goals:

- (i) economically efficient executions;
- (ii) fair competition among brokers and dealers, among exchange markets, and between exchange markets and markets other than exchange markets;
- (iii) public availability of quotation and transaction information;
- (iv) an opportunity to obtain best execution; and
- (v) an opportunity to obtain execution without dealer participation to the extent consistent with economically efficient executions and opportunity to obtain best execution.⁴⁵

I will assess whether the NMS has succeeded in achieving these goals in Part V, placing particular emphasis on its performance in addressing the issues discussed in Part IV. First, however, it is useful to consider the major elements of the NMS.

b. Components of the NMS

The 1975 amendments which created the NMS led to three major changes in the regulatory structure of U.S. trading markets: abolition of fixed commissions, elimination of "anti-competitive" trading restrictions on exchange members, and creation of the intermarket linkages that form the backbone of the NMS. Each of these structural changes was motivated by "the most important

⁴⁴ See, generally Mendelson and Peake, *supra* note 6 (discussing the negative implications of

objective of the [NMS] to foster the development of strong competition among its members.⁴⁶

i. Elimination of Fixed Commissions

From 1792 until 1975, the NYSE enforced minimum commission rates and prohibited its members from cutting prices.⁴⁷ In addition, off-exchange trading restrictions prevented NYSE-members from circumventing the minimum price rule by trading on other exchanges at lower prices. For a long time, academics had criticized the SEC's acquiescence to fixed NYSE rates. They argued that the minimum rates were anticompetitive, restricted trading, benefited brokers at the expense of investors, and led to economic inefficiency.⁴⁸ In short, they argued that "the NYSE was a cartel, and the SEC its enforcement arm."⁴⁹

Therefore, one of the first things that the SEC did after the 1975 amendments was to abolish fixed commissions. On May 1, 1975, NYSE commission rates became "freely negotiable".⁵⁰ Immediately, average commission rates dropped by about 25 percent.⁵¹

ii. Removal of Off-Exchange Trading Restrictions

Shortly after eliminating fixed commissions, the SEC forced the NYSE to repeal certain anticompetitive trading restrictions imposed by stock exchanges on

order flow fragmentation).

⁴⁵ 15 U.S.C. § 78k-1(a)(1).

⁴⁶ Joel Seligman, *The Future of the National Market System*, 10 J. CORP. L. 79, 117 (1984) (quoting the SEC).

⁴⁷ See generally Gregg A. Jarrell, *Change at the Exchange: The Causes and Effects of Deregulation*, 27 J. L. & ECON. 273, 276 (1984) (discussing fixed rates and their abolition).

⁴⁸ See *Id.* at 273.

⁴⁹ *Id.*

⁵⁰ *Id.* at 280.

⁵¹ *Id.*

their members. The goal was to eliminate boundaries among the major marketplaces:

In [the new] national market system the efforts of individual marketplaces to achieve consolidation at the expense of other marketplaces were to be displaced by a much grander effort that would no longer recognize marketplace boundaries.⁵²

The SEC particularly singled out "any and all rules of national securities exchanges which limit or condition the ability of members to effect transactions in securities otherwise than on such exchanges."⁵³ Thus, NYSE Rule 390 came under direct attack. That Rule prohibited NYSE members from transacting NYSE-listed stocks off the exchange. Exchange Act 19c-1 prohibited imposition of Rule 390 to transactions by members acting in an agency capacity. Then, Exchange Act Rule 19c-3 prohibited application of Rule 390 to NYSE members trading securities listed after April 26, 1979.⁵⁴ Therefore, according to the SEC, now the "practical effect of Rule 390 is limited to preventing NYSE member firms from directly internalizing order flow during exchange hours in stocks listed before April 26, 1979, and encouraging such members to effect transactions overseas in these stocks after the NYSE is closed ("after hours trading")."⁵⁵ With Rule 19c-1 and Rule 19c-3, the SEC intended to "increase competition in the trading of exchange-listed securities."⁵⁶

Congress was also interested in increasing competition in the trading of OTC securities. Therefore, it enacted § 12(f)(2) of the Securities Exchange Act to

⁵² Jeffrey L. Davis and Lois E. Lightfoot, *Fragmentation versus Consolidation of Securities Trading: Evidence from the Operation of Rule 19c-3*, 41 J. L. & ECON. 209, 211 (1998).

⁵³ *Id.*

⁵⁴ Securities Exchange Act Release No. 16888 (June 11, 1980), 45 FR 41125 (June 18, 1990).

⁵⁵ MARKET 2000, *supra* note 1, at 29.

enable direct competition among exchange specialists and OTC market makers for unlisted securities trading. That section delegates authority to the SEC to allow trading of an unlisted OTC security by an exchange specialist, provided that such trading "is consistent with the maintenance of fair and orderly markets and the protection of investors." If the latter condition is not met, the SEC will not grant unlisted trading privileges. For example, if unlisted trading would put an OTC dealer at a competitive disadvantage relative to exchange specialists, unlisted trading privileges will not be granted.

iii. Intermarket Communications and Order Routing

Finally, the 1975 amendments led to the creation of the core features of the NMS: three systems of electronic communications linking the different markets. These systems include the Consolidated Tape, the Consolidated Quotation System (CQS), and the Intermarket Trading System (ITS).

The Consolidated Tape disseminates information on securities transactions within 90 seconds of their completion for most of the exchange-listed stocks. This is true regardless of where the trades occur, whether on an exchange or on the OTC market. The Consolidated Tape is supplemented by a number of NASDAQ-operated trading systems. These systems disseminate last sales information in real time for virtually all non-exchange-listed securities (i.e., OTC securities).

In contrast, the CQS publicly distributes pre-transaction quotation information. In particular, it disseminates best bid and offer prices (NBBO) for "subject securities" based on the quotations furnished by exchanges and OTC

⁵⁶ Seligman, *supra* note 46, at 127.

dealers. The exchanges must supply the price quotations and trade sizes that their members are willing to trade at. Similarly, the NASD must provide the highest bid and lowest offer prices and quotation sizes that member broker-dealers are willing to trade at.

The ITS enables members of one market center to route their orders to the other market centers for execution. It accomplishes this by linking OTC dealers and the exchanges through the ITS-NASD linkage, the NASD's Computer Assisted Execution System (CAES). The CAES also allows OTC dealers to transfer orders for exchange-listed securities among themselves for execution. However, only Rule 19c-3 securities can be routed through the ITS/CAES linkage. On the other hand, most exchange-listed securities can be routed from one exchange to another for execution, through the ITS. Such securities need not be 19c-3 stocks.

ITS rules require that a broker-dealer whose price is inferior to the NBBO must either match the latter price or make a "commitment to trade" on the market posting the NBBO. Once the commitment is accepted, the order is routed to and executed on the market posting the best price. The ITS requires its member markets to abide by "trade-through" rules. These rules prohibit brokers and dealers from executing an order at an inferior price to the NBBO without first trying to route it for execution on the market offering the best price.

Nevertheless, "trade throughs" still occur.⁵⁷

⁵⁷ Ferrell, *supra* note 8, at 30.

After surveying some of the major issues of U.S. secondary trading markets in Parts IV and V will evaluate how well the current NMS has addressed these issues.

IV. Current Issues: Literature Survey of Theory and Evidence

In this section, I provide an overview of the theoretical and empirical literature that deals with the major issues facing U.S. secondary stock markets.

a. Consoliation/Fragmentation Debate

i. Overview

As noted above, the U.S. equity market is characterized by multimarket trading. Particularly in the last decade, the number of alternative trading venues has increased considerably. The greatest competition facing the primary exchanges comes from the OTC ("third" or dealer) market and the regional exchanges. Not everyone welcomes this development. In fact, it is quite controversial. Essentially, the tension is between competition among the different market centers and consolidation of order flow:

[t]he effect of multimarket trading . . . is ambiguous because of the conflicting effects of competition and fragmentation. On one hand, multimarket trading may generate liquidity improvements due to enhanced intermarket competition. On the other hand, it may hurt liquidity because it induces fragmentation of the order flow between markets.⁵⁸

Perhaps for this reason, the SEC has not fully repealed restrictive rules like the NYSE's Rule 390, as was noted in Part III. Neither has it permitted uninhibited trading of OTC securities on exchange markets. As a result, some commentators argue that SEC maintains a regime of stifled competition: "By

⁵⁸ Yakov Amihud and Haim Mendelson, *A New Approach to the Regulation of Trading Across*

such a policy the SEC has perpetuated a system of limited competition in securities trading that the 1975 Securities Act Amendments quite clearly intended to abolish."⁵⁹ However, as argued in more detail later, the SEC has always had an ambivalent attitude about promoting market fragmentation, and perhaps rightly so.

Before considering the parameters of the debate, it is necessary to define what exactly is meant by the terms consolidation and fragmentation.

Fragmentation has been defined as "the inability of an order in one market to trade with an order in another market."⁶⁰ In contrast, a consolidated or centralized market "is one in which there is a total confluence of all bids and offers in a security, regardless of the nature or identities of the persons or organizations entering them."⁶¹

ii. Arguments against Market Fragmentation

Opponents of market fragmentation criticize it on several grounds. First, they argue that consolidated trading on a centralized exchange enhances stock market liquidity. This is because it consolidates buy and sell orders in the same central location, therefore increasing the likelihood that orders will interact. Trading volume increases, making the market more deep and thus reducing the price impact of trades and trading costs (i.e., bid-ask spreads). By contrast, trading that is dispersed across multiple trading venues tends to disperse buying and selling orders, hence reducing the potential for their interaction. Market

Securities Markets, 71 N.Y.U. L. REV. 1411, 1433 (1996).

⁵⁹ Seligman, *supra* note 46, at 129.

⁶⁰ Hans Stoll, *Principles of Trading Market Structure*, 6 J. FIN. SERVICES RES. 75, 92 (1992).

⁶¹ Mendelson and Peake, *supra* note 6, at 455.

fragmentation therefore leads to a higher price impact of trades and higher spreads, i.e., less liquid markets. Financial economists Amihud and Mendelson argue that:

Multimarket trading . . . may reduce liquidity because it can cause fragmentation when a security's order flow is split among a number of markets that are not perfectly coordinated . . . the number of bids and offers to buy and sell the security in each market declines, as does the aggregate trading volume, relative to a regime under which the entire order flow is consolidated in one market . . . an order of a given size sent to a market for execution will find fewer limit orders or quotes available on the other side at any given price. Both the price impact of the order and the bid-ask spread it faces in each market will tend to be higher than if trading were confined to a single market.⁶²

Second, proponents of consolidation argue that price discovery is more efficient in consolidated markets. They contend that as markets become too fragmented price discovery is harmed.⁶³ Prices tend to become less accurate measures of true value, the more dispersed trading becomes. In fact, a number of commentators claim that centralized exchanges dominate the process of price discovery and peripheral markets simply free-ride off of them, i.e., market makers in the "third" market simply mimic the prices that are set by the central exchanges. Ultimately, it is argued, this is detrimental to liquidity:

Multimarket trading can also hurt liquidity by inducing free riding by dealers in one market on other markets' quotes and trade information, with traders in the peripheral market using the price information included in the quotes . . . in the principal market for their own trading in that peripheral market. Free riding reduces the incentive of dealers in one market to provide liquidity by placing quotes and limit orders that improve upon the quotes in other markets.⁶⁴

According to this view, free-riding by satellite markets on primary markets' (i.e., traditional, centralized exchanges) price discovery amounts to an uncompensated

⁶² Amihud and Mendelson, *supra* note 58, at 1434.

⁶³ See e.g., MARKET 2000, *supra* note 1, at III-2.

⁶⁴ Amihud and Mendelson, *supra* note 58, at 1434-35.

expropriation of their property rights and may therefore reduce their incentive to facilitate price discovery.

Third, opponents of market fragmentation argue that it reduces the likelihood of "best execution" of customers' orders. The SEC states that "[b]roker dealers are under a duty to seek to ensure that their customers obtain the 'best execution' of their orders."⁶⁵ However, critics view the rise in off-exchange trading as detrimental to best execution. They argue that the agency-auction structure is more conducive to price improvement, i.e., "executions at prices inside the current quotation for a stock."⁶⁶ In contrast, there is a "concern about whether customers receive best execution of their orders" in dealer markets.⁶⁷ The NYSE, for example, contends that price improvement is less probable in dealer markets where market makers may try to "capture the spread for themselves."⁶⁸ Indeed, the evidence considered in Part III suggests that dealer markets are more costly.

A fourth potential problem with multimarket trading is the fact that different trading markets have different degrees of transparency. As previously discussed, auction markets tend to be more transparent, not only because exchanges tend to prescribe and enforce transparency rules but also due to the centralization of order flow that occurs on the exchange floor. In dealer markets, on the other hand, a particular order is visible only to the dealer who receives it.

⁶⁵ 17 C.F.R. pt. 240. See generally Kalman J. Cohen, Robert A. Schwartz, and David K. Whitcomb, *An Analysis of the Economic Justification for Consolidation in a Secondary Security Market*, 6 J. BANKING AND FIN. 117 (1982) (arguing that market fragmentation will generally lead to a deterioration in the quality of the market and therefore advocating that all trades be required to go through a central exchange with a consolidated limit order book).

⁶⁶ NYSE Letter, *supra* note 25, at 12.

⁶⁷ MARKET 2000, *supra* note 1, at III-1.

According to Amihud and Mendelson, this type of asymmetry of transparency among different trading markets can exacerbate the free-rider problem (noted above) and therefore have a negative impact on liquidity. As an illustration, consider block trades on U.S. markets:

While NYSE rules require the immediate disclosure of block transactions, blocks of U.S. stocks can be executed in other markets . . . without immediate disclosure. Given the considerable information content of block trades . . . asymmetry in disclosure requirements between markets may increase asymmetry of information between traders and consequently may reduce liquidity. Investors who want to hide information will execute their block trades in markets with lenient reporting requirements, free riding on those who trade in an exchange that provides prompt trade reports. The order flow into the market that enforces trade reporting rules may also decline, further reducing liquidity.⁶⁹

Recently, this concern has acquired international significance, as the order flow of U.S. securities has migrated toward less transparent international markets.

iii. Arguments for Market Fragmentation

Not all observers view the growth in alternative trading centers, and the consequent increase in the geographical fragmentation of the equity trading markets, so negatively. O'Hara and Macey, for example, welcome multimarket trading as a development that caters to customers' diverse needs. In general, they argue, fragmentation is associated with innovation and competition.⁷⁰ Although they concede that most price discovery is conducted on the principal exchanges and that price improvement on these exchanges may indeed be superior to that on the alternative exchanges, they maintain that the alternative markets offer non-price services (like speedy execution, greater anonymity, etc.) that many traders

⁶⁸ NYSE Letter, *supra* note 25, at 12.

⁶⁹ Amihud and Mendelson, *supra* note 58, at 1438.

⁷⁰ Maureen O'Hara and Johnathan Macey, *Regulating Exchanges and Alternative Trading Systems: A Law and Economics Perspective*, Response to 1997 SEC Concept Release, p. 8.

prefer.⁷¹ In their opinion, dealing with the "free-riding on the property rights in information generated in the primary market" by forcing "all trading into one venue . . . forces all customers to 'purchase' the same bundle of market services, even those they do not want."⁷² In short, O'Hara and Macey believe that some traders are willing to sacrifice on price improvement in exchange for better performance along these other relevant dimensions of trade execution.

Stoll's assessment is similar: "[t]he revealed preferences of consumers . . . suggest that the third market and regionals are providing a useful service, for consumers are carrying out an increased volume of small trades at these locations."⁷³ In his view, the alternative trading centers would not exist and continue to thrive as they are if they were not more cost effective: "[s]uccessful competition from the third market and the regional exchanges . . . requires that the costs of establishing these markets and executing transactions on them be less than the costs of trading on the NYSE."⁷⁴ Stoll also suggests that the increase in market fragmentation is more apparent than real, since the increase in geographical fragmentation is offset by increases in technological intermarket linkages.⁷⁵

iv. Empirical Evidence

The SEC's Division of Market Regulation ("the Division") takes a relatively positive view of recent developments in its Market 2000 Report. In the

⁷¹ *Id.* at 8-9.

⁷² *Id.* at 8.

⁷³ Stoll, *supra* note 43, at 516.

⁷⁴ *Id.* at 514.

⁷⁵ "While today's markets are more fragmented geographically than in the past, they are economically integrated by . . . computer technology that provides price information and efficiently routes orders to different markets." *Id.* at 509.

Division's view, increased competition among the different markets has led to better services and enhanced efficiency.⁷⁶ According to the Division, "the markets [have] improved systems for trade routing, execution, reporting, and processing."⁷⁷ In turn, "the resulting efficiencies have translated into lower costs as commission rates have decreased and transaction fees have declined."⁷⁸ Furthermore, a wider range of services has "expanded the choices available to investors and professionals. Market participants no longer are limited to the primary markets but can select from numerous alternatives to satisfy their needs."⁷⁹ Finally, according to the Division, "[t]echnological innovations spurred by competition" have enabled the U.S. equity markets efficiently to handle the considerable growth of trading volume "that only several years ago would have strained the markets severely."⁸⁰ However, the Market 2000 Report does not offer a rigorous statistical substantiation of these claims. Therefore, it is necessary to consider the financial economics literature for an objective assessment of the markets' recent performance.

Charles Lee examines the quality of price execution for a group of NYSE-listed securities that, in addition to trading on the NYSE, are also traded on one of the five regional U.S. exchanges and in the OTC market. He finds that despite the fact that these different markets are linked by the electronic ITS, "the execution price of similar adjacent trades can differ systematically depending on the

⁷⁶ MARKET 2000, *supra* note 1.

⁷⁷ *Id.* At 11.

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.*

location of execution."⁸¹ Specifically, Lee finds that trades on the NYSE virtually always experience superior price improvement relative to trades in the OTC markets. They also generally do better than trades on the regional exchanges, though not always. Lee conducts three separate tests, which yield the following results. First, "liquidity premiums are typically lower at [only two regional] stock exchanges and higher at the NASD," relative to the NYSE.⁸² Second, "investors tend to pay lower prices for buys and obtain higher prices for sells on the NYSE relative to adjacent off-board [i.e., regional exchanges and OTC market] trades."⁸³ Third, "[t]he market centers with the most frequent inside-the-spread executions-- e.g., the NYSE, Midwest, and Cincinnati--also had the most favorable prices. Conversely, the market center least likely to improve prices over the prevailing ITS quote--the NASD--had the least favorable trade prices."⁸⁴

Lee's findings are consistent with those of an earlier study by Blume and Goldstein. Focusing on all trades occurring in 1989, they find that trades on the NYSE occur more frequently within the posted quotes than trades on the regional or OTC markets.⁸⁵ Comparing trade prices in each market to the best current intermarket quote, they find that the NYSE achieves an average price improvement of 0.79 cents per share relative to the other market centers.⁸⁶ Similarly, a study by Huang and Stoll finds that, for small trades, the effective

⁸¹ Charles Lee, Market Integration and Price Execution for NYSE-Listed Securities, 48 J. FIN. 1009, 1011 (1993).

⁸² *Id.*

⁸³ *Id.* This implies estimated off-Board trading costs of "\$13 to \$18 million for 1988 and \$36 to \$47 million for 1989." *Id.*

⁸⁴ *Id.* at 1014.

⁸⁵ Marshall E. Blume and Michael A. Goldstein, *Quotes, Order Flow, and Price Discovery*, 52 J. FIN. 221 (1997).

⁸⁶ *Id.*

spread on the NASD exceeds that on the NYSE by an average of roughly 1.3 cents. Their sample consists of transactions in about 250 S&P stocks in 1991.

The empirical evidence also seems to support strongly the hypothesis that peripheral markets free-ride on the price discovery of the principal markets.⁸⁷ Garbade and Silber, for example, look at dual-listed stocks and discover that price changes in the principal markets where they are traded precede price changes in the peripheral markets.⁸⁸ Moreover, Hasbrouck finds that more than 90 percent of price discovery takes place on the NYSE. He concludes that the evidence corroborates the free-rider hypothesis, since: "[t]he information share of the NYSE is greater than its market share in volume, suggesting that trading in peripheral markets is free riding on the NYSE information."⁸⁹

While the preceding evidence seems consistent with the argument that market fragmentation (i.e., off-exchange trading) tends to increase the costs of trading, other studies have reached a different conclusion. For example, Cohen and Conroy find that Rule 19c-3, which permits off-exchange trading of NYSE stocks that were listed after April 26, 1979, reduced market spreads. From this, they conclude that fragmentation has been beneficial. McInish and Wood similarly find that order flow fragmentation has had beneficial effects. Using five equity portfolios that "are nearly identical in attributes that affect their spreads, premiums, and volatility [but] as different as possible in fragmentation of order share," they find that portfolios with more fragmented order flow have lower bid-

⁸⁷ Amihud and Mendelson, *supra* note 58, at 1436.

⁸⁸ Hans Stoll [.] n. 128.

⁸⁹ *Id.* at 1437, n. 129.

ask spreads and liquidity premiums than portfolios with less fragmented order flow.⁹⁰

It is difficult to square these conflicting findings. However, for methodological reasons, Lee's findings have more pervasive support among financial economists than the conflicting studies showing that fragmentation has lowered bid-ask spreads. Also, his findings are corroborated by a more recent study, which finds that "Rule 19c-3 has not caused any reduction in spreads but may have caused an increase."⁹¹ Therefore, the empirical evidence seems more likely than not to support the hypothesis that off-exchange trading (on regional and OTC markets) is more expensive than trading on the principal exchange (NYSE). This is somewhat surprising in light of the express purpose of the NMS to promote efficiency and competition.

Why, then, does the volume of off-exchange trading continue to grow steadily if it is more costly? As noted above, proponents of market fragmentation argue that such growth is due to the fact that alternative trading centers offer an attractive array of services that may not be available on the principal exchanges. Indeed, Lee concedes that price performance is merely one aspect in "the evaluation of dealer services."⁹² Elements "such as the speed of execution, the amount of guaranteed depth (shares available at each price), and the reliability of trade settlement are all relevant in assessing execution quality."⁹³ Another

⁹⁰ McInish, Thomas H., and Robert A. Wood, *Competition, Fragmentation and Market Quality*, in THE INDUSTRIAL ORGANIZATION AND REGULATION OF THE SECURITIES INDUSTRY 63 (Andrew W. Lo, ed., 1996).

⁹¹ Davis and Lightfoot, *supra* note 52, at 291.

⁹² Lee, *supra* note 81, at 1012.

⁹³ *Id.* In fact, "brokers' fiduciary responsibility to procure 'best execution' for their clients may involve tradeoffs along these different dimensions." *Id.*

potential explanation lies in the controversial practice of payment for order flow ("POF").⁹⁴ POF is discussed in the next section.

b. Payment for Order Flow (POF)

i. Definition and Magnitude of the Practice

"POF is the practice whereby OTC market makers and regional specialists pay brokers one to two cents per share for sending them order flow."⁹⁵ What makes the practice especially controversial is the fact that it is most likely to be practiced by retail brokers (especially discount brokers) and, as a result, "the practice has its greatest impact on small investors."⁹⁶ According to the SEC's Market 2000 Report, POF constituted 5% of the total consolidated tape trades in 1989 and 9.3% in 1993.⁹⁷ Bernard L. Madoff Investment Securities is the biggest market maker engaged in POF, conducting 80% of all such trades in 1990.⁹⁸

ii. Possible Motivations for POF

There are three potential motives for engaging in POF.⁹⁹ First, if a market maker can buy or sell at the wider spread of the displayed quote, rather than at the lower effective spread available on the exchange, the resulting profitability will give the market maker the incentive to pay for order flow. (In essence, this is taking advantage of the price improvement that occurs on the exchange.) Second, if market makers can distinguish between informed and uninformed order flow

⁹⁴ See, e.g., Blume and Michael A. Goldstein, *Quotes, Order Flow, and Price Discovery*, 52 J. FIN. 221 (1997) (noting that "[n]on-NYSE markets attract a significant portion of their volume when they are posting inferior bids or offers, indicating they obtain order flow for other reasons, such as 'payment for order flow.'").

⁹⁵ Note, *The Perils of Payment for Order Flow*, 107 HARV. L. REV. 1675, 1676 (1994).

⁹⁶ *Id.* See also Ferrell, *supra* note 8.

⁹⁷ MARKET 2000, *supra* note 1, at II-10-11.

⁹⁸ Blume and Goldstein, *supra* note 85, at 225 (citing Weiss).

⁹⁹ *Id.* at 226-227.

(and therefore avoid trading against informed traders), then they will have an incentive to pay for uninformed order flow. The structure of the dealership industry suggests that this is not an unrealistic scenario:

A market that pays for order flow usually enters into an agreement with a brokerage firm with the understanding that the brokerage firm will only send specific kinds of orders to the market, typically the orders of small retail customers, who are less likely to have information not already incorporated into market prices.¹⁰⁰

Finally, the minimum tick size prevailing in the market might increase the profitability of payment for order flow, by facilitating surpa-competitive spreads. In that case, even if the displayed (NBBO) spread is at the minimum possible of one-eighth, a market maker that matches it may still be willing to purchase order flow. The following section addresses in more detail the evidence on anticompetitive pricing in dealer markets.

iii. Arguments for POF

Proponents of POF claim that it improves the efficiency of competition among the trading markets: [p]referencing, internalization, and other order flow inducement practices have the benefit of providing order flow to market centers or participants that otherwise might not have sufficient volume to remain viable. In this sense, it replaces competition between dealers on a given exchange . . . with competition between competing market centers for large blocks of order flow.¹⁰¹

Only efficient, low cost market makers, the argument runs, can afford to pay for order flow. Markets that lose order flow to other markets that are engaging in the practice are simply less efficient. Their loss of order flow is just

¹⁰⁰ *Id.* at 226.

¹⁰¹ Lightfoot, Lois, Peter Martin, Mark Peterson, and Eric Sirri, *Referencing and Market Quality on U.S. Equity Exchanges*, Paper presented at NBER Conference, July 17, 1997.

"a natural phenomenon of competition."¹⁰² Stoll, for example, contends that POF by itself does not explain the rise in "third" market and regional trading, since the NYSE (and any market, for that matter) could also provide comparable rebates if they were efficient enough.¹⁰³ Moreover, supporters claim that the ultimate beneficiaries of POF are customers, to whom the advantages of increased competition are "indirectly passed [on] in the form of lower commission rates, more expeditious executions, and enhanced services."¹⁰⁴

iv. Arguments against POF

There are two main strands of criticism of the practice. First, it is said to violate brokers' fiduciary duty toward their customers.¹⁰⁵ And, second, it is said to harm the structure of the equity market.¹⁰⁶

First of all, POF is contentious from an agency law perspective.¹⁰⁷ The practice may violate brokers' duty of best execution (discussed above), since it reduces their incentive to send orders to the market where price improvement is most likely. The principal exchange (NYSE) does not pay for order flow, only the regionals and the OTC market. As a result, brokers have less incentive to send orders to the principal exchange. However, as noted above, the principal exchange is more likely to conclude trades between the quoted spreads (i.e., to

¹⁰² INDUCEMENTS FOR ORDER FLOW, A REPORT TO THE BOARD OF GOVERNERS, NATIONAL ASSOCIATION OF SECURITIES DEALERS, INC. 25 (1991) [hereinafter INDUCEMENTS FOR ORDER FLOW].

¹⁰³ Stoll, *supra* note 43, at 515. On the other hand, Ferrell argues that it is institutionally impossible for exchanges to pay for order flow. Ferrell, *supra* note 8, at 23.

¹⁰⁴ INDUCEMENTS FOR ORDER FLOW, *supra* note 102.

¹⁰⁵ See generally, Ferrell, *supra* note 8, at 18-26.

¹⁰⁶ For instance, in response to the Division's Market 2000 Report, the NYSE wrote that "we believe that the practice of paying for order flow is inconsistent with sound market structure policy and the fiduciary obligation of a broker to effect best execution of its customers' orders. Accordingly, we urge the Commission to ban the practice." NYSE Letter, *supra* note 25.

offer price improvement). The fact that brokers are being paid to route orders to certain venues suggests a problematic conflict of interest: best execution for customers versus increased profits (through POF) for brokers. Customers who send orders to brokers engaged in the practice have very little choice as to where their orders are sent. Furthermore, these customers tend to be small retail investors who perhaps are not even aware of the practice, let alone the fact that their orders are being bought in this manner.¹⁰⁸ Although both state agency law and the federal securities laws require brokers to disclose potential conflicts of interest to their customers, at present brokers do not automatically disclose that they are engaging in the practice.

The fiduciary critique of POF is deficient in that it relies on a quite narrow interpretation of "best execution". As noted above, price performance is only one dimension of execution quality. As Stoll notes, customers are interested in other factors as well. Therefore, they may be willing to sacrifice on the price dimension in exchange for more of some other service (like execution speed) offered by brokers. In fact, Stoll argues, "[t]he growth in discount brokers in the last fifteen years provides evidence of customers shopping around for brokerage

¹⁰⁷ See Ferrell, *supra* note 8, at 18-26.

¹⁰⁸ "[T]he public has never been apprised of, and cannot fairly be expected to be aware of, the nature and implications of [payment for order flow]. . . . There has been no meaningful public dialogue concerning [payment for order flow] to date and no basis upon which affected persons--including, most importantly, customers of brokers who receive order flow payments from market-makers and keep those payments for themselves--might form judgments." Letter from Andrew M. Klein, Esq., Schiff Hardin & Waite, to Jonathan G. Katz, Secretary, SEC 6-12 (July 5, 1990). See also Ferrell, *supra* note 8, at 6 (noting that individual investors are often not even aware of the practice).

services."¹⁰⁹ Even the SEC has accepted that the practice is not per se inconsistent with brokers' best execution duties.

A second, broader criticism of the practice, however, is that it is damaging to the very structure of the equity market. As previously noted, in recent years a considerable portion of order flow has moved from the principal exchange to alternative trading markets ("third" markets and regionals). Some observers view this fragmentation as an undesirable development, and often point to POF as one of the leading causes. Their arguments against POF closely resemble their arguments against market fragmentation in general.

Coffee makes some of the common arguments against the practice.¹¹⁰ According to Coffee, payment for order flow is not due to increased efficiencies, as maintained by Stoll. Rather, it reflects "cream skimming" economically unjustified trade diversion from the principle exchange(s). In addition, Coffee argues that customers are not compensated for the price improvement that they forego as a result of brokers' incentive to trade in non-NYSE markets. Therefore, trading costs ultimately born by customers are higher, not lower. Furthermore, Coffee contends that non-NYSE market makers free-ride on the price discovery of the principal market, i.e., they simply match the quotes of the NYSE, rather than bettering them.¹¹¹ In addition, they only pay for order flow from uninformed investors, while vigorously avoiding informed an professional traders.¹¹² This

¹⁰⁹ Stoll, *supra* note 43, at 516.

¹¹⁰ John C. Coffee, Commenting on McInish, Thomas H., and Robert A. Wood, *Competition, Fragmentation and Market Quality*, in THE INDUSTRIAL ORGANIZATION AND REGULATION OF THE SECURITIES INDUSTRY 63 (Andrew W. Lo, ed., 1996).

¹¹¹ *Id.* at 82-83.

¹¹² *Id.*

imposes a negative externality on the principal exchange by exacerbating the asymmetric information (or adverse selection) problem faced by exchange specialists. That is, by diverting uninformed trades away from the principal exchange, POF increases the probability that exchange market makers are trading against informed traders. The ultimate result is higher trading costs (i.e., bid-ask spreads) on the principal exchange.

v. Empirical Evidence

Easley, Kiefer, and O'Hara test the proposition that payment for order flow facilitates diversion of uninformed trades from the NYSE to non-NYSE markets.¹¹³ Their approach allows them to determine if the information content of trades differs according to the market where an order takes place. In turn, this allows them to ascertain the existence "of any systematic differences between the diverted orders and the remaining (non-diverted) order flow, thus shedding light on whether purchases of order flow impose externalities on the market process as a whole."¹¹⁴ Their tests confirm "that there is a significant difference in information content between stock trades executed in Cincinnati and those executed on the NYSE, and . . . this difference is consistent with" free riding.¹¹⁵ According to their results, "the probability of informed trade in New York is approximately 44 percent higher than that in Cincinnati [providing] strong evidence that the diversion of orders from the NYSE is not purely competitive." An important shortcoming of their study is that it does not address the price effect (if any) of this apparent adverse selection problem.

¹¹³ Easley, Kiefer, and O'Hara, *supra* note 42.

¹¹⁴ *Id.* at 813.

However, a subsequent study addresses this issue. Battalio compares trading costs (quoted bid-ask spreads and liquidity premia) before and after Bernard L. Madoff, a large third market broker-dealer, started to purchase and execute orders in NYSE-listed securities. Ultimately, he is interested in "whether Madoff uses a cost or informational advantage to selectively purchase and execute orders."¹¹⁶ If trading costs rose after Madoff's entrance, this suggests that Madoff's participation is based on an information, rather than an efficiency, advantage. If Madoff's advantage is informational, this would tend to support the argument that broker-dealers engaged in POF are "cream-skimmers" rather than "cost competitors." Battalio's findings are at odds with those of Easley, Kiefer, and O'Hara. In particular, his results suggest that trading costs fall after Madoff enters the market, suggesting that "it may be premature to conclude third market broker-dealers and regional specialists . . . divert informationless order flow away from the NYSE."¹¹⁷ After Madoff's entry into the market for NYSE-listed securities, the quoted bid-ask spread narrows and the average liquidity premium falls. Therefore, the empirical evidence on the price effects of POF is conflicting.

c. Collusion on Dealer Markets?

Another recent issue, that seems to have died down lately, is the concern about the competitiveness of the main U.S. dealer market, the NASDAQ. As discussed above, on its surface the dealer market looks fairly competitive. In contrast to an agency-exchange, in a dealer market "[i]ndividual dealers enjoy

¹¹⁵ *Id.* at 814.

¹¹⁶ Robert H. Battalio, Third Market Broker-Dealers: Cost Competitors or Cream Skimmers? 52 J. FIN. 341, 343 n.5 (1997).

¹¹⁷ *Id.* at 344.

relatively free entry and exit....the inside spread is determined by the actions of multiple dealers [and therefore] competitive spreads might be considered a natural outcome."¹¹⁸ However, Christie and Schultze document evidence that seems to suggest otherwise and, in fact, that the exchanges (NYSE and AMEX) may even be more competitive despite the fact that their specialists have exclusive franchises in particular stocks.¹¹⁹

Christie and Schultze show that Nasdaq market makers consistently avoid odd-eighth quotes, while NYSE and AMEX stocks "consistently use the full spectrum of eighths."¹²⁰ As a result, spreads are usually some multiple of \$0.25, making them wider than spreads on the national exchanges. From this, Christie and Schultze infer that Nasdaq dealers implicitly collude to keep spreads wide. They dismiss alternative explanations with which the data appear inconsistent. In fact, examining the structure of the dealer market, they argue that the lack of time precedence rules facilitates collusion among dealers:

The NASDAQ market does not enforce (and is not designed to enforce) time precedence among its dealers. Spreads may remain wide if dealers who are willing to supply liquidity by posting quotes inside the existing spread are unable to capture the increased order flow from the price improvement. This inability to capture trades exists since other dealers can match their quote or preference orders to dealers who will match the new price. Thus, little incentive exists for dealers to improve the spread since such actions would have a very small effect on their ability to attract trades.¹²¹

In a similar vein, Dutta and Madhavan suggest that institutional arrangements (like POF and price discreteness) may encourage collusion on

¹¹⁸ William G. Christie and Paul H. Schultze, *Why Do NASDAQ Market Makers Avoid Odd-Eighth Quotes?* 49 J. FIN. 1813 (1994).

¹¹⁹ *Id.*

¹²⁰ *Id.* at 1814.

¹²¹ *Id.* at 1837.

dealer markets.¹²² POF might encourage collusion to the extent that it "reduces dealers' incentives to compete on price and increases the range under which collusive prices can be sustained," by maintaining wide spreads.¹²³ Furthermore, although their model demonstrates that "price discreteness is not necessary to support excess spreads,"¹²⁴ nevertheless "a reduction in the minimum price variation can narrow spreads by making implicit collusion more difficult to sustain."¹²⁵ Christie and Schultze, however, are not very optimistic that "smaller minimum tick sizes would promote narrower spreads."¹²⁶ Smaller minimum tick sizes and/or decimalization is an issue that requires further study.

Interestingly, shortly after Christie and Schultze's findings were published, a number of market makers increased their quotation of odd-eighths. This can be interpreted as evidence of "the collapse of an implicit pricing agreement among the market makers to avoid odd-eighth quotes."¹²⁷ However, there is not a consensus among financial economists as to whether the infrequency of odd-eighths was due to anticompetitive behavior among dealers in the first place.¹²⁸ Interestingly, some financial economists have suggested that excessive transparency levels (mandated by law) might reduce dealers' incentives to

¹²² Prajit Dutta and Ananth Madhavan, *Competition and Collusion in Dealer Markets*, 52 J. FIN. 245 (1997).

¹²³ *Id.* at 248.

¹²⁴ *Id.*

¹²⁵ *Id.*

¹²⁶ Christie and Schultze, *supra* note 36, at 1838.

¹²⁷ William G. Christie, Jeffrey H. Harris, and Paul H. Schultze, *Why Did NASDAQ Market Makers Stop Avoiding Odd-Eighth Quotes?* 49 J. FIN. 1841, 1858 (1994).

¹²⁸ See, e.g., Sanford J. Grossman, Merton H. Miller, Kenneth R. Cone, Daniel R. Fischel, and David J. Ross, *Clustering and Competition in Asset Markets*, 40 J. L. & ECON 23 (1997) (developing a competitive theory to explain price clustering and arguing that it can explain price clustering in securities traded on the NASDAQ).

compete on price quotations and thus enable them to set supra-competitive prices. This provides a good transition to a discussion of secondary market transparency.

d. Secondary Market Transparency

i. Definition and Importance

Market transparency is another major issue of concern. In the course of this subsection, its close relationship to many of the preceding issues will become apparent.¹²⁹ Transparency "is the ability of market participants to observe the characteristics of trades such as their price, size, the broker involved, and so on."¹³⁰ It may also relate to information on "trader identity, order type, and the size distribution of any limit orders."¹³¹ Transparency has two temporal dimensions: pre-trade and post-trade transparency refers to information that is published before the trade has occurred (e.g., price quotations on NASDAQ, indicating the prices at which dealers are willing to trade). Post-trade information is released after the trade (e.g., information on price and quantity traded). The policy discussion concerning the optimal transparency levels is usually centered on the issue of how much post-trade information should be published and with what amount of delay (if any) subsequent to trade completion. Pre-trade availability of information, however, is also important.¹³²

¹²⁹ For example, the policy debates over consolidation versus fragmentation, auction versus dealer markets, and competition among alternative market centers are a few of the areas which overlap with market transparency.

¹³⁰ IOSCO Technical Committee, Working Party on the Regulation of Secondary Markets, Transparency on Secondary Markets, A Synthesis of the IOSCO Debate, at 7 (1992) [hereinafter IOSCO Debate].

¹³¹ Robert Bloomfield and Maureen O'Hara, Market Transparency: Who Wins and Who Loses? 5 (March 1997) (unpublished manuscript on file with author).

¹³² See, e.g., Julian Franks and Stephen Schaefer, *Equity Market Transparency on the London Stock Exchange*, 8 BANK AMER. J. APP'D CORP. FIN. 70, 71 (1995) (arguing that pretrade transparency is also important).

Arguments for transparency assume shades of both fairness and efficiency. "First, transparency allows an investor to judge, at the time of a trade, whether the terms are fair in comparison with recent transactions."¹³³ Transparency "also allows individual investors to monitor best execution by their intermediaries and may increase liquidity by enhancing the integrity of the markets."¹³⁴ Another fairness rationale is equality of information among investors; there is a sense that it is unfair for some investors to have better information than others have.¹³⁵

Transparency may also promote efficiency, particularly by aiding the price discovery process. "[A]s information regarding trading prices and volume is widely and quickly distributed, investors can see the `real' price at which a security is trading and react accordingly, helping to reach the true equilibrium price at any given moment."¹³⁶ More generally, transparency may promote "the benefits of centralization in a market with geographically separated trading centers . . . without physically linking the markets."¹³⁷ However, as considered below, too much transparency may impede immediacy and liquidity. Therefore, the fairness and efficiency justifications for market transparency are potentially conflicting.¹³⁸

¹³³ *Id.* at 71.

¹³⁴ Polly Nyquist, *Failure to Engage: The Regulation of Proprietary Trading Systems*, 13 YALE L. & POL'Y REV. 281, 285 (1995).

¹³⁵ "According to one view, all investors should be provided with equal opportunity to gain access to real-time market information." IOSCO Debate, *supra* note 130, at 14. However, it is debatable whether pre-trade and post-trade transparency are equally suitable for this purpose. *Id.*

¹³⁶ Nyquist, *supra* note 134, at 285.

¹³⁷ *Id.*

¹³⁸ "[W]hile fairness and efficiency are related, the assumption that increases in fairness are always paralleled by equivalent increases in efficiency is not proven. Beyond a certain point, which will differ between markets, increases in some of the elements of fairness will only be achieved by

Before discussing the theory and evidence concerning market transparency, it is useful to consider the literature on asymmetric information, since the optimal level of market transparency depends partly on how serious is the problem of information asymmetry.¹³⁹

ii. Asymmetric Information

Several theoretical and empirical papers in the financial economics literature deal with asymmetric information.¹⁴⁰ In general, these papers address the effects of asymmetric information on the cost of trading (in particular, on bid-ask spreads), which is commonly understood to be one measure of equity market liquidity.

Most theoretical models group market participants into at least three distinct categories: market makers, informed traders and uninformed traders (or liquidity traders). A common underlying assumption of these models is that market makers cannot distinguish between informed and uninformed traders. In a situation where all parties to a trade have access to the same information about the value of the security, there would be no need for the market maker to charge a bid-ask spread greater than the transaction cost of making the trade. However, when it is likely that a trader is better informed than the market maker, the market

reductions in one or more of the elements that make for an efficient market." IOSCO Debate, *supra* note 130, at 22.

¹³⁹ See, e.g., Franks and Schaefer, *supra* note 108 (arguing that the case for greater transparency hinges on how much asymmetric information there is in the market); Stephen Wells, *Transparency in the Equity Market the Publication of Last Trades*, STOCK EXCH. QUAR'LY 13 (Spring 1993).

¹⁴⁰ See generally Thomas E. Copeland and Dan Galai, *Information Effects on the Bid-Ask Spread*, 38 J. FIN. 1457 (1983); Lawrence R. Glosten, *Components of the Bid-Ask Spread and the Statistical Properties of Transaction Prices*, 42 J. FIN. 1293 (1987); Hans R. Stoll, *Inferring the Components of the Bid-Ask Spread: Theory and Empirical Evidence*, 44 J. FIN. 115, 132 (1989).

maker must adjust (i.e., increase) the spread to offset the expected losses to traders with superior information.

Copeland and Galai present a model that generates this result.¹⁴¹ In their model, dealers interact with two types of traders, informed traders and liquidity-motivated traders. The informed traders have information superior to that of both liquidity traders and dealers. The dealer always loses (or at least does not gain) from trading with informed traders. However, he subsidizes these losses against informed traders with gains made from transactions with liquidity traders, since the latter "are willing to pay a 'fee' in order to obtain immediacy."¹⁴² This fee is the dealer's bid-ask spread, which Copeland and Galai model as "a tradeoff between expected losses to informed traders and expected gains from liquidity traders."¹⁴³ In their model, as a consequence of asymmetric information, dealers always set the ask price higher than and the bid price lower than what they believe to be the "true' market price.

iii. Empirical Evidence on Asymmetric Information and Bid-Ask Spreads

Several papers have addressed the relationship between asymmetric information and bid-ask spreads empirically. Chung, McInish, Wood, and Wyhowski, for example, find "that market makers establish the bid-ask spread of a stock according to how many financial analysts are following that stock."¹⁴⁴ They also find that "more financial analysts follow a stock with a greater

¹⁴¹ *Id.*

¹⁴² *Id.* at 1468.

¹⁴³ *Id.*

¹⁴⁴ Chung, McInish, Wood, and Wyhowski, [.] at 1045.

spread."¹⁴⁵ These results, they conclude, "are consistent with the view that one group deduces the extent of informational asymmetry associated with a stock from the behavior of the other group."¹⁴⁶

Glosten decomposes bid-ask spreads into an asymmetric information component and another component that is due to other factors such as monopoly power, using data on transaction prices.¹⁴⁷ He finds that quoted spreads are larger than effective spreads. He attributes the difference to asymmetric information. Similarly, Stoll uses transaction prices of NASDAQ/NMS stocks to decompose bid-ask spreads into separate components. His estimates reveal the following composition of spreads: 43% due to adverse information costs, 10% due to inventory holding costs, and 47% due to order processing costs.¹⁴⁸

The potential of asymmetric information to raise trading costs (especially for uninformed investors) makes it directly relevant to the transparency debate. The International Organization of Securities Commissions, for example, has devoted considerable attention to the relationship between asymmetric information and transparency.¹⁴⁹ According to one view, the trading advantage of informed investors can be diluted by public dissemination of trade information: "some hints of insider presence can be inferred if market participants have common access to updated information about quotes, prices, and volumes."¹⁵⁰

¹⁴⁵ *Id.*

¹⁴⁶ *Id.*

¹⁴⁷ Glosten, *supra* note 140.

¹⁴⁸ Stoll, *supra* note 140, at 132.

¹⁴⁹ IOSCO Debate, *supra* note 130.

¹⁵⁰ *Id.* at 36.

Therefore, increased equity market transparency is often regarded as a partial solution to the wealth transfer that supposedly occurs between informed and uninformed investors due to asymmetric information. Other things equal, the more a market is characterized by asymmetric information, the more promptly regulators might want to disseminate trade information on fairness grounds. For example, in the United States, there is "a strong regulatory inclination to require as much trading information as possible to be made immediately available to all comers."¹⁵¹ However, fairness among investors is only one dimension of market performance. As the following subsections show, other dimensions of market performance may require less than complete transparency.

iv. Theoretical Literature on Market Transparency

Pagano and Roell present a theoretical model that compares various kinds of auction and dealer markets in terms of the price formation process.¹⁵² They define transparency as "the degree to which the size and direction of current order flow are visible to the competing market makers involved in setting prices."¹⁵³ From information on current order flow, competing market makers are able to infer whether orders are motivated by information or by liquidity. As a result, the more transparent the market, the lower are the trading costs that market makers are able to offer to uninformed traders. This is consistent with the literature on asymmetric information and the cost of trading, described above. Based on their results, Pagano and Roell conclude that "the implicit bid-ask spread in a transparent auction is tighter than in a less transparent dealer

¹⁵¹ Pagano and Roell, *supra* note 34, at 579.

¹⁵² *Id.*

market."¹⁵⁴ However, they acknowledge an important shortcoming of their model in that it "fails to explain why some traders still prefer trading in dealer markets."¹⁵⁵

Madhavan also develops a theoretical model predicting the impact of transparency on various dimensions of market performance: informational efficiency, trading cost, volatility, and liquidity.¹⁵⁶ In his model, transparency is defined as the availability of information on order flow or, more precisely, on order flow imbalances. Some of his results are consistent with conventional wisdom about transparency. For example, he finds that transparency increases price informativeness (i.e., prices are closer to the security's "true" value when the market is more transparent):

In a transparent protocol, participants observe the influence of order flow shocks on prices, and as a result can form more accurate forecasts of the asset's fundamental value. In an opaque system, such a decomposition is impossible, and the dispersion of beliefs is inherently wider.¹⁵⁷

In addition, Madhavan finds that the effective spread faced by strategic (i.e., informed) traders is unambiguously larger in a more transparent market. This result is also consistent with conventional wisdom.

However, some of his results contradict common understanding about the effects of greater transparency. For example, he finds that greater transparency can actually increase price volatility. This effect depends on the size and depth of

¹⁵³ *Id.* at 580.

¹⁵⁴ *Id.* at 598.

¹⁵⁵ *Id.*

¹⁵⁶ Ananth Madhavan, *Security Prices and Market Transparency*, 5 J. FIN. INTERMED'N 255 (1996).

¹⁵⁷ *Id.* at 265.

the market. If the market is sufficiently thin, then more transparency can actually increase volatility. He explains this seeming paradox as follows:

Transparency allows traders to condition their trades on the known imbalance, and as a result their conditional expectations regarding the asset's value are more accurate. However, market clearing prices also reflect the impact of order flow shocks. Transparency, by eliminating some of the uncertainty regarding the magnitude of liquidity trading, effectively reduces the level of noise in the system. In a thin market, this reduction in noise can lead to greater price sensitivity . . . lowering liquidity. As a result, the net impact of transparency can be to increase the absolute price movements associated with a given order flow shock, hence increasing price volatility while also increasing price informativeness. This argument applies to thin markets where the effects of the reduction in the perceived level of noise trading are the greatest.¹⁵⁸

Thus, the market must be sufficiently large, competitive, and liquid for greater transparency to reduce volatility, according to Madhavan's model. On the other hand, as Madhavan points out, transparency is usually less of an issue in these markets.

Madhavan's model also yields some predictions regarding the effect of transparency on liquidity and transaction costs. As a measure of liquidity, he uses market depth, which is "the order flow necessary to change prices by one unit."¹⁵⁹

The model predicts that whichever trading mechanism (transparent versus opaque) generates greater volatility "also provides less market depth."¹⁶⁰

The implication is that enhanced transparency in thin markets will increase the trading costs of liquidity traders, since in those markets more transparency increases volatility. The reverse will occur in large markets. As a result, Madhavan concludes that unambiguous inferences about the net welfare effect of

¹⁵⁸ *Id.* at 267 (emphasis added).

¹⁵⁹ *Id.* at 269.

¹⁶⁰ *Id.*

transparency cannot be made and that, in fact, cost considerations may favor opaque systems.¹⁶¹

In an earlier paper, Madhavan presents another model of the effects of transparency.¹⁶² This work is particularly interesting because it provides a link between transparency and the consolidation versus fragmentation and payment for order flow debates. Consistent with the studies considered above, he finds that dealers are less competitive in more transparent markets.¹⁶³ As a result, their spreads are wider than those of dealers in less transparent markets, who have to compete for informative order flow. In turn, because their spreads are wider, more transparent markets lose order flow to less transparent markets. This is consistent with the evidence of loss of order flow by some European markets to the less transparent London Stock Exchange. It is also consistent with the NYSE's loss of order flow to the OTC market in the United States. Moreover, it suggests that differential levels of transparency contribute to order flow fragmentation across the different markets.

Madhavan's model also suggests an interesting link between transparency and payment for order flow. Because dealers on less transparent markets have to compete more rigorously for informative order flow, they have an incentive to offer side payments for orders. According to Madhavan, "the order flow payment reflects the value of the trading information."¹⁶⁴

¹⁶¹ *Id.*

¹⁶² Ananth Madhavan, Consolidation, Fragmentation, and the Disclosure of Trading Information, 8 REV. OF FIN. STUD. 579 (1995).

¹⁶³ *Id.* at 589-590.

¹⁶⁴ *Id.* at 591.

The next subsection considers the empirical evidence related to market transparency.

v. Empirical Evidence

Despite the fact that much has been written about market transparency, there are very few empirical studies that test the effects of transparency. However, a few studies exist. For example, Bloomfield and O'Hara have recently conducted laboratory experiments to assess the effects of trade and quote disclosure on market efficiency, bid-ask spreads and trader welfare.¹⁶⁵ Their results suggest that trade disclosure is more important than quote disclosure. Quote disclosure has no significant effect on market performance. On the other hand, trade disclosure causes transaction prices to be more informationally efficient. In addition, trade disclosure increases opening bid-ask spreads by decreasing market makers' incentives to compete for order flow, a result which is consistent with some of the theoretical models considered above.

Bloomfield and O'Hara's results suggest that disclosure of trade information benefits market makers to the detriment of both liquidity (uninformed) and informed traders, since it reduces dealers' incentives to compete for information-laden order flow. Moreover, in their experiment, liquidity (uninformed) traders' losses are greatest in the most transparent setting.¹⁶⁶ On the other hand, they find that transparency does not have any effect on small active

¹⁶⁵ Bloomfield and O'Hara, *supra* note 131.

¹⁶⁶ In their experiment, the most transparent setting is one in which both trade and quote disclosures are made. *Id.*

traders, probably since active traders can "time trades later in transparent markets, apparently to avoid wide opening spreads."¹⁶⁷

The Bloomfield and O'Hara study suggests that the net welfare effects of market transparency are not as straightforward as is assumed in the regulatory debate.¹⁶⁸ Essentially, they conclude that greater transparency is not unambiguously welfare enhancing. In fact, the only obvious "winners" from greater transparency in their study are market makers, while the losers are traders, especially large liquidity traders. The latter may benefit from less transparent markets (e.g., large trading protocols, as exist on the NYSE and other market centers). Their results might also give a partial explanation for why competing market makers (e.g., on NASDAQ) may be able to set supra-competitive bid-ask spreads: "The ability to learn from trade and quote information reduces the need to compete via prices. Thus, we have the paradoxical result that markets with more information can provide a better venue for extracting gains from it."¹⁶⁹

Gemmill examines the liquidity of the London Stock Exchange under various transparency rules that differ in terms of the amount of delay they allow in the publication of prices at which block trades are executed.¹⁷⁰ Interestingly, he finds that "[d]elaying publication does not affect the time taken by prices to reach a new level, which is rapid under all regimes."¹⁷¹ In addition, spreads do not

¹⁶⁷ *Id.* at 20.

¹⁶⁸ The impact of transparency is "complex, reflecting the multiple influences that market transparency has on market performance." *Id.* at 24.

¹⁶⁹ *Id.* at 25-26.

¹⁷⁰ Gordon Gemmill, *Transparency and Liquidity: A Study of Block Trades on the London Stock Exchange Under Different Publication Rules*, 60 J. FIN. 1765 (1996).

¹⁷¹ *Id.* at 1765.

appear to be affected by speed of publication. Gemmill's findings are consistent with those of Cheng and Madhavan.¹⁷² Cheng and Madhavan find "that many blocks are traded downstairs on both the NYSE and Nasdaq without having a larger price impact than occurs upstairs."¹⁷³ The Gemmill and Cheng and Madhavan studies therefore call into question "the view that immediacy can only be obtained in an opaque market."¹⁷⁴ It is unclear how to reconcile these findings with those of Bloomfield and O'Hara.

In conclusion, the foregoing survey of the literature on market transparency reveals that transparency is a much more complex issue than is generally assumed by market regulators and commentators. The net welfare effects of greater transparency are ambiguous. As the literature reveals, transparency has different effects depending on the particular investor, market, and security at issue. Therefore, a one-size-fits-all approach to transparency regulation is undesirable.

e. Proprietary Trading Systems and Foreign Markets

Like virtually every market, "the securities industry has been dramatically affected by the development of computer technology."¹⁷⁵ In recent decades, technology has led to the rapid growth of two new trading venues for U.S. securities: the so-called proprietary or alternative trading systems (PTSs or ATSS) and overseas markets. These two developments, PTSs and off-shore trading, raise both regulatory and market structure issues. Many of these issues overlap with

¹⁷² Minder Cheng and Ananth Madhavan, *In Search of Liquidity: Block Trades in the Upstairs and Downstairs Markets* (1995) (working paper, Pennsylvania State University).

¹⁷³ Gemmill, *supra* note 170, at 1788.

¹⁷⁴ *Id.*

those that have arisen in domestic trading markets in recent decades. For example, like domestic markets, these markets implicate the consolidation versus fragmentation and transparency debates.

PTSs are a product of "the convergence of computer technology and the securities industry."¹⁷⁶ They "are for-profit systems, owned by broker-dealers or other private entities, that offer traders an alternate market [other than the exchanges and NASDAQ], or exchange facility, in which to execute trades." Essentially, PTSs are "screen-based automated trading systems."¹⁷⁷ Unlike the exchanges and NASDAQ, they are not governed by or affiliated with self-regulatory organizations (SROs), but are run as "independent businesses."¹⁷⁸ For the most part, only "institutional investors, broker-dealers, specialists, and other market professionals" are able to participate in these systems.¹⁷⁹

While developments in computer technology underlie the growth in the supply of these systems, the growth in demand for PTSs has been driven by a number of factors. An especially important factor on the demand side is the desire of institutional investors to minimize trading costs:

They have been used by institutional investors to reduce execution costs, avoid the market maker spread, and trade in size without incurring the market impact costs that could result if orders were handled on the organized markets ... For listed securities, they are attractive to passive managers ... who are sensitive to transaction costs, but do not need the instant liquidity that the exchanges provide and do not want to pay the market spread. For NASDAQ securities, they are used by institutional investors who do not want to go through NASDAQ market makers to enter an order or who want to avoid paying the bid-ask spread, but instead prefer to seek liquidity through interaction with other institutional investors.¹⁸⁰

¹⁷⁵ Nyquist, *supra* note 134, at 281.

¹⁷⁶ *Id.*

¹⁷⁷ MARKET 2000, *supra* note 1, at II-12.

¹⁷⁸ *Id.*

¹⁷⁹ *Id.*

¹⁸⁰ *Id.*

PTSs share of trading volume has been increasing over the past several years. They now trade over twenty percent of the transactions in NASDAQ-listed securities and nearly four percent of the transactions in exchange-listed securities.¹⁸¹

Although total trading volume on PTSs is still relatively insignificant, these markets probably signal future developments in the securities industry. As a result, "[t]he [SEC] has highlighted the unique regulatory problems presented by the recent explosive growth of these systems."¹⁸² One of the important policy concerns arising out the growth of PTSs is their contribution to the "trend toward more 'fragmented' markets,"¹⁸³ which in turn may threaten some of the "essential functions" of centralized markets.¹⁸⁴ A related policy concern is that PTSs are highly non-transparent. In fact, that is precisely why they attract institutional traders hoping to effect large trades without adverse movements in prices. Moreover, until recently, these systems were not a part of the NMS.¹⁸⁵ In addition, they were regulated as traditional broker-dealers, even though they perform many exchange market functions.¹⁸⁶ As a result, there has been

¹⁸¹ Securities Exchange Act Release No. 34-40760 (July 12, 1998), 17 CFR Parts 202, 240, 242 and 249 [hereinafter 1998 Release].

¹⁸² Nyquist, *supra* note 134, at 281; *See also* Securities Exchange Act Release No. 34-38672 (July 16, 1997), 17 CFR Part 240 [hereinafter 1997 Release].

¹⁸³ Nyquist, *supra* note 134, at 282.

¹⁸⁴ These functions include "increased capital liquidity, accurate price discovery, best execution monitoring, and increased transparency." *Id.*

¹⁸⁵ *See generally* 1997 Release, *supra* note 182 (discussing the regulatory concerns arising because PTSs were not a part of the NMS); 1998 Release, *supra* note 181 (introducing new rules designed to bring select PTSs into the NMS).

¹⁸⁶ *See Id.*

considerable concern about their effect on market integrity and competitive equality among vis-a-vis the traditional exchanges and the NASDAQ.¹⁸⁷

Computer technology has made it possible for U.S. investors to trade overseas as well.¹⁸⁸ Like PTSs were, foreign markets are out of the NMS loop and thus subject to less SEC regulatory oversight than the traditional market centers like the NYSE and the NASDAQ. Essentially, they raise similar policy issues to those raised by PTSs – less transparency, greater fragmentation, fraud and market surveillance, etc. They also raise investor protection concerns, since investors trading abroad are unlikely to get the same level of protection (e.g., high-quality disclosure) that they receive in the U.S. markets.¹⁸⁹ Therefore, the SEC has been considering alternative approaches to regulating them.¹⁹⁰

The next section evaluates how the existing regulatory framework (the NMS) has dealt with the range of market issues considered in this section – fragmentation, payment for order flow, anticompetitive pricing, and asymmetric transparency across markets, and alternative markets.

V. Assessing the Performance of the National Market System

This section first presents a brief overview of the major outstanding theoretical and practical critiques of the NMS framework. Next, it evaluates the

¹⁸⁷ For example, the SEC noted that its "ability to prevent these ... systems from being used for fraudulent or manipulative activities is more limited compared to the SEC's ability to oversee the exchanges and Nasdaq." 1997 Release, *supra* note 182, at overview

<<http://www.sec.gov/rules/extra/regmark.html>>. Recently, however, the SEC has promulgated new rules to bring PTSs into its regulatory oversight. See 1998 Release, *supra* note 181.

¹⁸⁸ See generally 1997 Release, *supra* note 182 (noting that technology has made it easier for U.S. investors to trade in foreign markets).

¹⁸⁹ See generally *Id.* (raising investor protection concerns about foreign markets that are less regulated than U.S. markets).

¹⁹⁰ See *Id.*

NMS's performance on some of the particular policy issues considered in the survey of the preceding section.

a. Critiques of the NMS

The general consensus among legal scholars and economists seems to be that the NMS is flawed. Criticism of the NMS seems to fall into two basic camps. In one camp, critics argue that while the NMS concept is basically sound, its implementation is imperfect. According to this group of critics all that is necessary are certain reforms that, if instituted, can vastly improve the NMS and help it to achieve its underlying goals. A second group of critics contests the very notion of the NMS. They reject the argument that the system can be reformed because, in their view, it is a fundamentally wrong approach.

i. Reformist View

According to one view, the NMS is basically a sound idea. However, certain reforms can improve it considerably. Haddock and Macey, for example, argue that the SEC has not gone far enough to make the system work. For example, they claim that off-exchange trading restrictions still present a barrier to effective integration of the different markets: "Despite the SEC's recognition that off-board trading restrictions unnecessarily or inappropriately burden competition in conflict with the purposes of the 1934 Act, the SEC continues to impose such restrictions."¹⁹¹ Rules 19c-1 and 19c-3 do not go far enough, they maintain. As an explanation, they point to the SEC's conflicting worry that fragmentation "will

¹⁹¹ David D. Haddock and Johnathan R. Macey, *Shirking at the SEC: The Failure of the National Market System*, 1985 U. ILL. L. REV. 315, 335 (1985).

impair pricing efficiency and lead to a decline in the quality of brokerage services as it becomes unclear where a buyer can obtain the best price."¹⁹²

Moreover, exchange rules still continue to make it very difficult for companies to delist, thus stifling competition, according to Haddock and Macey.¹⁹³ For example, if an issuer wants to de-list its shares from the NYSE, NYSE Rule 500 requires that it submit the idea to its shareholders for approval. The proposal must be approved by 66.6% of the outstanding shares and 10% of the individual shareholders must not object.¹⁹⁴ The AMEX also has burdensome de-listing requirements.¹⁹⁵ NASD's withdrawal rules, by contrast, are considerably less burdensome.¹⁹⁶ NASDAQ issuers wishing to withdraw may do so voluntarily, provided simply that they give written notice to the NASD. Therefore, Haddock and Macey argue that the exchanges' de-listing rules are anticompetitive, contrary to the spirit of NMS.¹⁹⁷

Lipton also argues that the national market system has not gone far enough, although the idea is fundamentally sound. His main critique of the system is that it does not incorporate an explicit "best execution" requirement:

[C]ompetition among markets could not be fully achieved without a best execution requirement. Like many of the objectives of the national market system, competitive markets and best execution are closely interrelated. One objective cannot be successfully achieved without the other.¹⁹⁸

¹⁹² *Id.* at 341.

¹⁹³ "[E]xchange rules, with full SEC support, make it extraordinarily difficult for a listed company to delist voluntarily." *Id.* at 350.

¹⁹⁴ MARKET 2000, *supra* note 1, at 30.

¹⁹⁵ *Id.*

¹⁹⁶ *Id.*

¹⁹⁷ However, in its Market 2000 study, the SEC proposes modification of these restrictive rules. MARKET 2000, *supra* note 1, at 31.

¹⁹⁸ David A. Lipton, *Best Execution: The National Market System's Missing Ingredient*, 57 NOTRE DAME LAWYER 449, 457 (1982).

Therefore, Haddock and Macey and Lipton, fault the NMS for not going far enough. Haddock and Macey offer a particularly damning assessment of the SEC's sincerity in the realization of a true national market system:

Presently, there is no national market system in this country, and indeed there is little promise of one in the near future, despite Congress' clear directive. The SEC has chosen to disregard Congress and instead support inefficient rules that grant favors to special interests, such as the exchange specialists, and to the exchanges themselves . . .the SEC is acting to protect entrenched interests.¹⁹⁹

In short, they accuse the SEC of being captured by specialist interests, namely the principal exchanges, rather than concerned about the public interest.

ii. View that NMS is Fundamentally Flawed

The second strand of critique of the NMS argues that the very idea of the NMS is the wrong approach to encouraging efficiency and competition in U.S. secondary markets. Most proponents of this view argue that the current economic reality of U.S. markets eliminates the desirability of maintaining the SEC's dominant role in market regulation.

Bronfman, Lehn and Schwartz, for example, argue that dramatic changes in the market environment have reduced the role for governmental regulation. In particular, changes in industry structure, driven by demand and supply changes, have resulted in increased "contestability suggest[ing] a greater reliance on competition between market centers, and a lesser role for regulation."²⁰⁰ In their view, the NMS is based on an incorrect understanding of the concepts "efficiency" and "competition". That is, the SEC "ignores the `efficiency' definition of competition and instead equates competition with the promotion of

¹⁹⁹ Haddock and Macey, *supra* note 191, at 361.

rivalry.²⁰¹ Such rivalry can lead to inefficient outcomes, they argue, especially when it is "subsidized by government regulation."²⁰² As an example, they point to the market linkages mandated by the NMS, arguing that these linkages might reduce primary markets' ability to profit from their price discovery and therefore reduce their incentive to engage in it, to the ultimate detriment of liquidity and price efficiency. They also criticize the current regulatory system for disregarding the insight that "the efficient level of regulation will differ according to the peculiarity of the trading system and the sophistication of the trading public."²⁰³

Similarly, Mendelson and Peake argue that the very notion underlying the NMS that the appropriate competition is competition over order flow is misguided. "The [SEC] confuses the pseudo-advantages of competition for order flow with the real advantages of competition among market centers" for listings.²⁰⁴ In fact, they argue, all of the current problems in the market arise "from a single source: the deficiencies of the existing structure of the equity market."²⁰⁵ In their view, the pillars of the NMS – the ITS, the CQS and the CTS have created "a Byzantine set of systems which would have put the late cartoonist Rube Goldberg's fertile imagination to shame."²⁰⁶ In the end, they argue, it is individual investors who get hurt by the current regulatory structure, since institutional investors can always resort to alternative trading venues.²⁰⁷

²⁰⁰ Corinne Bronfman, Kenneth Lehn, and Robert A. Schwartz, *The SEC's Market 2000 Report*, 19 J. CORP. L. 523, 526 (1994).

²⁰¹ *Id.* at 538.

²⁰² *Id.*

²⁰³ *Id.* at 548-549.

²⁰⁴ Mendelson and Peake, *supra* note 6, at 445.

²⁰⁵ *Id.* at 444.

²⁰⁶ *Id.* at 447.

²⁰⁷ *Id.* at 448.

The next subsection evaluates the performance of the current regulatory framework in regard to some of the specific issues discussed in Part IV. It concludes that the NMS (and related regulations) has not adequately addressed these issues.

b. Performance of the NMS

i. Market Structure

The NMS is based on the premise that no single market structure shall be promoted over the others.²⁰⁸ In fact, as discussed above, one of its major underlying goals was to facilitate uninhibited competition among the different market centers. Hence the removal or relaxation of historical trading restrictions, like NYSE Rule 390. Thus, by design, the NMS contemplates the simultaneous existence of diverse trading structures that compete among themselves.

However, as Mendelson and Peake argue, competition among market centers has been somewhat artificial. The regulatory burdens are unevenly distributed among the different market centers, with traditional exchanges still bearing the lion's share.²⁰⁹ Therefore, it is misguided to conclude that the current allocation of order flow among the different trading venues is a product of "natural" competition and is therefore efficient.

ii. The Consolidation/Fragmentation Debate

²⁰⁸ The understanding was that "two different market structures dealer and auction can survive and thrive . . . it would be futile to attempt to force all the diverse market mechanisms into one narrow market structure." Richard G. Ketchum and Beth E. Weimer, *Market 2000 and the NASDAQ Stock Market*, 19 J. CORP. L. 559, 580-581 (1994).

²⁰⁹ Bronfman et al., *supra* note 200, at 547.

The NMS seems to be a peculiar product of the SEC's ambivalent position in the consolidation/fragmentation debate.²¹⁰ On the one hand, the system promotes (geographical) fragmentation of trading, by partial repeal of "anticompetitive" SRO rules (like NYSE Rule 390) and by granting unlisted trading privileges. At the same time, however, the NMS attempts to reign in fragmentation, by requiring a system of extensive intermarket linkages and transparency (i.e., Consolidated Tape, CQS, and ITS).

Has the NMS achieved an efficient balance between fragmentation and consolidation? On the one hand, perhaps the proliferation of trading venues has been beneficial because it fulfills investors' demand for the unique range of services offered by each arena. That response begs the question, however, whether this alleged benefit of fragmentation is outweighed by the costs of increased fragmentation (e.g., free riding off price discovery of primary exchanges, higher transactions costs, etc.). Some empirical evidence on these costs was presented in Part IV. In addition, as Mendelson and Peake note, it is questionable whether the fragmentation of order flow that has occurred after 1975 corresponds with an increase in the right type of competition (i.e., competition that begets efficiency rather than mere "rivalry").

iii. Payment for Order Flow

The current regulatory system does not adequately address the controversial practice of POF. In fact, one might even argue that it fosters POF.

²¹⁰ See Haddock and Macey, *supra* note 191 (arguing that the SEC refrains from total abolition of off-exchange trading restrictions because of its fear of too much fragmentation); Nyquist, *supra* note 134, at 321 (also noting that the NMS is conflicted between centralization and decentralization).

For example, the NMS arguably encourages POF by promoting competition for order flow rather than price competition, through the creation of excessive fragmentation.²¹¹ In addition, the NMS might facilitate POF by its failure to explicitly mandate and enforce a "best execution" rule.²¹² If the different markets were truly competitive in the sense emphasized by Mendelson and Peake, the lack of a "best execution" rule probably would not be problematic or, at any rate, would be less problematic than is currently the case. If they competed over price, markets would have greater incentives to effect the "best execution" of their customers' orders.

iv. Transparency

As discussed above, the NMS requires the participating markets to report pre-and post-trade information, through the Consolidated Tape and the CQS. However, the discussion of transparency in the previous section highlighted the fact that a one-size-fits-all approach to transparency is not necessarily the most efficient (or indeed, the most fair) approach. Different market structures, catering to different traders and investors, require different levels of transparency.²¹³ Thus, often "it is contended that complete transparency is not a proper goal for the SEC."²¹⁴

Another growing critique of the current transparency regime is the claim that it creates a public goods problem in information. The primary exchanges,

²¹¹ See generally Mendelson and Peake (arguing that the NMS encourages competition for order flow rather than price competition), *supra* note 4; Ferrell, *supra* note 8 (arguing the same point).

²¹² See generally Ferrell, *supra* note 4; Lipton, *supra* note 194.

²¹³ "Many institutional investors are opposed to increased transparency, particularly with respect to block trading, on the grounds that such trading is 'informationless,' yet causes short-term price volatility." Nyquist, *supra* note 134, at 286.

²¹⁴ *Id.*

particularly the NYSE, perform a valuable but costly price discovery role that the satellite markets free ride off of:

By regulating both the level of transparency and the price at which the information can be sold, Congress, through the SEC, has prevented market-based contracting solutions to informational problems between competing exchanges, necessitating more complicated regulations. By precluding a market solution, the dual regulation (of the level of transparency and the price at which information can be sold) has created a public goods-type problem, with the regulators now facing the problem of how to regulate the proprietary trading systems, several of which free-ride off the price discovery of the NYSE.²¹⁵

Therefore, requiring the primary markets to disseminate trade information to the rest of the market at a regulated price might reduce their incentive to engage in price discovery, rendering prices less informationally efficient overall.

A related concern is the asymmetry of reporting requirements for different markets. One of the underlying goals of the transparency regime is to overcome the negative effects of fragmentation. However, transparency will not consolidate the markets when they are subject to differential real-time reporting requirements. As it currently stands, the fragmentation of U.S. markets allows some participants to hide their transactions: "The existence of off-exchange trading environments, including the 'upstairs' block trading at the NYSE, PTSs, and foreign markets, decreases the level of transparency in the market."²¹⁶ Therefore, the increased volume of trading in these alternative markets, may hinder the achievement of the benefits of consolidation that the SEC is trying to achieve through its transparency rules. In fact, some critics of the current regime argue that a supra-optimal level

²¹⁵ Bronfman, Lehn, and Schwartz, *supra* note 200, at 542.

²¹⁶ Nyquist, *supra* note 134, at 286.

of transparency on the organized markets is partly responsible for the growth in off-exchange trading, for example, on PTS or offshore markets.²¹⁷

Based on the foregoing criticisms, some commentators question "whether transparency should [even be an] objective of regulators" in the first place, "or instead [should be the] result of ... competition between financial exchanges."²¹⁸

v. Proprietary Trading Systems and Foreign Markets

The growing share of trading volume on PTSs and foreign markets might be due to inefficiencies in the current regulatory structure. As noted, stringent transparency requirements on the traditional markets cause some traders, especially institutional investors, to transact on PTSs or overseas, where reporting requirements are considerably less burdensome. In turn, this contributes to greater order flow fragmentation, and its attendant costs. How to incorporate PTSs and off-shore markets into the U.S. regulatory structure is part of an ongoing, as yet unresolved, discussion among regulators, academics and market participants.²¹⁹ It seems that the SEC can take one of two broad approaches to addressing this issue. First, it can go the route of reducing the regulatory obligations of traditional markets (like the NYSE and the NASDAQ) in order to enable them to better compete with these alternative markets while not compromising on the level of investor protection. Alternatively, the SEC can "level the playing" field by bringing these markets into the existing NMS framework.

²¹⁷ *Id.*

²¹⁸ *Id.*

In fact, the SEC has taken the second approach with respect to PTSs. In particular, the SEC has just issued new rules designed to "integrate the growing number of alternative trading systems into the national market system ... and provide an opportunity for registered exchanges to better compete with alternative trading systems."²²⁰ It has not yet addressed how to accommodate concerns about foreign trading, however. Although the new rules might address some of the concerns about PTSs (e.g., fraud and market surveillance), they do not go to the heart of the fundamental criticisms of the NMS. Linkage of PTSs to the NMS will increase the SEC's regulatory oversight of these markets no doubt, but it will not address the practical and conceptual critiques considered above.

VI. A New Theoretical Framework and Reform Proposal to Enhance Competition

As argued in the previous section, the current U.S. regulatory structure has not adequately addressed some of the current problems of the secondary markets. This section will argue that a significant reason for this failure is that the regulatory system (market regulation and NMS) is based on outdated understandings of the organization of the U.S. secondary market and the roles played by its various participants. After critiquing the traditional rationales of U.S. market regulation and presenting new ways of viewing the secondary market, this section will propose a new approach: a regime of issuer and investor choice. The proposed approach, it is argued, better addresses the range of issues considered in Part IV.

²¹⁹ See generally 1997 Release, *supra* note 182 (offering various proposals for bringing these markets into the regulatory ambit). However, the SEC has recently promulgated new rules covering PTSs. 1998 Release, *supra* note 181.

a. Rationale of Current Regulatory System

The current regulatory structure of U.S. trading markets is based on an outdated view of the economic environment in which trading occurs. Specifically, one of the important theoretical underpinnings of the NMS is the notion that the auction exchange (the NYSE in particular) is a natural monopoly. Therefore, without the proper regulatory intervention (which is the set of existing rules), there would be inadequate competition among the different trading venues. The NYSE, as a monopoly, would dominate secondary market trading and, as a result, trading costs to investors would be supra-competitive. Without the existing rules and regulations e.g., intermarket linkages, information sharing and transparency, elimination or curtailment of "anti-competitive" trading restrictions the historically dominant exchanges would have insufficient incentive to compete over the quality and price of their services. Moreover, alternative market centers would be at a competitive disadvantage, as they were during the era of fixed commissions, so the argument goes. Recently, however, new theoretical approaches and evidence have called this view into question.

b. The Stock Exchange as a Competitive Firm

Kanda and Macey reject the monopoly view of the traditional stock exchange. They argue that the high degree of competition in the market for secondary trading services, which is evidenced by the ready availability of close substitutes for the services of the traditional exchange, calls into serious question the monopoly status of the NYSE.²²¹

²²⁰ 1998 Release, *supra* note 181, at SUMMARY.

²²¹ Kanda and Macey, *supra* note 11.

That the traditional exchange is not a monopoly can be understood, Kanda and Macey argue, by recasting our understanding of secondary markets. In particular, securities exchanges are basically firms that, like all businesses, sell an array of products to investors.²²² These products include liquidity provision, monitoring of trading activity occurring on the exchange, creation of contractual rules among members designed to reduce transactions costs, and a reputation signaling function. In recent decades, the centralized exchanges have experienced increasing competitive pressure from alternative market centers in the provision of these services.²²³ Therefore, the regulatory assumption that exchanges are natural monopolies is no longer valid, according Kanda and Macey. As a result, the SEC should reconsider its regulatory approach, which relies heavily on this assumption.

On a normative level, proponents of this view argue that exchanges and other market centers (e.g., OTC, foreign, or PTSs) should be left to compete over their internal organization and regulatory structures. At the same time, the role of governmental agencies should be reduced from its current level. At the extreme, supporters of this view contend that the government should only be concerned with fraud and deception. As for transparency, trading and membership rules, etc., however, these should be left to the market centers to determine for themselves through competition. Firms will list on markets that have the structural features they prefer. If a given market center has an inefficient internal organization, firms will reject that market for other markets; therefore, the

²²² *Id.* at 1009.

undesirable market will be forced to adopt an efficient structure or perish. Firms will pay for listings as long as the price of listing does not exceed the value added by listing their shares on a given market.

Note, however, that the preceding normative analysis presupposes a world in which firms can actually dictate where their shares are traded. Currently, that is not the case. As the consolidation/fragmentation debate makes clear, firms and indeed investors have little say over where trading of a particular stock occurs. The proposal will address this concern.

c. The Property Rights in Information/Transaction Cost Perspective

A closely related view to the preceding one is the notion of an exchange as an institutional form specifically designed to create and protect its members' property rights in information.²²⁴ This dimension of financial exchanges has been "the most misunderstood" by both academic commentators and regulatory authorities.

The property rights/transaction cost view of exchange organization is based on Coase's original insight that economic organizations take on their peculiar forms in order to economize on transaction costs:

Coase's primary lesson is that price discovery entails substantial costs [thus] exchanges develop an elaborate structure over time to economize on `search and information costs, policing and enforcement costs.²²⁵

²²³ See generally *Id.* (arguing that the traditional exchange markets are subject to considerable competitive pressure from alternative markets); MARKET 2000, *supra* note 1.

²²⁴ See, e.g., J. Harold Mulherin and Jeffrey Netter, *Prices are Property: The Organization of Financial Exchanges from a Transaction Cost Perspective*, 34 J. L. & ECON. 591, 592 (1991) (arguing that a "central function of financial exchanges" is "the establishment of property rights to price quotes").

²²⁵ *Id.* at 593-594.

Exchanges have their own internal contractual mechanisms to create and enforce the property rights of their members. In fact, U.S. courts have long-recognized this function of exchanges.²²⁶

This analysis suggests that sufficiently taking the problem of transaction costs into account would call into question the wisdom of some of the current regulatory provisions. In particular, acknowledging these costs, and thus exchange members' need to adopt mechanisms to deal with them, might lead to a reconsideration of the wisdom of blanket disapproval of off-exchange trading restrictions, for example, or of the current transparency regime. In fact, implicit recognition of such costs might underlie the SEC's reluctance to totally eliminate off-board trading restrictions.²²⁷

d. The Exchange as an Efficient Regulator

A third, related view is that competitive exchanges are in the best position to design and enforce their own systems of regulation. This normative argument builds on the two preceding theories, the firm and transaction costs theories of the securities exchange. Like the firm theory of the exchange, this view regards the securities exchange as any other competitive business enterprise. Therefore, "[e]xchanges should have strong incentives to adopt rules that benefit investors."²²⁸ Because different investors prefer different combinations of trading

²²⁶ Through a "long series of cases . . . the courts came to view financial exchanges as organizations that created property rights through contracting among exchange members and between the exchanges and external parties such as telecommunications companies." *Id.* at 629.

²²⁷ *But see* Kanda and Macey, *supra* note 11 (arguing that the SEC's reluctance to fully prohibit such restrictions is due to the SEC's catering to special interests, not to economic policy).

²²⁸ Paul G. Mahoney, *The Exchange as Regulator*, 83 VA. L. REV. 1453, 1457 (1997).

services,²²⁹ in the absence of regulatory obstacles, different markets will devise different internal rules to meet the needs of diverse investors. Moreover, "[t]he larger the set of (geographically) separate markets that can compete for business, the stronger the incentives of each market to adopt optimal rules."²³⁰ Therefore, it does not necessarily follow that all restrictive rules are inconsistent with shareholder wealth. Some may indeed be an efficient response to issuer/investor demand. In this light, exchange Rules like NYSE Rule 390 might be an optimal response to the potential inefficiencies (e.g., increased trading costs) of market fragmentation.

Of course, there is always a danger that exchanges will adopt inefficient (i.e., anticompetitive) rules. One clear example is the NYSE fixed commission rule that was repealed in 1975. Arguably, one might also point to the NYSE's current delisting rule, Rule 500, as another example. However, the latter rule might simply be a relic from the past, as competition in the secondary markets has arguably reduced market centers' ability to adopt inefficient rules and still thrive.²³¹ Moreover, cartels among exchange members seem unlikely, since such members do not represent homogenous interests, and it would therefore be hard to achieve total compliance with the terms of a cartel.²³² In short, the claim is that markets should be left to devise their own rules and regulations, since competitive forces will make them adopt optimal rules.

²²⁹ See *Id.* at 1458 (arguing that investors "differ in their preferences; some might prefer lower trading costs to more rapid execution, and others might prefer a less liquid but anonymous market to a more liquid but transparent market").

²³⁰ *Id.*

²³¹ *Id.* at 1477 (arguing that if "stock markets face sufficient competition, then, restrictive rules will survive only to the extent they are efficient").

²³² *Id.* at 1488-1491.

At the same time, this view acknowledges that private competition will not always yield first-best outcomes from an efficiency perspective. However, the alternative government regulation is unlikely to be more efficient than self-regulation in a competitive market environment.²³³ Indeed, some public choice commentators argue that government regulation is likely to be less efficient than private regulation, since governmental agencies are vulnerable to interest group capture.²³⁴

e. Sketches of a New Regulatory Approach

i. Competition over Corporate Listings rather than Order Flow

In the spirit of the preceding challenges to the traditional view of secondary trading markets, this subsection proposes a new approach: a framework of regulatory and structural competition among market centers in which markets compete for corporate listings rather than order flow.²³⁵ This is not a novel recommendation. Others have suggested a similar restructuring of U.S. secondary markets in order to overcome the problems that currently plague them.²³⁶ For example, Mendelson and Peake suggest that markets should compete for listings by adopting optimal structures and internal rules (e.g., trading rules, including

²³³ For example, Mahoney argues that the current regulatory framework assumes that "governmental regulators can identify and eliminate inefficient rules while keeping those that create wealth." *Id.*

²³⁴ See generally SUSAN M. PHILLIPS AND J. RICHARD ZECHER, THE SEC AND THE PUBLIC INTEREST 21-25 (1981) (presenting public choice theory of securities regulation) [hereinafter PHILLIPS AND ZECHER].

²³⁵ As was noted above, competition for listings is more desirable than competition for order flow.

²³⁶ See, e.g., Mendelson and Peake, *supra* note 6; Ketchum and Weimer, *supra* note 208. However, my proposal is different from Romano's, which proposes a scheme of state competition over securities regulation. Robert Romano, *Empowering Investors: A Market Approach to Securities Regulation*, 107 YALE L. J. 2359 (1998). Federal securities regulation (e.g., registration, disclosure, antifraud rules, etc.) would not be displaced under the scheme proposed in this paper.

restrictions on members' off-market trading, if necessary), with a minimum of SEC involvement.

Under this approach, a firm would list on a market where it preferred its securities to be traded. Presumably, this would be the most liquid market for the firm's securities, or the market that provided the array of services demanded by its investors. This would be the market where the firm's cost of capital is minimized.²³⁷ Market makers and broker-dealers would be prohibited from trading on markets other than the market on which a firm's shares were listed. If a firm became dissatisfied with the quality of services offered by a particular market on which it were listed, it would delist from that market and relist its shares on a competing market with superior services. Firms would have an incentive to do so because, if the services of a given market were inadequate, investors would demand higher returns and issuers would not have a choice but to delist and move to a more efficient market or face an increase in the cost of capital. In this way, markets would be compelled to be responsive to the demands of firms and investors rather than to intermediaries, as they now are.

In fact, to the extent possible in light of present regulatory obstacles, market centers already do compete over corporate listings:

[M]arket centers compete for corporate listings. They provide investor protection guarantees, corporate governance standards, trade execution products and services, and access to international markets in hopes that issuers will list on their markets. [Yet] the regulatory framework in which the competition ensues is profoundly unbalanced.²³⁸

²³⁷ See generally Yakov Amihud and Haim Mendelson, *Asset Pricing and the Bid-Ask Spread*, 17 J. FIN. ECON. 223 (1986) (presenting research suggesting that more liquid shares are associated with a lower cost of capital).

²³⁸ Ketchum and Weimer, *supra* note 208, at 574.

Current regulatory obstacles include, among others, an unequal distribution of regulatory burdens across different market centers, and cumbersome delisting rules, like NYSE Rule 500. The SEC imposes greater regulatory burdens on exchanges than on alternative market centers, most of which are regulated as broker-dealers.²³⁹ However, as the functional distinctions between non-exchanges and exchanges are blurring, the differential regulatory burdens constitute a competitive disadvantage for exchanges vis-a-vis alternative markets (e.g., OTC market, PTSs, and some off-shore service providers). Also stifling competition for corporate listings at the moment are stringent delisting rules, like NYSE Rule 500, discussed above. If firms cannot easily delist, competition over listings is impracticable.

ii. Necessary Regulatory Changes

For such an approach to work, several regulatory changes would be required. First, the SEC would have to address the uneven distribution of regulatory burdens among market centers. Second, outmoded delisting rules would have to be repealed. And, most dramatically, the mandated intermarket linkages and transparency of the NMS would have to be dismantled. First, the SEC would have to create a more level playing field among the different market centers. In doing so, it would be acknowledging the inappropriateness of the traditional monopoly rationale for exchange regulation that was discussed above.

Second, inefficient delisting rules that block meaningful competition would need to be withdrawn. The proposal would not work unless it was

²³⁹ See generally Kanda and Macey, *supra* note 11; Nyquist, *supra* note 134 (arguing that the different markets bear divergent regulatory burdens); Bronfman, Lehn, and Schwartz, *supra* note

reasonably easy for companies to switch to markets with more desirable structures and rules of operation. However, removal of NYSE Rule 500 should be non-controversial, since even the SEC has acknowledged that the historical rationales for de-listing rules no longer apply.²⁴⁰ Finally, the NMS would have to be either dismantled or dramatically altered, since the system promotes order flow competition, rather than meaningful competition over the mix of trading services (like liquidity, transparency, price, etc.).

iii. How would the Proposal Address Current Issues?

Arguably, the new regime would do no worse, and would probably perform better, than the current system on each of the major issues considered in Part IV. Undoubtedly, it would be considerably cheaper to implement.

1. Market Structure

The proposed regime of issuer choice would not favor a particular market structure over others. Rather, it would let the market centers compete for listings among themselves. If one structure is inherently more efficient, it would naturally prevail over the others. However, a more likely outcome is that different market centers would cater to different classes of investors. Issuers and investors would choose their preferred market structure in light of the services it offers as well as the characteristics of the security at issue (e.g., whether it is a thinly versus thickly traded security, etc.).

2. Consolidation versus Fragmentation

200 (arguing that the SEC must level the regulatory playing field among the markets).

²⁴⁰ Ketchum and Weimer, *supra* note 208, at 575-576.

The proposal addresses the consolidation versus fragmentation debate by allowing issuers and investors to choose the degree of fragmentation they desire. Currently, under the NMS, an equity security can trade in many market centers simultaneously without either issuers' or investors' consent. This creates excessive fragmentation, which favors intermediaries over investors and issuers.²⁴¹ Under the proposal, issuers can would be able to list on multiple markets, if they so desired, depending upon the type of investors they wished to attract. The crucial point is that issuers would decide this (in response to investor demand for various market services) rather than market intermediaries, as is currently the case. If an issuer listed on too many different markets, causing excessive fragmentation in the trading of its shares, its cost of equity capital would increase. In response, the firm would have an incentive to delist from some of those markets until it minimized its cost of capital.

3. Payment for Order Flow

Since, under the proposal, a stock could only be traded on the market(s) on which it is listed, POF would be less of a concern. A significant part of the potential conflict between brokers and investors would be eliminated. Brokers would only be able to send orders to the market(s) on which firms were listed, so there would be less incentive for market centers to compete over order flow than there currently is. Other proposals to address POF that are not considered here include banning it altogether, decimalization, disclosure, and an NBBO pricing

²⁴¹ Mendelson and Peake, *supra* note 6, at 454.

option.²⁴² None of these measures is inherently incompatible with the proposal presented here.

4. Transparency

Under the proposal, the level of transparency would be up to the different market centers to decide upon. This is preferable to the current regulatory approach to market transparency under the NMS. Given that different investors prefer different levels of transparency, it is best to let them choose rather than applying a one-size-fits-all transparency rule to different market centers, for the reasons discussed in Part IV's survey of the transparency literature. Some market centers would naturally provide more transparency and others less. In response to potential concerns that markets, if free to choose, would choose insufficient levels of transparency, suffice it to note that markets might benefit from voluntarily providing a greater transparency: "[a] market that can develop a reputation for being 'clean' may benefit from reduced adverse selection costs."²⁴³

5. PTSs and Offshore Markets

By correcting some of the inefficiencies of the current system, the proposal might reduce investors' incentives to trade on these alternative markets. For example, by allowing markets to choose their levels of transparency, the proposal might enable domestic markets to compete with foreign markets to which they are currently losing order flow due to the relatively stringent U.S. transparency requirements. In addition, to the extent that these markets offer

²⁴² See Ferrell, *supra* note 8, at 48-52 (evaluating alternative proposals).

²⁴³ Madhavan, *supra* note 162, at 593 (describing theoretical work by Chowdry and Nanda).

superior services to those offered by traditional markets, traditional markets would have a greater incentive under the proposal to match their quality.

The current move by the SEC to incorporate PTSs into the NMS is inadequate. Although the new rules can address various concerns about PTSs (e.g., fraud and market surveillance), they do not address the practical and philosophical critiques of the NMS.

iv. Caveats and Extensions

1. Political Feasibility

A major obstacle to such an admittedly radical overhaul of the regulatory structure of the U.S. secondary market would be political resistance. There is an extensive public choice literature, which corroborates that this opposition would not be an insignificant hurdle.²⁴⁴ The NMS and its associated institutions have undoubtedly created a coalition of vested interests, whose opposition it would be difficult, if not impossible, to overcome. These interests would include the SEC and its personnel, brokers who benefit from mandated linkages (e.g., by receiving payment for order flow or conducting in-house "trade-throughs" based on information received through the NMS communications network), and perhaps certain strategic investors who also benefit from the status quo (e.g., by conducting arbitrage and strategic order placement among the different markets, again based on information disseminated through the NMS network). Individual

²⁴⁴ See generally, PHILLIPS AND ZECHER, *supra* note 234 (presenting a public choice theory of securities regulation).

uninformed liquidity investors arguably stand to gain the most from implementation of the proposal. However, they form the group that is the least capable of galvanizing its collective interest.

2. Corporate Governance Interface

A potential concern about a regime in which secondary markets are permitted to choose their own rules is that they might adopt rules that impede fair and efficient corporate governance. I doubt, however, that such a concern is warranted. The approach advocated in this paper would not displace existing state corporate law protections. Nor would I advocate a system in which investors could voluntarily waive (through private contract) corporate law protections.²⁴⁵ In the corporate law context, there are compelling reasons to desire mandatory rules, as the extensive agency literature vividly demonstrates.²⁴⁶

The regime proposed in this paper presupposes a legal background of strong investor protections against overreaching corporate insiders. That background is U.S. state corporate law.²⁴⁷ It would not make sense, for instance, to give insiders free reign over which market(s) on which to list, subject only to a cost of capital constraint, if shareholders did not have ultimate legal recourse. For the same reason, listing and delisting decisions should be matters for ultimate shareholder approval but with less stringent quantitative requirements than is

²⁴⁵ See generally, Alchian & Demsetz, *Production, Information Costs, and Economic Organization*, AM. ECON. REV. 777 (1972) (presenting theory of firm as "nexus of contracts").

²⁴⁶ See generally, Jeffrey N. Gordon, *The Mandatory Structure of Corporate Law*, 89 COLUM. L. REV. 1549 (1989) (arguing that "since fiduciary duties should be understood in terms of fairness ex post rather than [efficiency] ex post, opting out is wrong-headed").

²⁴⁷ See generally Rafael La Porta, Florencio Lopes-de-Silanes, Andrei Shleifer, and Robert Vishny, *Legal Determinants of External Finance*, 52 J. FIN. 1131 (1997) (empirically establishing that investor protections are strongest in the U.S. than elsewhere in the world).

currently the case on some markets.²⁴⁸ This could be a matter of corporate law rather than exchange rules, to rule out exchanges' inevitable conflict of interest in setting such a rule.

VII. Conclusion

In summary, this paper has surveyed some of the major structural and regulatory issues surrounding secondary trading in U.S equity securities. These issues include structural diversity (e.g., auction market design versus dealership design), order flow fragmentation, payment for order flow, collusion on dealership markets, and asymmetric information and transparency. Based on findings from theoretical and empirical research in the financial economics literature on market microstructure, I have concluded that the current regulatory framework – the centerpiece of which is the NMS – is insufficient to address these concerns.

The NMS is insufficient to address these issues because it is grounded in anachronistic assumptions about the competitive structure of U.S. secondary markets. That these assumptions are no longer appropriate, I argued, is evidenced by the empirical reality that U.S. secondary trading markets are highly contestable. Whatever may have been the case prior to 1975, before the technological revolution and the deregulation of NYSE commissions, it is inappropriate to continue to view the traditional exchanges as monopolies. Today, they face formidable competition from dealer markets, like NASDAQ, alternative trading systems and, increasingly, foreign markets.

²⁴⁸ Recall the argument made earlier that the NYSE and the AMEX make delisting particularly difficult.

Not only is the NMS based on outmoded assumptions, however, it also exacerbates some of the concerns presented in section IV. For example, this paper has argued that it contributes to order flow fragmentation and payment for order flow because it encourages competition over order flow rather than price competition. It also contributes to free riding by parallel markets off of the information production activities of the centralized markets, due to its system of mandated information dissemination, which imposes asymmetric burdens on different market centers. Some of the empirical studies considered in Part IV suggest that these phenomena ultimately increase the cost of trading (or alternatively, reduce equity market liquidity).

Therefore, in place of the current NMS framework, I propose a deregulated framework in which different market centers compete for listings. Such a system would better address the current policy concerns regarding secondary trading of U.S. securities. In addition, it would put issuers and (derivatively) investors first, in contrast to the present system that caters to the interests of intermediaries (i.e., broker-dealers). Moreover, there is insufficient reason for concern that such a system would have negative corporate governance implications, since it presupposes a background of strong state law investor protections and fiduciary duties.

Finally, the proposed regime would be less costly to implement than the present system. With the resulting budgetary savings, the SEC could spend more on such endeavors as market surveillance for fraud and manipulation and enforcement of disclosure regulations. However, vested interests would probably

pose a formidable political obstacle to implementation of the proposal. That is because those (e.g., individual investors and uninformed liquidity traders) who would gain the most are the least likely to successfully coalesce their support for the proposed reform, while those (e.g., intermediaries and market makers) who stand to lose the most are relatively well-organized to defeat it.