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The processes determining regulatory impacts are increasingly centered within firms and industries themselves, and in the working relationships among private and public actors. This article examines two aspects of this issue: (a) the effects of economic interdependence on the social control of industry and (b) the emergence and behavior of regulatory professions within the private sector and their collaboration with public regulatory counterparts. We consider how these forces have influenced private regulation in the United States securities industry.

SHARED REGULATION IN THE UNITED STATES SECURITIES INDUSTRY

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Regulatory studies in public administration generally have focused on the design and politics of legislation and rule making. No subjects were more important for those studying regulation in the 1970s when the early implementation of numerous new laws was the major concern of the field. Fundamental contours of American regulatory policy—the place of quantitative risk and cost-benefit analysis, the legitimacy and feasibility of market-based techniques, and similar policies—were taking shape. After almost 20 years of decisions by agencies, the courts, and Congress, however, working understandings have been reached on these issues (McGarity, 1991; John Mendeloff commented in 1986 that “the reservoir of unused book titles containing the words ‘regulation’ and ‘reform’ is in danger of being exhausted” [p. 440]).

With so many regulations issued and compliance investments ordered, the processes determining regulatory impacts are increasingly centered within firms and industries themselves and in the relationships among

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private and public actors. Understanding the consequences of public action, and public policy options, requires focusing more on regulatory systems—systems including the sharing of regulatory functions between the private and public sectors (Zald, 1978)—than focusing so heavily on the behavior of regulatory agencies. The central question is, how do values favored by regulatory laws get institutionalized—or not get institutionalized—within the private sector?

This article examines two aspects of that issue: (a) the effects of economic interdependence on the social control of industry and (b) the emergence and behavior of regulatory professions within the private sector and their collaboration with public regulatory counterparts. These issues are examined in the context of the U.S. securities industry from 1977 through 1991.

The securities industry is a particularly interesting setting in which to examine the sharing of regulation by the public and private sectors. Regulation of the industry—or, more accurately, an alleged weakness of its regulatory operations—received a great deal of attention from policymakers and the public in the past 10 years. Manipulations, scandals, and indictments on Wall Street were symbols of the 1980s. A series of popular books, and films such as Wall Street, reinforced the image of rampant wrongdoing in the financial markets, an image affirmed by the Salomon brothers bond trading case in 1991 (Greising & Morse, 1991; Lewis, 1989; Mayer, 1993; Stewart, 1991; Vise & Coll, 1991). In a 1991 poll, the majority of people with an income of over $20,000 reported believing that market manipulation is typical behavior (Harper & Schultz, 1991). Comparable concerns were reported in other surveys (New York Stock Exchange, 1990b).

This article discusses the proposition, surfacing in interviews and documents, that economic interdependence and a linking of public and private regulatory activities substantially increased the intensity and formalization of the private components of securities regulation in the 1980s. It then tests this proposition by examining patterns of disciplinary actions in securities exchanges from 1977 through 1991. In the final section of the article we consider what the findings suggest about regulatory policy generally.

INFORMATION USED IN THE ARTICLE

In addition to the published literature and government documents cited, the article uses two sources of information: interviews with those working
in the regulatory system and a database on private enforcement actions from 1977 through 1991.

INTERVIEWS

We interviewed 32 individuals working in the regulatory system's three levels—government, self-regulatory organizations (SROs), and member firms of the SROs. These interviews provided background, beyond that available in the literature, on behavior in the system.

Of the interviews, 14 were with regulatory officials in three securities and two futures exchanges. These officials generally had the titles of senior or assistant vice president, or managing director, of surveillance, investigations and audits, and/or compliance. The public affairs offices of the SROs arranged most of the interviews, although in certain cases one interviewee put us in contact with another.

Of the interviews, 17 were with individual members of the securities exchanges or individuals affiliated with member firms; nine of these individuals spend most of their time on the floor of exchanges, and eight oversee compliance activities in member firms. To interview the eight individuals overseeing firms' compliance programs, we first approached the Securities Industry Association (SIA), the industry's trade association. After an initial interview, the SIA's senior vice president and general counsel put us in contact with the heads of compliance at eight major broker-dealer firms and one attorney with an extensive background in the area. Eight of nine individuals agreed to be interviewed.

Finally, one interview was with an official of the U.S. Securities and Exchange Commission (SEC). All interviews ranged from 1 to 2 hours.

DATA ON SELF-REGULATORY DISCIPLINARY PROCEEDINGS

The Securities Violation Bulletin, a document prepared quarterly by the SEC, provided summaries of disciplinary actions reported by securities exchanges to the SEC from 1977 through 1991. Such reports are required by law (U.S. Code of Federal Regulations, 1990). For each disciplinary case, we coded the exchange involved, the date of the disciplinary action, the type(s) of violation involved, and the types of penalties imposed. Two individuals coded the data, and interrater reliability exceeded 95%. The data are described in detail later in the article.
THE STRUCTURE OF SECURITIES EXCHANGE REGULATION

The regulatory system in the securities industry has three levels—government regulators, self-regulatory organizations (SROs) such as the New York and American stock exchanges and the National Association of Securities Dealers, and members of the SROs. Government regulators oversee self-regulatory organizations and have authority to impose rules governing SROs in areas covered by the securities laws. SROs regulate individuals and firms choosing to become members to access the market governed by the SRO.

GOVERNMENT REGULATORS

The SEC is the main federal agency regulating the securities SROs. A strong legal and policy presumption is that the SEC should oversee self-regulation in the SROs, not regulating directly unless a violator lies outside the jurisdiction of a registered SRO or if self-regulation fails conspicuously. This presumption, established partly to get the original securities laws passed over 50 years ago, remains influential today (Douglas, 1940; McCraw, 1982; Seligman, 1982).

The SEC oversees the exchanges through annual, or more frequent, inspections by SEC staff. After these inspections the staff will report to the full commission. Even favorable evaluations recommend improvements. The self-regulatory organizations reportedly respond reasonably well to these recommendations, although often with a lag (U.S. General Accounting Office, 1986, 1991a). The logic of this system is that although regulation ideally takes place at the point closest to operations, higher levels should have the authority to regulate lower levels. Thus the SEC can tighten its oversight of the exchanges, even ordering changes at the SROs; the exchanges can do the same with members.

SELF-REGULATORY ORGANIZATIONS

The securities exchanges are centralized organizations where stocks and options are traded. Individuals and organizations must purchase or lease a membership to conduct business directly on an exchange. Outside investors must work through brokers who are members of the exchange.
The New York Stock Exchange (NYSE) is the largest stock exchange, accounting for about 85% of the exchange-based trading volume in stocks in the 1980s. (It accounted for less than 1% of options volume in this period.) The American (AMEX), Midwest (MSE), Pacific (PSE), and Philadelphia (PHLX) stock exchanges and the Chicago Board Options Exchange (CBOE) account for most of the balance of exchange-based trading (U.S. Securities and Exchange Commission, 1992, pp. 121, 123).

The exchanges are responsible for regulating trade execution, financial requirements and internal controls for members, floor activities, and other matters; thus they are referred to as self-regulatory organizations (SROs). Full-time staff conduct most of the monitoring and examinations at the exchanges. Staff and possibly a business conduct committee of members do subsequent disciplinary investigations, and panels of members or a hearing officer adjudicate alleged violations of rules (Pessin, 1990).

Members often operate at multiple securities exchanges as well as in the over-the-counter (off-exchange) market. The exchanges, with the SEC's approval, divide responsibility for monitoring firms' financial conditions and sales practices to avoid redundant examinations (U.S. Code of Federal Regulations, 1990). Individual exchanges, however, retain jurisdiction over the conduct on their floors. The NYSE oversees the financial condition and sales practices of the majority of large broker-dealer firms and investment banks, with the American Stock Exchange, the CBOE, and the National Association of Securities Dealers (for the over-the-counter or off-exchange market) overseeing the financial condition and sales practices of the balance of SRO members. The regulatory activities of the MSE, PSE, and PHLX stock exchanges focus primarily on their trading floors (U.S. General Accounting Office, 1986, 1991a).

MEMBERS OF SELF-REGULATORY ORGANIZATIONS

Members of self-regulatory organizations are the third level of the system, after the government and self-regulatory organizations. SRO members are supposed to ensure that their finances, sales practices, and trading comply with SRO and governmental rules. Firms also must report significant internal disciplinary actions to the self-regulatory organization overseeing them. The scope of formal compliance programs within member firms ranges from special responsibilities assigned to managers and outside legal help in small firms to large compliance departments at major broker-dealer firms. Merrill Lynch, for example, has a 100-person compliance department (Cowan, 1991; Pessin, 1990; Swartz, 1988).
INDUSTRY ORGANIZATION, ORGANIZATIONAL DYNAMICS, AND REGULATION

This section discusses how three types of variables influence the regulatory system: (a) the economic need to maintain a basic level of predictability in the industry; (b) the economic and political consequences of industry organization and technology; and (c) the organizational dynamics of regulatory roles. The focus is on how these variables influence the private components of shared regulation. As suggested earlier, much less is known of the private than the public components of the regulatory system.

THE NEED TO MAINTAIN A BASIC LEVEL OF PREDICTABILITY

Conducting business on a wide scale requires a certain amount of predictability, and formal or informal industry rules help provide this (Gupta & Lad, 1983; Hamilton, 1978). Rules in the securities industry make markets more predictable by reducing the chance that those with whom one deals will default or cheat on transactions. Buyers and sellers then can concentrate on certain elements of the trade—such as price—more confident in an implicit contract that other characteristics of the deal will be as expected. Regulation also reduces the chance that members of the industry will cheat outsiders—such as small investors—damaging by association the reputation of other industry members (Lelebici & Salancik, 1982; Telser, 1981). Generally, as Zucker (1986) points out, regulation is one of the means by which institutions attempt to generate trust among actors who otherwise lack reasons to trust each other.

Simple industry survival, however, probably requires only a minimal level of such controls, for industries survive in chaotic and predatory periods as well as in stable and seemingly trustworthy conditions. Beyond the minimum, the extent of controls varies greatly according to the organization of the industry and the organizational dynamics of relevant controlling organizations.

ORGANIZATION OF THE INDUSTRY

The organization of an industry—the number and mix of producers and customers/clients and the nature of its technology—influences private, or self-regulation, substantially.

For self-regulation to occur, there must be mechanisms for (a) collecting information about the industry and its environment, (b) designing and
issuing industry regulations, (c) monitoring compliance with the regulations, and (d) enforcing the regulations when firms or individuals violate them (Gupta & Lad, 1983). How industry structure affects the costs of organizing these mechanisms is the central theme in scholarly writings on the subject. Two consistent suggestions are that smaller, more homogeneous groups are more likely to self-regulate than larger, diverse groups, and that self-regulation is more likely when it does not require coordination across industry segments (Garvin, 1983; Gupta & Lad, 1983; Noll, 1985; Peltzman, 1976, 1981; Stigler, 1971, 1988).

The conditions making self-regulation more difficult, however, also may make it more critical for industry functioning. As Lawrence and Lorsch (1967) noted, greater differentiation with interdependence makes coordination more important. An industry with diverse actors who depend on each other to perform reasonably reliably may have to overcome the costs of organization to deal with these conditions.

In the 1980s the interdependence of the securities industry increased greatly, increasing both the difficulties and importance of industry control. For example, new types of options and futures trading proliferated. These are connected to the markets for stocks; their economic justifications involve transferring the risks of investing in stocks from the more risk averse to those willing to absorb greater risks for the chance of greater payoffs (Silber, 1983; U.S. Board of Governors of the Federal Reserve, 1984). Regulators had substantial difficulty keeping up with these developments. Investors, in turn, frequently were relatively unaware of what they were investing in (Kane, 1983; Scribner, 1986).

Also, communications and trading technology evolved rapidly. The connections among diverse financial instruments and the efficiency of trading technology both evolved to the point where geographically dispersed and functionally different markets became very tightly coupled. The U.S. Presidential Task Force on Market Mechanisms (1988) and the U.S. Office of Technology Assessment (1990) concluded that multiple trading centers effectively had coalesced into one market, and problems in one could register quickly, often in cascading ways, in other trading centers.

The financial markets’ currently high level of interdependence gives different segments of the industry incentives to cooperate in designing and maintaining control systems (U.S. Office of Technology Assessment, 1990; U.S. Securities and Exchange Commission, 1988b). Abrupt failure of a member of a securities or commodity futures exchange may harm multiple exchanges, clearing organizations, and other actors, and coordi-
nated activity among multiple self-regulatory organizations is now common. For example, in an interview with us, a compliance official described the sharing of information among SROs:

I have information that everyone needs. The clearing organizations are particularly interested because they’re at financial risk during [trade] settlements. . . . The system doesn’t work perfectly, [but does seem to work particularly] when there’s a crisis. . . . When Drexel [Burnham Lambert] goes out of business it leaves people hanging, creating problems for everyone involved. You want to make sure that people are not holding out. We receive information, and make sure that it’s spread around to others.

In September 1990, the Intermarket Financial Surveillance Group, composed of the 23 major stock and futures exchanges, signed an agreement to share financial and operational data on firms considered at risk of falling below “early warning” capital requirements of the exchanges or the federal government (Stock, 1990). Similarly, a House of Representatives staff member, discussing the commodity futures exchanges, noted that “the SROs are absolutely ruthless about violations of financial integrity. A broker who cannot back up his trades with adequate money can be wiped out in the blink of an eye. There is no lengthy hearing and no excuses. If the money isn’t there at the appointed time, the organization sells him out” (U.S. House Committee on Agriculture, 1989, p. 36).

Another aspect of this issue is that regulation may be increased in an attempt to damp conflicts in a highly interdependent system. Federal intervention in securities markets historically has followed market crises involving disputes between different interests (e.g., “local” members of securities exchanges and large brokerage firms in the 1930s and 1950s, securities exchanges and institutional investors in the 1960s and 1970s, etc.) or breakdowns in trading and processing systems caused by rapid growth. In turn, the SROs have tried to strengthen their internal regulatory systems to manage these problems and to prevent more direct federal control (Burk, 1988; Haddock, 1989; Haddock & Macey, 1987; Jarrell, 1984; Moran, 1991; Philips & Zecher, 1981; Seligman, 1982).

The 1980s was one such conflictual period. Private legal actions, congressional inquiries into the industry, legislation, and SEC investigations of exchanges’ and members’ practices were constant (Pitt & Shapiro, 1990; Seligman, 1985; U.S. Presidential Task Force on Market Mechanisms, 1988; U.S. Securities and Exchange Commission, 1988b). For example, the number of civil cases commenced in U.S. district courts from 1976 to 1990 involving securities, commodities, and exchanges almost doubled from 1980 to 1985 (1,694 cases to 3,266 cases) before declining

A major SEC priority over this period was for the self-regulatory organizations and member firms to improve their internal systems for audits, monitoring trading, and supervising employees (U.S. Securities and Exchange Commission, 1985; U.S. General Accounting Office, 1986). Discussing requirements that registered brokers, dealers, and investment advisers establish new reporting and supervisory procedures regarding insider trading, Pitt and Shapiro (1990) note that “these provisions reflect an increased emphasis on self-regulation, by imposing substantial liability on those regulated employers who fail to carry out their new supervisory responsibilities” (p. 241). The SROs are responsible for enforcing such controls on members and thus became involved in regulating a broader range of managerial and operational conduct (e.g., see New York Stock Exchange Rule 351(e) [New York Stock Exchange, 1990a]; Cowan, 1991; Power & Salwen, 1989; U.S. General Accounting Office, 1991a).

ORGANIZATIONAL FACTORS

Writings on self-regulation generally explain self-regulation in terms of producers' incentives. Those administering self-regulation, however, have somewhat different interests from those involved directly in buying and selling. Self-regulatory officials' obligations and activities set them apart from production people. Although producers may expect the SRO to operate in certain ways when it is established, the organization may act differently because of the professional norms of its staff, because it directly receives criticisms for regulatory failures, and because of other circumstances (Hamilton 1978; Kudrle, 1975).

Also, regulatory counterparts in the government and SROs develop working relationships; these ties arguably help produce an “identity as regulator” cutting across the private and public sectors (U.S. General Accounting Office, 1986). One securities exchange official commented in an interview with us:

The SEC can impose its own system, and that's the ultimate threat. Most of the time the SEC makes an effort. In my area, the staff at the SEC is easy to get along with. Most of the people I deal with have been there for a long
time. They’re smart people, and they work hard. The main guy I work with has been there for years. I can call them up, and they’ll understand the problems and regulations. Generally they’ll accede to an exchange request if a case can be made. The time lag, though, is awful.

Similarly, an SEC official commented that “when we have a concern we’ll write to the exchange board; we’ll often recognize that the (exchange staff) is doing a good job, but that the exchange still has a problem. We’re fairly close in agreeing on operational and financial issues; there are some disagreements on the enforcement side.” The effects of such ongoing working relationships have been emphasized both by political models of issue networks and institutional models of organization (Kingdon, 1984; March & Olsen, 1989; Moe, 1987; Powell & DiMaggio, 1991).

Somewhat surprisingly in light of self-regulation’s passive image, members of the securities exchanges portray the self-regulatory organizations as external and intrusive regulators. There clearly is a working relationship between the self-regulatory organizations and the member firms, but its level of tension is striking (Pessin, 1990). An SRO official commented in an interview:

There is a tension between the general membership and the regulatory types. There’s an interfering and overbearing view of the [SRO] regulators. Some [members] don’t believe in regulation. They hate reporting [requirements]. Clearly there’s some cooperation though.

Compliance officers within member firms similarly emphasized that SROs are seen as external regulators:

There’s been tremendous pressure on SROs from the SEC, but some of the measures they’ve taken have been cosmetic. There’s been a big buildup of staff [in SROs], but sometimes it seems they want to make a case, rather than ask if a case should be made.

There’s no question that the New York Stock Exchange is more aggressive now. After you discipline someone you’ll get a letter that says “Thank you for telling us about the problem you detected. We take note that you have terminated the employee, and your reasonable response. Still, we want to know why it occurred,” and then they’ll ask you 20 questions. “Shouldn’t the branch manager or the regional supervisor have caught it?” The exchange will acknowledge everything you did, but then hit you anyway with a censure and fine. . . . They won’t stop with what you did. They feel it’s their responsibility, probably rightly so, that they have to go after everything.

[Representative John] Dingell beats on the SEC, the SEC beats on the exchange, and the exchange beats on us.
These, however, are perceptions. Is there any empirical evidence that the formalization and intensity of self-regulation increased in the 1980s? The next section focuses on this issue.

ANALYSIS OF VIOLATIONS AND PENALTIES

This section analyzes violations cited and penalties imposed by SRO disciplinary panels from 1977 through 1991. Three specific propositions are examined below.

Proposition 1: In the period 1977 through 1991, the aggregate level of penalties for disciplinary actions increased, controlling for other factors such as volume of market activity.

We regard the level of annual disciplinary penalties as an indicator of regulatory intensity. If self-regulation became more intensive, the penalties should have increased over the 15-year period.

An important ambiguity, common in research on rule violations, is that the level of penalties reflects (a) the level of regulatory violations, and (b) the likelihood of violations being detected and how severely they are punished (McCaffrey, Andersen, McCold, & Kim, 1985). Individuals interviewed repeatedly linked higher penalties with stronger regulation (see Power & Salwen, 1989). Still, higher levels of penalties could reflect stable regulation but rampant wrongdoing. Alternative explanations are considered in the section discussing results.

Proposition 2: In the period 1977 through 1991, the overall change in penalties was curvilinear, with tendencies to stabilize or decline in the most recent years, controlling for other factors such as volume of market activity.

Proposition 1 suggested that penalties increased over time. This raises the question of whether (a) the trend in penalties was one of continual, consistent linear increase, or (b) the relative level of penalties eventually stabilized or even declined, although settling at higher levels than prevailed earlier. If regulatory effectiveness was increasing, one would expect a stabilization or decline in penalties rather than continual increase, controlling for other factors such as volume of market activity. That is, a point would come where the added intensity of regulation would produce some deterrent effects, reducing the likelihood of serious violations and very high penalties. Thus, although the level of penalties generally would
trend upward over the entire period, the trend would be curvilinear, with a downward slope in the most recent years.

Proposition 3: From 1977 through 1991, disciplinary proceedings involving operational and reporting violations increased more sharply than proceedings involving other types of violations.

As discussed above, in the 1980s the SEC pressed the SROs and member firms to improve their systems for internal control, employee supervision, and other operational matters. The SROs assumed responsibility for overseeing and regulating new types of operational controls and information systems in member firms (U.S. General Accounting Office, 1986; U.S. Securities and Exchange Commission, 1985). If these changes were substantial, one would see particularly sharp increases in disciplinary attention to enforcement of operational and reporting requirements.

DATA ANALYSIS

The Securities Violation Bulletin, a quarterly document of the SEC, provided summaries of disciplinary actions reported by securities exchanges from 1977 through 1991. Such reports are required by law (U.S. Code of Federal Regulations, 1990). For each disciplinary case, we coded the exchange involved, the date of the disciplinary action, the type(s) of violation involved, and the types of penalties imposed. We then aggregated the individual cases by exchange to create a pooled time series of enforcement actions in the six main securities exchanges—AMEX, MSE, NYSE, PSE, PHlx, and CBOE—for 1977 through 1991. The number of individual enforcement cases coded for the six exchanges for these years was 6,208. The Boston, Cincinnati, and other very small exchanges accounted for 54 cases in the time, which were deleted from the analysis. The number of pooled time series observations for the six changes was 90 (six exchanges for the 15 years).

Identification of Violations

As noted earlier, the reports to the SEC indicate the violation cited by the disciplinary committee; often multiple violations are cited. Up to five violations per case were coded. In only a handful of cases were more than five violations cited, and in those cases the violations coded generally overlapped with those omitted. The list of codes had 183 categories,
usually referring to specific types of violations. These were aggregated into nine general areas of violations: dealings with customers, trading rules, market making requirements, floor procedures and rules, operational requirements of members, reporting requirements, misappropriation, general requirements (sound business practices, just and equitable principles of trade, etc.), and unknown or unspecified violations. The types of violations included in these categories are indicated in the appendix.

The statistical analyses of types of violations below focus on those involving dealings with customers, trading rules, market making requirements, floor procedures, operational requirements, and reporting. Misappropriation cases are discussed separately because the vast majority of such cases are found on the NYSE. Violations of general clauses and unknown or unspecified violations are not analyzed here because their meaning and reporting vary too greatly by exchange.

Identification of Penalties

In the statistical analysis, we estimate the effects of various factors on time penalties (bars from associating with the exchange or members) and fines. These are the most serious penalties and are less subject than are other penalties to reporting differences among exchanges.

Bars can be permanent, for fixed periods, or of indefinite length. In addition, individuals may be barred from supervisory functions. To maximize the variance among exchanges it is desirable to combine these different types of actions to the extent possible. The YEARS variable used below is the sum of two components: (a) the total number of years of fixed period bars (e.g., 1 month, 1 year, 2 years, etc.) and (b) the total number of permanent bars multiplied by five. In effect, this implies that a permanent bar is equivalent to a 5-year bar. This allows combination of the fixed period and permanent bars. We estimated the model using larger multipliers for the permanent bars (such as 10 years) with no material differences in results. Indefinite or supervisory bars are not factored into the time penalty variable. The eventual length of indefinite bars was too ambiguous, and supervisory bars are qualitatively different from more comprehensive bars.

Fines are measured as the total amount of fines imposed by an exchange in a given year. All fines were adjusted to constant 1987 dollars.

Because of the differences in size among exchanges the analysis uses the natural logarithm of the total years of time penalties and total fines. To eliminate zero values in the aggregated untransformed data, a value of 1
year or 1 dollar was added to all penalty values, and a value of 1 case to all violation categories, before taking logarithms.

**MODEL ESTIMATION**

We estimated the following model for the pooled time series of the six exchanges from 1977 through 1991:

\[
\log(\text{Penalties}_t) = a + b_1 \log(\text{Revenue}_{t-1}) + b_2(\text{IndxChg}_{t-1}) + b_3 \text{Trend} + b_4 \text{Trend}^2 + b_5 - b_9(\text{Exchange}) + e
\]

and

\[
\log(\text{Violations}_t) = a + b_1 \log(\text{Revenue}_{t-1}) + b_2(\text{IndxChg}_{t-1}) + b_3 \text{Trend} + b_4 \text{Trend}^2 + b_5 - b_9(\text{Exchange}) + e
\]

where

- **Penalties** are the aggregate level of years of suspensions or bars or fines (in constant dollars), imposed by an exchange’s disciplinary panels in year \( t \);
- **Violations** are the aggregate number of violations cited by an exchange’s disciplinary panels relating to dealings with customers, trading, market making, floor procedures, operational matters, and reporting requirements in year \( t \), with a separate analysis for each type of violation;
- **Revenue** is the total revenue earned by an exchange in year \( t-1 \), with revenue being a proxy measure for level of market activity;
- **IndxChg** is the percentage change in the value of the Standard and Poor’s 500 stock index in year \( t-1 \);
- **Trend** is the time trend (1977 = 1, 1978 = 2, etc.);
- **Trend\(^2\)** is a quadratic term intended to reflect curvilinear tendencies in the dependent variables;
- **Exchange** is a series of dummy variables representing the different exchanges (reference category of AMEX);
- **e** are the random or unmeasured deviations in violations and penalties.

The independent variables, including justification for the control variables, are discussed below.

**Revenue—The Level of Market Activity**

More market activity increases the need for control, exposure to regulatory problems, and number of violations handled by exchanges’ disciplinary panels. We control for market activity by entering revenues earned by exchanges annually as a proxy measure. Revenues are earned from fees charged for transactions, communications, clearing services,
and certain other activities, and fluctuate depending on the level of transactions requiring services. The revenue variable is lagged 1 year to help offset the lag between the initiation and completion of a disciplinary action.²

**IndxChg—The Direction of the Market**

Many enforcement actions start with complaints by customers or trading counterparts. Such complaints are more likely when the market is falling than when it is rising. We allow for change in the direction of the market by entering the percentage change in the Standard and Poor’s 500 Index (U.S. Council of Economic Advisers, 1993). The value of *IndxChg* is the percentage change lagged 1 year, again reflecting a lag between initiation and completion of disciplinary actions.

**Trend and Trend²**

The trend in penalties over the 15-year period is estimated using a simple time trend (1977 = 1, 1978 = 2, etc.) and also a quadratic term (i.e., the squared term) to capture curvilinear trends in the penalties (Pedhazur, 1982). We expect total penalties to be associated positively with *Trend* (Proposition 1), and negatively with *Trend²* (Proposition 2), reflecting an increase in, and then maturation of, regulatory effects. Although we do not have advance expectations about the effect of *Trend²* in the regressions with violations as the dependent variable—the yearly mix of serious and nonserious violations is not indicated by their simple sum—it is included in these regressions for comparative purposes.

**Exchanges**

To control for differences among exchanges we entered dummy variables for five exchanges—MSE, NYSE, PSE, PHLX, and the CBOE. The AMEX was used as the reference category. Coefficients indicate the relative difference between a given exchange and the AMEX. Exchanges conceivably differ systematically in their penalties and violations for two reasons; first, the SROs’ regulatory responsibilities differ. As noted earlier, in addition to regulating their own trading floors, the NYSE, AMEX, and CBOE have responsibility for monitoring the financial conditions and sales practices of individuals and organizations belonging to multiple SROs. (They share this responsibility with the National Association of
Securities Dealers, the SRO is primarily responsible for regulating the over-the-counter market.) The MSE, PSE, and PHLX, on the other hand, primarily regulate the activities on their floors. Thus the NYSE, AMEX, and CBOE have most of the disciplinary proceedings concerning larger firms’ financial conditions and sales practices. Second, interviews suggest that some exchanges simply regulate more aggressively than others. Systematic treatment of this issue is beyond the scope of this article; in the section discussing results we do return to it briefly.

Analysis

The regressions were run using weighted least squares (WLS) procedures. The residuals from ordinary least squares (OLS) regression are heteroskedastic, differing substantially by exchange. In such cases WLS is a more efficient estimator than OLS (Hanushek & Jackson, 1977). Unweighted means and standard deviations for the continuous variables and zero-order correlations are reported in Tables 1 and 2.

RESULTS

The Trends in Penalties—Propositions 1 and 2

Table 3 gives the results of the analysis of penalties. Table 3 supports the proposition that self-regulatory penalties increased in the period studied, controlling for level of market activity and other factors. The variable Trend is positive and significant in the regressions with time penalties and fines as dependent variables. In addition, the Trend variable is negative and significant in the fines regression and marginally significant in the time penalties regression, p < .10, suggesting that the underlying trends in penalties are curvilinear. That is, despite the overall upward trend in penalties, the underlying rates declined somewhat—holding other factors constant—in recent periods.

Breakdowns of time penalties across exchanges indicate a difference between the NYSE and other exchanges. Table 4 breaks down the total years of time penalties, by four time periods, for the NYSE and other exchanges. As can be seen, a pronounced increase in time penalties on the exchanges occurred in the second period (1983-1985). In the third period, this was followed by a sharp decline on the NYSE and a moderate decline on other exchanges. Penalties increased in both groups in the fourth period (1989-1991), although the NYSE’s overall level remained below that of
TABLE 1
Unweighted Means and Standard Deviations of Variables in Regressions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>LnYears&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.03</td>
<td>2.02</td>
</tr>
<tr>
<td>LnFines&lt;sup&gt;b&lt;/sup&gt;</td>
<td>10.41</td>
<td>3.84</td>
</tr>
<tr>
<td>LnCustomers&lt;sup&gt;c&lt;/sup&gt;</td>
<td>1.45</td>
<td>1.48</td>
</tr>
<tr>
<td>LnTrading&lt;sup&gt;c&lt;/sup&gt;</td>
<td>2.22</td>
<td>1.34</td>
</tr>
<tr>
<td>LnMarket making&lt;sup&gt;c&lt;/sup&gt;</td>
<td>1.34</td>
<td>1.29</td>
</tr>
<tr>
<td>LnFloor&lt;sup&gt;c&lt;/sup&gt;</td>
<td>1.29</td>
<td>1.32</td>
</tr>
<tr>
<td>LnOperations&lt;sup&gt;c&lt;/sup&gt;</td>
<td>1.94</td>
<td>1.17</td>
</tr>
<tr>
<td>LnReports&lt;sup&gt;c&lt;/sup&gt;</td>
<td>2.10</td>
<td>1.39</td>
</tr>
<tr>
<td>LnRevenue&lt;sup&gt;d&lt;/sup&gt;</td>
<td>10.93</td>
<td>.85</td>
</tr>
<tr>
<td>IndxChg</td>
<td>10.16</td>
<td>12.49</td>
</tr>
<tr>
<td>Trend</td>
<td>8.50</td>
<td>4.34</td>
</tr>
<tr>
<td>Trend&lt;sup&gt;2&lt;/sup&gt;</td>
<td>82.67</td>
<td>71.49</td>
</tr>
</tbody>
</table>

a. Logarithms taken of total years of suspensions or bars in exchange for year.
b. Logarithms taken of dollars of fines in exchange for year, in constant 1987 dollars.
c. Logarithms taken of number of violations involving dealings with customers, trading, market making, floor procedures, operational requirements, and reporting requirements, respectively, in an exchange for year.
d. Logarithms taken of revenues in thousands of constant 1987 dollars for exchange in preceding year.

The second period despite a much higher level of market activity in 1989-1991.<sup>5</sup>

The pattern on the NYSE is consistent with two explanations, with different implications: (a) that the NYSE diminished its use of time penalties, considered the most severe types of penalties, from 1986 through 1991, or (b) that the types of violations likely to draw heavy time penalties were less likely to occur during this period (as suggested by Proposition 2).

The second explanation seems more plausible for two reasons. First, interviews, and the SEC in 1991, suggested consistently that the NYSE, compared to other exchanges, was a particularly active regulator in the latter 1980s; in fact, its regulatory technologies commonly diffused to other exchanges (U.S. General Accounting Office, 1991a). It is unlikely that the NYSE would be weakening its penalty structure during this period. Second, the pattern of misappropriation violations (not analyzed in the regressions) indicates that types of violations drawing heavy time penalties did decline over time. The latter point is discussed further in the section below interpreting the results.
TABLE 2
Zero-Order Correlations of Variables in Regressions

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Years</td>
<td>.63*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Customers</td>
<td>.63*</td>
<td>.88*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Trading</td>
<td>.75*</td>
<td>.68*</td>
<td>.73*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Market</td>
<td>.41*</td>
<td>.11</td>
<td>.16</td>
<td>.56*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Floor</td>
<td>.38*</td>
<td>.08</td>
<td>.20</td>
<td>.52*</td>
<td>.82*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Operations</td>
<td>.77*</td>
<td>.75*</td>
<td>.78*</td>
<td>.77*</td>
<td>.39*</td>
<td>.39*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Reports</td>
<td>.75*</td>
<td>.77*</td>
<td>.77*</td>
<td>.81*</td>
<td>.48*</td>
<td>.48*</td>
<td>.81*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Revenues</td>
<td>.38*</td>
<td>.75*</td>
<td>.70*</td>
<td>.36*</td>
<td>.00</td>
<td>.02</td>
<td>.48*</td>
<td>.60*</td>
<td></td>
</tr>
<tr>
<td>10. IndxChg</td>
<td>-.01</td>
<td>-.02</td>
<td>-.01</td>
<td>.04</td>
<td>.10</td>
<td>.15</td>
<td>.09</td>
<td>.03</td>
<td>.14</td>
</tr>
<tr>
<td>11. Trend</td>
<td>.31*</td>
<td>.19</td>
<td>.13</td>
<td>.17</td>
<td>.48*</td>
<td>.45*</td>
<td>.22*</td>
<td>.30*</td>
<td>.34*</td>
</tr>
<tr>
<td>12. Trend²</td>
<td>.28*</td>
<td>.17</td>
<td>.12</td>
<td>.13</td>
<td>.46*</td>
<td>.45*</td>
<td>.18</td>
<td>.28*</td>
<td>.31*</td>
</tr>
<tr>
<td>13. AMEX</td>
<td>.16</td>
<td>.10</td>
<td>.22*</td>
<td>.07</td>
<td>-.19</td>
<td>-.15</td>
<td>.09</td>
<td>.04</td>
<td>.16</td>
</tr>
<tr>
<td>14. MSE</td>
<td>-.47*</td>
<td>-.42*</td>
<td>-.44*</td>
<td>-.61*</td>
<td>-.44*</td>
<td>-.35*</td>
<td>-.51*</td>
<td>-.52*</td>
<td>-.07</td>
</tr>
<tr>
<td>15. NYSE</td>
<td>.37*</td>
<td>.73*</td>
<td>.58*</td>
<td>.29*</td>
<td>-.03</td>
<td>-.11</td>
<td>.49*</td>
<td>.56*</td>
<td>.76*</td>
</tr>
<tr>
<td>16. PSE</td>
<td>-.34*</td>
<td>-.34*</td>
<td>-.41*</td>
<td>-.13</td>
<td>.19</td>
<td>.16</td>
<td>-.37*</td>
<td>-.23*</td>
<td>-.20</td>
</tr>
<tr>
<td>17. PHLX</td>
<td>-.00</td>
<td>-.28*</td>
<td>-.38*</td>
<td>-.19</td>
<td>.17</td>
<td>.03</td>
<td>-.07</td>
<td>-.21*</td>
<td>-.57*</td>
</tr>
<tr>
<td>18. CBOE</td>
<td>.28*</td>
<td>.22*</td>
<td>.43*</td>
<td>.56*</td>
<td>.32*</td>
<td>.43*</td>
<td>.37*</td>
<td>.37*</td>
<td>-.07</td>
</tr>
</tbody>
</table>

*p < .05.

The differences among securities exchanges in Table 3 are substantial, even after controlling for level of market activity and the other factors. The NYSE imposed a relatively high level of time penalties and fines. The CBOE also had a relatively high level of fines and time penalties. The regional exchanges—the MSE, PSE, and PHLX—generally had significantly lower levels of penalties than the other exchanges.

The Trends in Types of Violations—Proposition 3

When SROs expanded and formalized their regulatory operations they reportedly increased operational and reporting regulation substantially. The results in Tables 5a and 5b generally support this. The Trend coefficients indicate that the number of disciplinary actions involving operational and reporting violations tended to increase significantly over time; the relationship is strong for operational violations, $p < .01$, although only marginally so for reporting violations, $p < .10$. Proceedings involving other types of violations did not increase as much, with one conspicuous exception. That is, trading violations increased substantially over the period studied (the Trend coefficient is positive, $p < .011$), and had the curvilinear pattern...
TABLE 3
Coefficients for Analysis of Time Penalties and Fines

<table>
<thead>
<tr>
<th>Variable</th>
<th>Years Barred</th>
<th></th>
<th>Fines</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>Beta</td>
<td>b</td>
<td>Beta</td>
</tr>
<tr>
<td>Revenues</td>
<td>.40</td>
<td>.16</td>
<td>-.68</td>
<td>-.39</td>
</tr>
<tr>
<td>IndexChg</td>
<td>-.01*</td>
<td>-.07</td>
<td>-.002</td>
<td>-.02</td>
</tr>
<tr>
<td>Trend</td>
<td>.19**</td>
<td>.40</td>
<td>.42***</td>
<td>1.34</td>
</tr>
<tr>
<td>Trend(^2)</td>
<td>-.01*</td>
<td>-.29</td>
<td>-.02***</td>
<td>-.82</td>
</tr>
<tr>
<td>MSE</td>
<td>-2.15***</td>
<td>-.42</td>
<td>-5.64***</td>
<td>-.29</td>
</tr>
<tr>
<td>NYSE</td>
<td>2.35***</td>
<td>.47</td>
<td>2.63***</td>
<td>.66</td>
</tr>
<tr>
<td>PSE</td>
<td>-1.70***</td>
<td>-.30</td>
<td>-4.72***</td>
<td>-.29</td>
</tr>
<tr>
<td>PHLX</td>
<td>-1.16</td>
<td>-.12</td>
<td>-2.32***</td>
<td>-.53</td>
</tr>
<tr>
<td>CBOE</td>
<td>.70**</td>
<td>.16</td>
<td>.72**</td>
<td>.26</td>
</tr>
<tr>
<td>Adjusted (R^2)</td>
<td>.90</td>
<td>.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pooled Durbin-Watson</td>
<td>1.60</td>
<td>1.86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(F)</td>
<td>89.40***</td>
<td></td>
<td>28.45***</td>
<td></td>
</tr>
<tr>
<td>(N)</td>
<td>90</td>
<td></td>
<td>90</td>
<td></td>
</tr>
</tbody>
</table>

\(*p < .10; **p < .05; ***p < .01.\)

found in the penalties regressions (the \(Trend^2\) coefficient is negative, \(p < .01\)). We speculate that trading violations increased over the time period because of the turbulence in the markets in the decade (Baucus & Near, 1991), but that later in the period studied the high profile of enforcement against trading violations like insider trading diminished the frequency of this type of violation (e.g., see Stewart, 1991; Vise & Coll, 1991).\(^6\)\(^7\)

INTERPRETATION OF RESULTS

Penalties imposed in disciplinary proceedings increased in the 1980s, controlling for changes in market activity. These results are consistent with two very different explanations: (a) stronger regulation or (b) stable regulation and rampant wrongdoing.

Stronger regulation. Because of a higher level of interdependence in financial markets, and pressure from the government, self-regulatory systems on the securities exchanges were strengthened substantially in the 1980s. As regulation formalized and expanded on the exchanges, there were more rules to violate and a greater chance that violations would be
detected. Conduct that at an earlier time would violate no rule, or that would be tolerated or discouraged informally, now would be sanctioned formally or sanctioned more severely. Thus penalties would increase even if wrongdoing remained relatively stable or even declined.

Stable regulation but rampant wrongdoing. The intensity of regulation remained constant, but penalties increased because of a dramatic increase in the rate of wrongdoing in the 1980s.
TABLE 5b  
Coefficients for Analysis of  
Floor Procedure, Operations, and Reporting Violations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Floor</th>
<th>Operations</th>
<th>Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>Beta</td>
<td>b</td>
</tr>
<tr>
<td>Revenues</td>
<td>.49</td>
<td>.40</td>
<td>-.24</td>
</tr>
<tr>
<td>IndexChg</td>
<td>-.001</td>
<td>-.02</td>
<td>.001</td>
</tr>
<tr>
<td>Trend</td>
<td>.01</td>
<td>.05</td>
<td>.24***</td>
</tr>
<tr>
<td>Trend^2</td>
<td>.004</td>
<td>.29</td>
<td>-.01***</td>
</tr>
<tr>
<td>MSE</td>
<td>-.38</td>
<td>-.12</td>
<td>-1.67***</td>
</tr>
<tr>
<td>NYSE</td>
<td>-.47</td>
<td>-.21</td>
<td>1.30***</td>
</tr>
<tr>
<td>PSE</td>
<td>1.23**</td>
<td>.27</td>
<td>-1.36***</td>
</tr>
<tr>
<td>PHLX</td>
<td>1.22*</td>
<td>.26</td>
<td>-.76*</td>
</tr>
<tr>
<td>CBOE</td>
<td>1.91***</td>
<td>.60</td>
<td>.62***</td>
</tr>
<tr>
<td>Adjusted R^2</td>
<td>.52</td>
<td>.75</td>
<td></td>
</tr>
<tr>
<td>Pooled Durbin-Watson</td>
<td>1.44</td>
<td>1.35</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>11.84***</td>
<td>30.98***</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>90</td>
<td>90</td>
<td></td>
</tr>
</tbody>
</table>

*p < .10; **p < .05; ***p < .01.

Empirically separating the effects of more frequent violations from tighter regulation is notoriously difficult (McCaffrey et al., 1985). However, two analyses in addition to the interviews, arguably support the idea that the intensity of self-regulation increased during the period studied: the trend in a particularly serious type of violation—misappropriations—and the SEC’s identification of higher penalties with stronger regulation.

THE TREND IN MISAPPROPRIATIONS

As indicated above, misappropriations were not analyzed in the regressions because they were concentrated on the NYSE. This type of violation, however, provides important insights in interpreting the other results. Misappropriation is a relatively clear and serious violation; rule changes are less likely to affect the trend in misappropriations than the trends of other violations. The number of cases reported directly in the Securities Violation Bulletin as involving misappropriations over four time periods—1980-1982, 1983-1985, 1986-1988, and 1989-1991—was 93, 152, 38,
and 33, respectively. Over the four periods, the number of these cases, plus cases likely involving misappropriations although not reported as such in the bulletin, was 98, 159, 48, and 129, respectively.\(^8\) We believe that the level of misappropriation was lower in the final two periods, despite a higher level of market activity, because the control systems in place by the middle of the decade worked well enough to reduce the frequency of particularly serious violations likely to draw heavy time penalties (again, as suggested by Proposition 2). Thus, in an area where regulatory effectiveness can be somewhat disentangled from reporting or rule changes, the effectiveness of regulation seemed to increase.

THE SEC’S EVALUATION OF HIGHER PENALTIES

The SEC’s annual regulatory reviews have evaluated exchanges with high penalties relatively favorably. In the regression analyses, the NYSE and the CBOE were shown to have the highest level of fines and time penalties. The SEC’s reviews of securities exchanges are not public information. However, in 1991 the SEC identified the NYSE as a central example of more effective regulation from 1986-1989 (U.S. General Accounting Office, 1991a). In addition, in its annual reports for 1987 through 1989, the SEC commented favorably on the CBOE’s enforcement program (U.S. Securities and Exchange Commission, 1988a, 1989, 1990). Thus the substantial increase in penalties in the 1980s, controlling for market volume, likely indicates more intense regulation rather than stable regulation with greatly increased wrongdoing.

CONCLUSION

Twenty years after the latest wave of regulatory laws, and after the stabilization of rule-making policy, the processes determining regulatory impacts increasingly take place within firms and industries themselves and in the working relationships among private and public actors. It is in these settings that the values favored by regulatory laws are institutionalized more or less effectively. Research on subjects like the interactions of private and public controls on industry, on the professionalization of the regulatory role within industry, and on regulatory networks cutting across the private and public sectors would help us understand central issues facing regulatory implementation in the 1990s. This article has tried to
indicate the importance of these issues by examining regulatory processes in the securities industry.

Recent literature focuses on how government might reinforce internal industry conditions favoring regulatory compliance, including the willingness of different groups within the industry to monitor and control each other (Ayres & Braithwaite, 1991; Rees, 1988; Scholz, 1984a, 1984b, 1991; for earlier thoughts on these themes, see Zald, 1978). As Ayres and Braithwaite (1991) put it, “The interplay of interests constitutes the social conditions” that the government might harness in support of regulation (p. 489). The results in this article suggest two of the conditions that might facilitate effective self-regulatory—or, more accurately, shared regulatory—systems: industry diversity with interdependence and an institutionalization of regulatory occupations within the industry.

INDUSTRY DIVERSITY WITH INTERDEPENDENCE

A high level of industry diversity with interdependence is a good base on which to build self-regulation. In such a situation, different types of actors, with different interests, monitor each others’ conduct because those violating regulations obtain objectionable advantages. (For example, Salomon brothers’ alleged role in the 1991 Treasury bond bidding scandal was revealed to the federal government by institutional investors and competitors who lost money in the resulting squeeze; see Siconolfi & Cohen, 1991) Mandatory disclosure of information, financial requirements, and rules governing trading practices generally are seen as consistent with, or even as reinforcing, the industry’s core activities. Thus, although regulatory controls are more constraining than controls the “unaided” market would generate, they generally are accepted by organizations conducting most of the industry’s business (Hansell, 1991; U.S. General Accounting Office, 1990). This is a reasonable foundation on which to build a system of self-regulation.

One sees similar processes in other industries. For example, recent evidence suggests that coalitions of large purchasers of health care, such as corporations, can increase substantially the effectiveness of health care price and quality regulation (Winslow, 1993a, 1993b; 1993c). Drawing on examples from occupational safety and health, environmental regulation, and other areas, Ayres and Braithwaite (1991) suggest that tripartism—a system in which the government would empower public interest groups or other private actors with stakes in effective regulation—might enhance the attainment of regulatory goals generally.
Obviously, such a regulatory approach depends on the presence of, or the government's ability to strengthen, *countervailing powers* within an industry. Such controls would cover some areas of some industries reasonably well, but not others. For example, in the securities industry, institutional investors have information and leverage unavailable to retail investors (Cohen, 1991; U.S. General Accounting Office, 1990). Similarly, corporations monitoring health care costs and quality will focus most closely on the types of cases touching them; labor-management safety committees probably work better in unionized than nonunionized firms (Bacow, 1980), and so forth. Thus self-regulation conceivably would operate reliably in some areas of an industry, but unreliably in others. In the former areas, it would take substantial burdens off of government regulation, and likely operate more effectively than direct government regulation. In the latter areas, however, the need for strong direct government regulation would remain.

INSTITUTIONALIZATION OF REGULATORY OCCUPATIONS

Regulatory studies, focusing mainly on public organizations, have presented a fairly aggregated view of firms as regulatory actors. Firms are seen as behaving more or less responsibly and as resisting regulation to varying extents. This focus leads us to pay less attention than is warranted to the emergence of regulatory professionals within the firms and industries, and to their interaction with public sector counterparts.

It is striking to remember that not long ago the view of public regulatory agencies similarly was aggregated. As late as the 1970s government regulatory agencies were seen as policymaking billiard balls, knocked in one direction or another by interest group pressures or economic conditions. At that time, however, a series of important studies maintained that the occupational composition of government regulatory agencies, norms of technical adequacy that are relatively independent of interest group pressures, and other organizational factors led to regulatory behavior that was inconsistent with earlier thinking (e.g., see Wilson, 1980; and the longer works from which those chapters in Wilson are drawn; and Joskow & Noll, 1981). The importance of professional roles and organization within regulatory agencies now is a truism (Wilson, 1989).

Those trying to understand public regulation's effects need to extend this type of research to the private sector. Much of what firms do is determined not by calculations of the economic costs and benefits of compliance or immediate government inspections, but by regulatory
politics within firms and industries—in particular, the politics of professionals within firms. These professionals are the compliance officers in securities firms, the engineers dealing with environmental controls or product safety, occupational safety and health staff, and others in similar occupations. In the regulatory literature these actors usually are treated primarily as agents for the interests of production within firms (Wysong, 1992). As suggested by the discussion of the securities industry above, however, this view understates the extent to which their interests and identities as professionals might influence their behavior—just as such interests and identities influence governmental regulatory behavior.

One means government has to strengthen self-regulation is by actively developing and supporting regulatory occupations within the industry. Self-regulation seems to work well when self-regulatory “officials” have an identity and power base somewhat independent of industry producers. Historically, the SEC has stimulated market reforms when it pressed strongly for changes in coalitions with reform-minded groups in industry (Douglas, 1940; McCraw, 1982; Seligman, 1982). Its efforts to more fully bureaucratize and professionalize securities self-regulation over the past 10 years has followed this pattern.

The links between government regulators and an industry’s regulatory/compliance professionals are stronger in the securities industry than in most areas of regulation. As noted earlier, the securities laws historically have emphasized self-regulation in the industry as a core activity. In contrast, such efforts in the health-safety area, although certainly present, seem to be more sporadic and less a core activity of agency enforcement (Cheit, 1990; Rees, 1988). A strong theme in Robert Jackall’s Moral Mazes (1988) is that health, safety, and environmental staff in industry are influential usually when external regulatory pressures are strong, but that these pressures strengthen compliance staff on an ad hoc basis. A possibility worth considering in future research is, what are the conditions under which the government could facilitate strong regulatory/compliance staff more regularly and systematically? A clear difference between the securities and health-safety areas, for example, is the presence of strong intermediary structures in the securities industry (the exchanges). Does effective self-regulation depend on the availability of such structures?

Obviously, securities regulation operates in imperfect and complex ways. As shown above, enforcement styles seem to vary across exchanges, and the problems of market regulation in the 1980s are well-known (Stewart, 1991; Vise & Coll, 1991). Zero-defect enforcement systems,
however, do not exist (e.g., see U.S. General Accounting Office, 1991b, 1991c), and the SEC’s strategies historically have made it one of the most well-regarded and effective regulatory agencies. Formally strengthening industries’ capacities for self-regulation deserves serious attention as analysts and policymakers try to find ways to strengthen regulatory implementation.

NOTES

1. Other types of penalties are censures, letters of admonishment or warning, and “special requirements” for more frequent examination in the future, increases in capital reserves, and so forth.

2. Stock and options volume is a possible alternative indicator of market activity. However, the two represent very different types of trading and so cannot be combined into a single measure of activity. Entered separately, the two measures produce statistical instabilities because of their distributions. In particular, although the NYSE and the CBOE both have relatively high levels of penalties, their volume patterns are reversed; the NYSE has by far the highest stock volume, but registers minimal options volume, whereas the CBOE has the highest options volume and no stock volume. The revenue variable, in contrast, is a comparable longitudinal and cross-sectional indicator of market activity.

3. When the data are heteroskedastic, WLS methods produce estimates that have smaller variances than OLS methods—that is, they are more efficient—by weighting less variable observations more than highly variable observations. The weights are determined by the source of the heteroskedasticity. Here, the exchange residuals vary unequally. Thus the data are weighted by the reciprocal of the standard deviation of the residuals for the exchanges, raised to an exponent estimated by the weighted least squares analysis (SPSS-X Trends) (SPSS, 1988, p. B108-112).

4. The Durbin-Watson statistics for the penalty regressions are in the inconclusive range, meaning that autocorrelation can be neither ruled in nor ruled out. As a check on the possibility of autocorrelation in the regressions, we ran the unweighted regressions using both simple regression and maximum likelihood estimation (MLE), a technique that adjusts estimates in the presence of autocorrelated errors (SPSS, 1988, p. B74-78). (MLE could not be run using the weighted regressions; thus the unweighted regressions were used simply for these comparative purposes.) The results for the two types of analysis generally were similar, although certain differences in the results for the time trend variables warrant caution. In the simple unweighted time penalties regression, Trend is significant at the .05 level and Trend$^2$ is nonsignificant. In the MLE regression, Trend is significant only at the .10 level, and Trend$^2$ remains nonsignificant. Trend is significant at .01 in both versions of the unweighted regressions using fines as the dependent variable. In these, Trend$^2$ is marginally significant at .10 in the simple regression, $p = .07$; this drops to nonsignificance, $p = .11$, in the MLE regression.

5. The pattern in the regressions change only slightly if one eliminates the NYSE from them. When the NYSE is eliminated, the coefficients for Trend and Trend$^2$ in the time penalties regression are .22, $p < .05$, and -.01, $p < .10$, respectively; and in the fines regressions .51, $p < .01$, and -.02, $p < .05$. 

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6. As suggested by Pedhazur (1982), we ran all the regressions hierarchically, first without Trend\(^2\) (Step 1) and then adding it (Step 2). The Step 2 results are reported in the text. The coefficients for Trend and Trend\(^2\) in the two steps are reported below:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Trend</th>
<th>Trend(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years barred</td>
<td>.05*</td>
<td></td>
<td>.19***</td>
<td>-.01*</td>
</tr>
<tr>
<td>Fines</td>
<td>.11***</td>
<td>.42***</td>
<td>-.02**</td>
<td></td>
</tr>
<tr>
<td>Customer</td>
<td>.01</td>
<td>.04</td>
<td>-.002</td>
<td></td>
</tr>
<tr>
<td>Trading</td>
<td>.01</td>
<td>.40***</td>
<td>-.02***</td>
<td></td>
</tr>
<tr>
<td>Market making</td>
<td>.09***</td>
<td>.11</td>
<td>-.001</td>
<td></td>
</tr>
<tr>
<td>Floor</td>
<td>.09**</td>
<td>.01</td>
<td>.004</td>
<td></td>
</tr>
<tr>
<td>Operations</td>
<td>.07***</td>
<td>.24***</td>
<td>-.01***</td>
<td></td>
</tr>
<tr>
<td>Reporting</td>
<td>.09***</td>
<td>.14*</td>
<td>-.003</td>
<td></td>
</tr>
</tbody>
</table>

\(*_{p < .10}; \; **_{p < .05}; \; ***_{p < .01}.

7. The Durbin-Watson statistics for the violation analyses generally are in the inconclusive range, and again we compared the results for simple and MLE regressions. The MLE results were similar to those for the simple regressions.

8. We compared the violations reported in the Securities Violation Bulletin to the full texts of the NYSE panel decisions. The only notable discrepancy was that, particularly in recent years, the bulletin frequently reported certain misappropriation cases simply as “violations of just and equitable principles of trade,” with the penalty universally being a permanent bar. Cases coded directly as misappropriations over the four periods numbered 93, 152, 38, and 33. The numbers of bulletin cases involving “violation of just and equitable principles of trade” with a permanent bar were 5, 7, 10, and 96, respectively, in the four periods. It should be noted that the increase in the fourth period compared to the third does not seem to represent a new trend toward increasing numbers of such cases, for the number of permanent bars on the exchanges declined in 1992 compared to 1991. The Securities Violation Bulletin recorded 69 permanent bars on the NYSE in 1991. An American Bar Association report covering 1992 reported that there were 45 such bars on the NYSE for 1992 (American Bar Association, 1993).

APPENDIX

Specific Violations Included in Violation Categories

Dealings with customers. Includes violation of advertising and customer communication procedures, trading not authorized by customers, misrepresentations to customers, “churning” of accounts, and other actions usually harming customers.

Trading rules. Includes cases in which individuals or organizations obtain some illegitimate advantage in trading by trying to manipulate markets, using “inside” information illegitimately, misusing one’s position to make trades on excessively favorable terms, and so forth.
Market making requirements. Includes unsatisfactory market making performance by specialists, failure to meet requirements for the level or proportion of trading in assigned securities, and other market making rule violations.

Floor procedures and rules. Includes violations of rules governing the administration and operation of the floor. These include the procedures for executing trades or displaying bids and offers, rules for personal conduct on the floor, rules requiring consultation with floor officials in certain situations, and so forth.

Operational requirements of members. Includes deficiencies in the operations of members—for example, failure to maintain required levels of capital, to maintain books and records properly, to supervise employees properly, to settle transactions in stipulated time periods, to maintain proper registration, or to segregate accounts as required.

Reporting requirements. Includes failure to submit reports to the exchange, submission of false or inaccurate information, failure to comply with special requests for information, or refusal to cooperate in investigations.

Misappropriation. Includes stealing money or other assets from customers or employers, and manipulating or diverting accounts for personal benefit.

General requirements. Includes violations of general clauses such as “conduct inconsistent with just and equitable principles of trade,” “violations of good business practice,” “acts detrimental to welfare of the exchange,” and so forth. This category also includes citation of outside criminal or civil legal violations as grounds for disciplinary action.

Unknown or unspecified. Includes cases in which a violation was not reported, or in which we otherwise were unable to determine the nature of the violation.

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