

A Dynamic Theory of Rule Compliance:
Evidence from the United States Securities Industry

by

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ABSTRACT

This paper uses a system dynamics model to analyze rule compliance in organizations. The analysis takes securities regulation as an illustrative case but applies to other private, nonprofit, and public activities complying with rules overseen by external bodies in the course of producing goods and services. We consider how three levels of behavior—producers, internal organizational controllers, and external regulators—interact in shaping compliance with rules.

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Rules involve behavioral tradeoffs. Rules expedite some types of work by enhancing predictability and reducing search costs, but slow other types by requiring steps to hold individuals and organizations accountable. Rules can protect individuals complying with them even when work outcomes turn out badly, but rules also impede individuals from actions they consider necessary for their own or the organization's welfare. Those who advance in organizations by violating rules in order to produce more of what the organization values may see their careers ruined when violations lead to civil or criminal

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sanctions; or, their violations may never be punished or even noticed and they may keep the gains of their behavior (March, Schulz and Zhou 2000; Darley, Messick and Tyler 2001; Goldman 2002).

Reports since 2002 of organizational misconduct in financial firms include striking material on rule dynamics. Securities firms like Merrill Lynch, Citigroup, and Morgan Stanley reportedly helped Enron and other corporations skirt accounting rules, encouraged their investment analysts to exaggerate corporations' investment value in order to win the corporations' investment banking business, violated rules on mutual funds marketing, and generally aggravated corporate governance breakdowns (United States House of Representatives Committee on Financial Services 2002b; McLean and Elkind 2003; United States General Accounting Office 2003; United States House of Representatives Committee on Financial Services 2003a). These cases added to a rich history of prominent rule breakdowns in organizations (Stone 1975).

To understand how organizations and their employees fall into such practices, scholars have studied—among other topics—ethics programs within firms (Weaver, Treviño and Cochran 1999a; Weaver, Treviño and Cochran 1999b; McKendall, DeMarr and Jones-Rikkens 2002); how civil and criminal penalties do or do not deter violations (Alexander 1999); how management and governance structures affect violations (Alexander and Cohen 1996; Agrawal, Jaffe and Karpoff 1999); and the relationships among economic and technological circumstances and legal violations (Baucus and Near 1991; Hill, Kelley, Agle, Hitt and Hoskisson 1992; Keane 1993; Alexander and Cohen 1996; Stanwick and Stanwick 1998). The studies usually find one or more factors to be correlated statistically with violations, but, with the exception of a finding that managerial commitment enhances legal climates, the relationships are weak and conflict across studies (McKendall and Wagner 1997; McCaffrey and Hart 1998). Their authors note this, remarking how the issue's complexity makes it hard to predict violations in a useful way. For example, a *Wall Street Journal* article quoted a confidential internal Citigroup investigation in December 2004 of Citigroup's private banking operations in Japan that had just been shut down by Japan's Financial Services Authority for persistent regulatory violations:

“Quite simply, this is a situation characterized by a multitude of failure points within the organization...In our experience, we have found that problems of the magnitude that Citigroup is confronting in Japan often have a 'perfect storm' element to them. That was also true here,' the report said. 'However, experience also has taught us that a business failure of the kind witnessed in Japan is typically an indication of deeper fault lines in the control structure of the organization as a whole. This is also our conclusion here.'” (Pacelle, Fackler and Morse 2004: A1, A10)

Scholars have called for better data and more refined research methods to cope with this complexity (Clinard, Yeager, Brissette, Petrashek and Harries 1979; Hill et al. 1992; Keane 1993; Baucus 1994; Daily, Dalton and Cannella 2003). The system dynamics model used here contributes to analysis of the topic in two respects. First, it articulates explicitly a few processes central to the dynamics of rule

compliance in different contexts. Second, it specifies connections among the processes in ways that allow us to run the model and observe the connections' logical implications over time under different assumptions, including implications that otherwise might be missed. We developed the model after study of rule compliance in securities firms with attention to the similarities and differences between this context and others. We evaluate the model based on the plausibility of the patterns it generates in light of what scholars believe they know of the dynamics of rule compliance. Its purpose is not to confirm what scholars already know, but rather to analyze the process in a way that generates plausible new inferences.

All models are incomplete and thus to some extent “wrong” (Lave and March 1993; Sterman 2000). Not all elements of the system that we know to be consequential are included here because to do so would produce a model of overwhelming complexity and certainly something that could not be presented in a single paper. While readers may question the selection of the processes and connections on which we have focused, specifying them explicitly advances the debate on the topic and enables us to consider how other processes might affect those included in the model.

The paper is organized as follows. Using the securities industry as background material, the next section discusses how producers, internal controllers, and external regulators jointly shape rule compliance. Then, we describe the components and themes of the model and analyze its implications.

RULE COMPLIANCE WITHIN SECURITIES FIRMS

This section first describes the information we used, focusing on securities firms, in understanding rule compliance within organizations. It then discusses three types of parties who affect rule compliance—producers, internal organizational controllers, and external regulators. We used two types of information, beyond related literature and archives, to develop the discussion of rule compliance within securities firms presented here: (1) a database of all New York Stock Exchange formal disciplinary actions from 1990 through 2003, (2) interviews with those involved directly in or overseeing the regulatory system and observation at three conferences on securities regulation.

New York Stock Exchange Disciplinary Proceedings

Federal securities laws passed in the 1930s explicitly established a sharing of regulation between the private and public sectors. The SEC oversees self-regulatory organizations (SROs) such as the New York Stock Exchange (NYSE) and the National Association of Securities Dealers (NASD) but has the authority to control the SROs directly if required. The SROs oversee, and similarly can set rules for, financial firms like Merrill Lynch, Morgan Stanley, and Citigroup that are members of the SROs because of legal obligations and/or because they need access to the SROs' markets. The SEC and the self-regulatory

organizations rely heavily on the firms' internal control systems to prevent securities law violations on the grounds that the firms are in the best position to oversee their own operations, and can impose various sanctions when the firms' systems fail.

The overwhelming majority of formal regulatory actions involving securities firms are carried out by SROs. In federal fiscal year 2002 there were 2,507 final reports to the SEC of disciplinary actions of individuals and/or firms by the SROs, compared to 129 individuals or firms involved in direct SEC enforcement actions primarily involving broker-dealer firms (United States Securities and Exchange Commission 2003bp. 91, 157). These cases, of course, exclude disciplinary actions taken *within* securities firms.

The New York Stock Exchange reports minutes of its disciplinary proceedings on its website. These minutes summarize in anywhere from 3 to 40 or more pages the conduct resulting in disciplinary action by the Exchange. We read and coded the minutes of all the cases from 1990 through 2003 (n=2,680), recording the violations, firm and individuals involved, penalties, time period of the violation, how the violation was brought to the NYSE, and other aspects of the case.

The NYSE's cases are not representative of all SRO cases. The National Association of Securities Dealers handles many more cases because under federal law all firms must belong to the NASD, including the many smaller firms who are not NYSE members.¹ Their markets and regulatory organization also differ.² But fundamental relationships between NYSE and NASD regulators and those they regulate are similar. While the NYSE's cases from 1990 through 2003 are not representative of all SRO cases, they indicate a great deal about the dynamics of rule compliance and violations within securities firms.

Observation and Interviews

In November 2003 the second author attended a day-long seminar on legal and compliance issues sponsored by the Compliance and Legal Division (CLD) of the Securities Industry Association (SIA), and in March 2004 its three-day national conference, with about 300 and 1550 attendees, respectively. These conferences involved almost entirely industry and regulatory professionals. They consisted of plenary sessions and smaller panels, all with five or six panelists who were senior legal and compliance staff within securities firms, outside attorneys advising firms, senior staff of the SEC, NYSE, NASD, and/or state regulators, and a small number of individuals from Congressional committees. These sessions were especially useful because individuals from the public and private sectors had candid exchanges on their own grounds. In addition, in October 2004 the second author attended the three-day annual meetings of the North American Securities Administrators Association, an association of state regulators. Quotations

used here were produced from notes taken during these conferences, and the paper also draws on the written materials distributed at the sessions.

Between November 2003 and October 2004 the second author interviewed twenty individuals involved directly in securities regulation or overseeing the system. They included four individuals in senior legal and compliance positions across three large securities firms; one outside attorney advising firms; three from the NASD; three from the SEC; one state official; three individuals with relevant Congressional committees; and five with the Government Accountability Office in a group interview. These interviews focused on the individuals' perceptions of key regulatory issues and the nature of their working relationships with the other parts of the system. We asked permission to take notes during the interviews with the understanding that we would share drafts of materials, and permission always was granted. The quotations used here were produced from those notes.

The two types of information are complementary. The NYSE data cover 2,680 disciplinary cases over 14 years, and collectively they provide a good sense of the types of behavior analyzed here. The industry and state regulatory conferences and the interviews provide observations by those working in the field on the issues underlying the disciplinary cases.

The next sections discuss three main areas affecting rule compliance in firms: producers, internal controllers within firms, and external regulators.

Producers

Securities firms generously reward those who develop and market successful financial innovations; who are especially able to persuade investors to buy products the investors usually do not understand very well; and who have the information, technology, skill, and instincts to trade profitably when the difference between winning and losing is small. They also routinely fire or demote people who lag in sales, investment banking, or trading. Producers within the firm value flexibility, speed, and assertive marketing because these talents expedite their work and attract customers. Producers' intense focus on production, however, can lead them to mislead customers, trading partners, or their own firms for the sake of completing transactions.

Public and private rules accordingly prohibit certain types of transactions and require recordkeeping, approvals, and disclosures that limit what producers can do to complete deals. While producers usually live with these rules, they do so uneasily and commonly object to them because they slow and limit transactions. Following significant legal difficulties, one easily can point to the ways in which cutting corners on rules damaged the individuals and firms involved, and this is cited to justify the claim that "good compliance is good business." However, the more realistic calculation for aggressive producers,

and the managers depending on their production, is balancing the prospective gains from profitable but possibly illegal behavior against some risk that the behavior will be detected and punished, especially when short-term gains are critical. While some producers and firms flagrantly cheat customers or otherwise break rules, the more typical problem is that individuals confront what they call “gray areas” in which an action does not clearly violate a rule, or the person easily can rationalize that it does not violate a rule, or rejects the rule as inappropriate or “stupid” for a particular case. Those within the organization have to decide on their level of compliance with the rules and their emphasis on production. The more rule compliance, all other things being equal, the greater the restraints on production, the less production, and the lower the chance of regulatory breakdowns. Most regulatory problems stem from the tension between production pressures and these restrictions.

Usually, producers in securities firms comply with rules enough to avoid regulatory trouble and/or unresolved customer complaints. Analyses by public and private regulators suggest that disciplinary actions, arbitrations, or formal customer complaints target fewer than 1 percent of securities brokers and traders in a given year (United States Securities and Exchange Commission 1994; National Association of Securities Dealers 2003; United States Securities and Exchange Commission 2003a). Financial market activity is so extensive, however, that even a small rate of violations will produce a large number of problems, and it may take only a few individuals in key positions to induce a major scandal (United States House of Representatives Committee on Financial Services 2002a; United States House of Representatives Committee on Financial Services 2002b; McLean and Elkind 2003).

Furthermore, legal problems do not require unethical, corrupt individuals to have violated rules in systematic and premeditated ways. Some people are “chronic offenders” and “seekers” of opportunities for white-collar crime, or “cut corners” and consciously try to deceive others. Commonly, however, rule violations occur through subtler processes (Weisburd, Waring and Chayet 2001). People may see profitable conduct as being in a “gray area” of being neither clearly legal nor illegal, proceed as if it was legal, and find regulators, courts, or arbitration panels disagreeing with them. Or, they may regard the behavior as only “technically” illegal, saying that “everyone does it” and, like someone driving 70 in a 65-mph zone, conclude that the chances of enforcement are almost nonexistent.

For example, in 2003 regulators and 10 large securities firms settled charges, at a cost of \$1.4 billion, that the firms had encouraged their investment analysts to publicly exaggerate corporations’ investment value, misleading investors, in order to win the corporations’ investment banking business. For several years, this was an open secret in the industry, and the press and even earlier Congressional hearings reported it widely. Participants were aware of its ethical implications but generally had come to live with it as a “normal” part of business not violating specific rules; large investors familiar with the industry had

learned to discount public pronouncements from analysts, but smaller investors had not (United States House of Representatives Committee on Financial Services 2001; Kessler 2003). One email exchange between an analyst and a large institutional investor about an excessively favorable rating for a firm conveyed the situation.

The institutional investor and the analyst discussed the effect of the conflict of interest on the analyst's research in the following exchange:

Institutional Investor: I understand – business is business. But I feel bad for those naïve investors who assume that sell-side analysts are objective! I wish some buy-side institutions would get together to establish an independent equity research consortium with analysts paid for on a subscription basis or something...

Analyst: well, ratings and price targets are fairly meaningless anyway, buy-side [*large investors*] generally ignores, commentary is what matters and I'll be a [*more negative about the company*]...in my comments . . . but, yes, the "little guy" who isn't smart about the nuances may get misled, such is the nature of my business (NYSE 2003P. 15).

Most of the time producers follow clear rules that are usually enforced. Absent such clear rules and consistent enforcement, as in the investment banking cases above, ambiguous principles such as "just and equitable principles of trade" compete with short-term imperatives to complete transactions and producers tend to err on the side of doing deals. Rules did not clearly prohibit the investment analyst/investment banker collaboration, and so it could emerge as a "new paradigm" of attracting investment banking revenue that slipped into ethical and legal problems (Business Week 2003; Hill 2004, P. 129). Internal controls overseen by those outside production offices are supposed to prevent transaction pressures from producing potentially serious legal troubles in such situations. These controls are discussed next.

Internal Organizational Controls

When we model internal controls in this paper we are referring to offices that review transactions, including legal and compliance and risk management offices and auditing. They are supposed to ensure that the firm's business is completed within applicable laws and public and SRO regulations. Research on such internal compliance systems has not found meaningful statistical regularities between the formal properties of the systems and organizational misconduct. Firms vary in how they actually implement formal systems required by laws and standards, and, just as their marketing strategies vary, their regulatory climates vary. This has been shown in pharmaceutical companies (Braithwaite 1984; Walsh 1987), coal mine safety (Braithwaite 1985), nuclear power plants (Marcus 1988; Rees 1994), occupational safety and health and environmental programs (Gray 1983; Walsh 1987; Rees 1988; Hill et al. 1992; Rees 1997; King and Lenox 2000; Coglianese and Nash 2001; Draper 2003; Kagan, Thornton and Gunningham 2003).

The study of securities firms by McCaffrey and Hart (1998) concluded that internal controls' effectiveness varied substantially across the firms. Legal and compliance programs were relatively passive in some firms, usually mopping up after brokers or traders clearly had violated rules; in others, they were involved more pervasively in business decisions. Internal politics among producers, legal and compliance personnel, and top management determine firms' relative attention to controls, and two conditions help shape these internal politics.

First, legal and compliance staff must convince enough of the firm's key parties that legal and compliance activity "adds value" to the firm. The external scrutiny that followed legal troubles in one's own firm or in other firms makes this more possible. External pressures were a pervasive theme at the 2003-2004 meetings of the Compliance and Legal Division of the Securities Industry Association. The opening speaker at the November 2003 meeting commented that "The world is a small place and regulators are in constant communication...Where was management in the [investment] analyst problems?...Now there has to be a closer interaction of management and compliance, and the increasing trend towards criminalization enhances this pressure." At the March 2004 meetings a panelist observed that "We need to have a strong partnership with the business units, and be recognized as a potent force....Compliance people need to be on the management committees at the various levels of the business....We need to do more than pontificate and hope for the best... We have to have a high profile on the trading floor...The top of the firm has to set the right tone and drive this partnership...In many respects this is our time, so let's be sure to take advantage of it." Another said that "A compliance officer's job is to convey what has to be done, and test it. You need to get the word out extensively, otherwise you are hearing 'Well, I didn't know I had to do that...duh!!' ...To the extent that you don't have an internal partnership, the current environment is a good opportunity to get that discussion going." References to "new pressures" preceded each expansion of compliance programs over the past thirty-four years; one can find similar comments in all of the *Proceedings* of the Compliance and Legal Division going back to 1970 (McCaffrey and Hart 1998, P. 87-87).

To get to this point legal and compliance staff must establish reputations as competent, reasonable, and respected insiders. They have to convince others that they understand the work of the business units enough to be taken seriously and need the political and organizational skills to negotiate or, when necessary, force hard choices without being ostracized by the business units. Some individuals in legal and compliance offices have more of these skills than others (McCaffrey and Hart 1998P. 160). At the March 2004 CLD meetings a panelist stressed that "We need to make sure that [business units] understand what the compliance issues are, and we must understand the business strategies...If you have

a global business, you have to make sure that there is communication within compliance so our signals are consistent and we don't look bad in front of the business units."

Second, top management's signals about the relative importance of legal caution have a major impact on firms' regulatory climates. Top management demonstrates its priorities by its decisions to hire and fire particular employees; by paying more or less attention to internal controls; by setting higher or lower standards for upper and middle-managements' attention to internal controls; and by responding more or less aggressively to hints of legal problems. That the signals vary across firms was mentioned in most of the interviews conducted by McCaffrey and Hart (1998). For example, an attorney criticized an independent counsel's investigation of one firm for the report's emphasis on changes in the firm's procedures as opposed to its culture:

There was this whole macho culture there. They had policies and procedures and they didn't enforce them. The easiest thing in the world is to write reports calling for more procedures. The top management's attitude permeated the business. You need to communicate that you get paid to do it right and get punished for not doing it...that you really can lose the big house and the fancy car...If I was doing an investigation I would want to interview supervisory people not just in the areas where things went wrong but throughout the firm. You'll pick up signals about what the incentives are. Is there a reasonably well-integrated control structure? Or is it, "Yeah, Legal and Compliance, do your thing, but you're really not part of the team," and "Internal auditors are just bean counters" (p. 185).

Participants at the CLD meetings referred frequently to an April 2003 address by Lori Richards, the Director of the SEC's Office of Compliance Inspections and Examinations, titled "The Culture of Compliance," and similar addresses by SEC Director of Enforcement Stephen Cutler in September 2003 and SEC Commissioner Cynthia Glassman in October (Cutler 2003; Glassman 2003; Richards 2003).

Richards remarked that

The culture of compliance is not a new concept. Hopefully, everyone here is familiar with the idea. For years, you've been told you need one. We at the SEC have been emphasizing that firms need to create a culture of compliance for many years. You've heard it from Chairmen, from Commissioners, and from the staff, and certainly you've heard it from me. If you've been listening, you know it's not enough to have policies. It's not enough to have procedures. It's not enough to have good intentions. All of these can help. But to be successful, compliance must be an embedded part of your firm's culture. In recent months, we've seen a number of problems at securities firms that reflect very poorly on their cultures of compliance. In many cases it seems clear that the culture of immediate, short-term profit overwhelmed the culture of compliance. In some of these situations, knowledgeable and dedicated compliance staff were ignored, were not relevant, or were too distant from the business unit involved (Richards 2003P. 2-3 italics in original).

Legal and compliance personnel stress that they can be effective only to the extent that senior managers believe that external legal and regulatory problems will damage the firm if controls fail. External controls, discussed next, substantially shape regulatory politics within the firms.

External Regulation: The NYSE, NASD, SEC and The States

As noted earlier, the Securities and Exchange Commission oversees self-regulatory organizations (SROs) such as the New York Stock Exchange and the National Association of Securities Dealers, and can control them more directly if required. The SROs oversee, and similarly can set rules for, the securities firms that are members of the SROs because they need access to the SROs' markets. State regulators also are involved in this system. We first discuss SROs and then public regulation.

Self-Regulatory Organizations

Some analysts favor self-regulation on the grounds that producers are in the best position to oversee their own operations and have incentives to do so to assure market stability and growth; others criticizing it maintain that producers have weak incentives to monitor their own behavior if to do so would diminish short-term profits. Both arguments focus on *producers'* incentives (Garvin 1983; Stigler 1988), but self-regulatory staffs' obligations and activities set them apart from producers. Producers may expect the SRO to operate in certain ways when it is established, but the organization may act differently because of the professional norms of its staff and because conspicuous regulatory failures damage the staff members' reputations. One senior official in an SRO noted to us in an interview in 2004 that "We used to have a grand jury system with industry members voting on whether or not to bring a case. Now, the staff has total discretion, and they do not need members' approval to bring a case...I say that we're private regulators rather than a self-regulatory organization."

The exchanges between representatives of firms and SROs at the Compliance and Legal Division meetings in 2003 and 2004 indicated that SROs clearly valued avoiding surprises and being able to complete investigations that would stand up under external scrutiny. At the 2003 meeting, when asked by the moderator "What bothers you in dealing with firms?," Susan Light of the NYSE responded "When firms don't cooperate, obstruct, and delay, and ask for extension after extension, making investigations more difficult." Katherine Malfa of the NASD added, "I will duplicate the point that Sue made. We are concerned with moving rapidly. You have read the papers and know our focus...You should make sure that you respond properly. If you can't respond, let us know. If you have issues with the case, make sure you move up the line [at the NASD in seeking clarifications]." She continued, "We have experienced the situation [in which]...we asked for documents and find out two months later a slew of emails didn't get produced... [W]e look very askance at the withholding of documents. We'll issue [related] charges and summary fines, and increase any eventual fines." In another panel session, Michael Rufino, the Managing Director of the NYSE's Sales Practice Review Unit, said that "Regulators are reasonable people. We're on the same side. You have a business to run and we have a job to do. It's a matter of

professional courtesy and managing expectations. Nothing drives a regulator more crazy than to be told a document will be there by the end of the day and two days later it's still not there...You need to follow through, because you don't want to be on the front page of the *Wall Street Journal*.”

Conditions encouraging and discouraging effective self-regulation compete constantly. One study examined increases in the severity of suspensions, bars, and fines imposed by the SROs through the 1980s and early 1990s, concluding that the SROs' regulation of firms intensified over the period in ways not explained by increases in market activity and economic factors (McCaffrey and Faerman 1994). Yet, SRO regulation also has had some conspicuous breakdowns (Cohen and Kelly 2003).

A detailed analysis of the NYSE's disciplinary proceedings from 1990 through 2003 (available from authors) suggests that this mixed picture results from self-regulation operating more intensely in some respects than others. The vast majority of NYSE disciplinary cases involve direct relationships with individual investors and employment, operational, and reporting rules of the Exchange. Employers' referrals, customer complaints, and regular inspections of firms' operations generate most of the cases. Such leads are less likely to identify subtle and complex misconduct in the NYSE's trading system, or prompt the NYSE to challenge ethically questionable business models that firms have come to accept as “normal” (McCaffrey, Smith and Martinez-Moyano 2004b; McCaffrey, Smith and Martinez-Moyano 2004a).

SEC actions support this inference both with respect to the NYSE and SROs more generally. The SEC has sanctioned SROs directly for regulatory breakdowns relatively infrequently. In none of these cases in the past ten years has the SEC charged SROs with failures to oversee retail sales practices, employment rules, or firms' routine operations; when it has filed charges, they have involved SRO failure to oversee trading or market making operations.³

Public Regulation: The SEC and the States

The Securities and Exchange Commission regulates securities firms and self-regulatory organizations, corporations' initial issuance of securities, and subsequent buying and selling of securities in secondary markets. (Khademian 1992; Khademian 2002; Seligman 2003). Conflicting incentives shape the SEC's actions.

Some incentives favor aggressive public regulation. Focused, active, and efficient regulation and enforcement—as in the insider trading scandals in the 1980s—bring the SEC acclaim and prestige (Stewart 1991; Khademian 2002; Seligman 2003). Individuals within the SEC establish strong reputations by contributing to such successes; one regulator within the states, referring in an interview with us to incentives at the SEC and the states to bring enforcement cases, said “Enhancement of your

career depends on being able to say, ‘I did this.’” Furthermore, if the SEC is seen as having failed to act against conduct that retrospectively is called “clearly wrong,” as in the investment analyst conflict of interest and mutual fund cases prompted by others in 2003 and 2004, the agency commonly responds to the criticism by bringing cases aggressively for varying periods (Maremont and Solomon 2003). One regulator in the private sector commented to us in an interview in 2004 that, after recent scandals, enforcement sweeps by the SEC “are going on like crazy, with no centralized control.... The SEC says let a thousand flowers bloom. They don’t want to miss anything...There is regulatory competition; no one wants to be seen as weak or missing anything.” An individual in the public sector described SEC enforcement as “compliance driven. After something bad has happened they get in there...They were aware of these problems along the way, but for a variety of reasons they failed to act.”

Budgetary and political conditions explain why the SEC’s may be “reactive.” First, the agency’s funding, despite recent increases, seriously lags its jurisdiction and responsibilities (United States General Accounting Office 2002a; United States General Accounting Office 2002b; United States General Accounting Office 2003). The SEC’s main challenge is leveraging its resources to deal with potentially overwhelming regulatory problems.

Second, the SEC faces a Catch-22 when it allocates regulatory attention. The SEC sometimes targets an area of rapid growth and change in advance of visible problems because it anticipates potential breakdowns; examples are accounting business models in the late 1990s and unregulated hedge funds in 2003. However, when it *does* try to regulate in advance of problems, critics cite the market growth and change, and the absence of visible failures, as the very evidence that the SEC is overreaching and potentially disrupting markets that are working well (Levitt 2002; United States House of Representatives Committee on Financial Services 2003b). On the other hand, if the SEC intervenes *after* problems occur, it is criticized for failing to anticipate problems and for being reactive.

Thus, the SEC realistically cannot target all significant problems, it faces serious dilemmas in choosing some targets over others, and the political costs of failing to anticipate scandals are high. One way to leverage all available resources, inside and outside the agency, is to rely as much as possible on the SROs and firms for enforcement of rules. As noted earlier, in federal fiscal year 2002 there were 2,507 final reports to the SEC of disciplinary actions of individuals and/or firms by the SROs, compared to 129 individuals or firms involved in direct SEC enforcement actions primarily involving broker-dealer firms (United States Securities and Exchange Commission 2003a 91, 157). The SEC’s enforcement cases *individually* usually have far greater impact than cases brought by SROs; the fines are larger and the cases more visible, and for the past thirty years the SEC’s cases have emphasized improvements in SROs’ and firms’ systems. The SROs, however, handle most routine disciplinary cases and participate in the

prominent cases as well. Regular breakdowns in SROs' and firms' compliance programs would overwhelm the SEC and shatter credibility the SROs and firms might have, and so the SEC, SROs, and firms all have stakes in self-regulation operating reasonably smoothly.

Pervasive personal ties between the SEC and the securities industry enhance this cooperation. Research demonstrates that face-to-face interaction and regular communication enhance cooperation in powerful ways (Ostrom and Walker 1996). One of the individuals we interviewed in December 2003 said "Wall Street is a small place. Everyone knows everyone else. You know people from different contexts, and people don't spend a career in one shop. There is a great amount of movement around. This was helped along by consolidation. As firms went out of business or combined, people moved around...Outside law firms take in a lot of the lawyers when firms consolidate, though not the compliance people...People at the SEC move to industry. There is a very significant informal network." A large share of individuals in SROs and legal and compliance positions within firms have SEC experience; the high rate of turnover in the SEC reflects such movement. (One individual commented to us that "probably over 50 percent of NASD staff are SEC alumni.") Such personal connections do not preclude strong regulation, but they do inhibit stalemating conflict (Quirk 1981; McCaffrey and Hart 1998).

Many argued that the SEC did not act strongly against the problems emerging in the Internet bubble and in 2000-2003 until prompted by others outside the agency. Rising stock indices suppressed support for active enforcement and key legislators warned against new regulation that might "unsettle" markets that seemed to be flourishing; the discrepancy in SEC resources and workload was especially large in the late 1990s (Khademian 2002; Seligman 2003). The stable working relationships that facilitate communication and settlements between the government and industry also contributed to the SEC's accommodation of questionable industry practices in this period. While SEC regulation remained credible, it did not challenge problematic but not clearly illegal "business models" in the industry.⁴ In 2003 an *Institutional Investor* article quoted a 12-year staffer as saying "We don't have career civil servants writing the rules anymore—Wall Street writes our rules...Instead of being the investor's advocate, we're the investment banker's advocate. We fell asleep on the job, and we're still asleep" (Institutional Investor 2003 p. 34). SEC Chair William Donaldson, who prior to appointment in 2003 had an extensive industry background, made a somewhat similar point less harshly:

I've always admired the SEC, even though we had our share of battles over the years. It has always been very fair and very professional, and it continues to have that reputation. But the SEC has been deluged with work on an inadequate budget. That leaves very little time to go on the offensive—anticipate problems and prevent them from happening. Overall, management of the SEC hasn't been that high a priority, given that there's hardly time to do anything other than process the business...We need more agility (p. 36).

The period illustrated what Diane Vaughan called the “normalization of deviance,” in which parties within a system accept performance problems as normal because the problems do not disrupt regular work that seems to be operating satisfactorily (Vaughan 1996; Vaughan 1999). Similarly, Rasmussen describes how those within a system may gradually reduce their performance standards until a significant accident is likely to occur (Rasmussen 1997). While the central regulatory network is not *closed*, the core actors—the SEC, NASD, NYSE, and firms—have special status and legal authorities, and the risk of such special insider status is that they may settle into accommodations that eventually are rejected strongly by those outside the core group (Brass, Galaskiewicz, Greve and Tsai 2004; Oh, Chung and Labianca 2004). One interviewee, with extensive experience in working with securities firms as well as within regulatory bodies, observed that

This is probably why you have a dumbing down of industry rules by consensus. The comment you always hear is “so and so does it.” Everyone takes comfort from the fact that everyone does it. Meanwhile the SEC and NYSE, even if they might be generally aware of something, may come to accept it in the absence of a major breakdown or scandal. There is a comfort and confidence from what is going on the Street, sometimes a false comfort.

A jolt to the system, such as conspicuous scandals or intervention by those not fully integrated into the system, can disrupt this situation. The SEC’s enforcement intensity increased substantially in 2002 following the scandals at Enron, WorldCom, and elsewhere, and related criticisms; in fact, the enforcement program’s current severity was a major topic at the March 2004 SIA Compliance and Legal Division meetings.

External Jolts: States, Private Litigation, and Congress

Securities firms, the NYSE and NASD, and the SEC comprise the center of securities regulation. State securities regulation, private litigation, and Congress are forces that are not fully integrated into this regulatory center. While they do often help one or more of the central organizations, they also can disrupt conditions accepted by the firms, SROs, and the SEC. The model in this paper captures the relationships among the main actors of the system and considers the influence of these external forces as exogenous.

Central Themes

The system dynamics model presented below draws on certain themes in the discussion above. First, there is a trade-off between completing revenue-generating transactions and compliance with rules that protect outsiders but slow or even prohibit transactions. Securities firms do not prosper if they do not complete revenue-generating transactions. They also do not prosper if they have persistent legal crises, but foregone revenues are felt immediately and compliance with rules in “gray” or uncertain areas has unspecified and

uncertain future benefits. Thus, producers tend to err on the side of completing transactions rather than erring on the side of complying with all aspects of rules.

Second, internal organizational controllers are supposed to get producers to comply with rules, but because they do not directly generate revenues for the firm they have less day-to-day knowledge of transactions and less internal power than producers. To be influential they need the visible support of top management and the credible threat of damages from regulatory breakdowns. A sharp decline in the firm's completion of deals will tend to hurt internal controllers' leverage; on the other hand, if problems from rule violations threaten the firm in an immediate way their influence increases within the firm. In practice, these situations mix when a scandal from rule violations hurts the firm's business. In these situations internal controllers' influence is highest shortly after the scandal occurs as the firm is trying to manage the crisis; as the scandal recedes, so does the urgency of strongly supporting internal controls.

Third, external regulators—the SROs and SEC—focus primarily on the firm's compliance with rules, but politically they have to avoid being seen as obstacles to legitimate production. They are even more removed from day-to-day production than internal controllers and so recognize regulatory problems with even more of a lag and deteriorated information cues. On the other hand, they are more likely than those inside the organization to favor improvements in compliance systems once problems are discovered, and their support for compliance is more consistent over time because they are not dependent on transactions in the same way as those within the firm.

Fourth, while firms, internal controllers, and external regulators often clash because they operate from different perspectives, they also cooperate because they share interests in avoiding obvious major breakdowns in production and regulation and because they belong to an “inside” network of securities firms and regulators strengthened by personal ties and ongoing face-to-face interactions with each other. The strength of this system is that it enables technically skilled insiders with different responsibilities and views to engage complicated problems in ways that largely avoid destructive, stalemating conflicts. On the other hand, the risk of this system is that it will negotiate accommodations of each others' preferences and convenience to which outsiders object.

Fifth, state securities regulation, private litigation, and Congress are “outside” forces that often supplement inside organizations' agendas in one way or another. Because they are outsiders, they also are more likely to challenge objectionable accommodations among insider organizations—firms, the SEC, NASD, and NYSE—and to try to force adjustments that otherwise would not be made.

THE MODEL

Responses to Pressure to Produce

Our model expands on a previously published structure (Oliva 2001; Oliva and Sterman 2001) describing transaction flows and effort and resource allocation mechanisms in firms producing services. Two rates capture the basic workflow in the producer firm. First, the rate of incoming transactions reflects broader economic conditions, the firm’s reputation with customers and others, and so forth. Second, the rate of transactions that the firm actually completes is determined by its capacity in human resources, technology, and efficiency. Transactions that are not completed—for example, potential investment banking deals or prospective customer investments that are not yet acquired—are accumulated in a work backlog until capacity is freed to complete them.

From the work backlog, it is possible to determine the capacity required to ensure that work is processed within a certain desired time (delivery delay) and with a certain level of compliance with the rules (compliance standard). Pressure to produce is the difference between the required work capacity and the work capacity available (see Figure 1). If a target delivery delay and compliance standard must be maintained, then the larger the work backlog, the higher the pressure to produce felt by the firm’s producers.

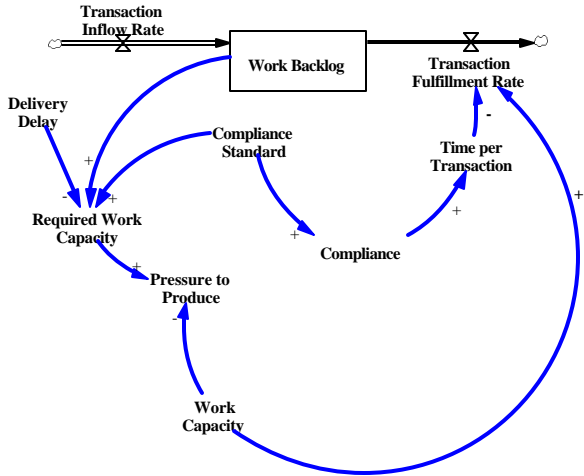


Figure 1.—Pressure to Produce

The model suggests three ways to reduce the work backlog (short of clients deciding canceling their deals): employees can work harder, they can reduce their level of compliance with the rules governing each transaction, or management can increase capacity.

The first option for employees experiencing pressure to produce is to increase their production intensity (PI), i.e., to work harder. This normally means working longer hours, increasing the transaction fulfillment rate, thus reducing the work backlog and, eventually, eliminating the pressure to produce (see the working-hard loop in Figure 2).

A second response to changes in pressure to produce is for producers to adjust their level of compliance with applicable rules, such as documentation or clearance requirements, that slow transactions (“cutting corners”). Decreasing compliance accelerates the production process of the firm and increases net output by decreasing the time per transaction (TPT). This increases the transaction fulfillment rate, thus reducing the existing backlog and eventually eliminating the pressure to produce (see the Cutting-Corners Loop in Figure 2).

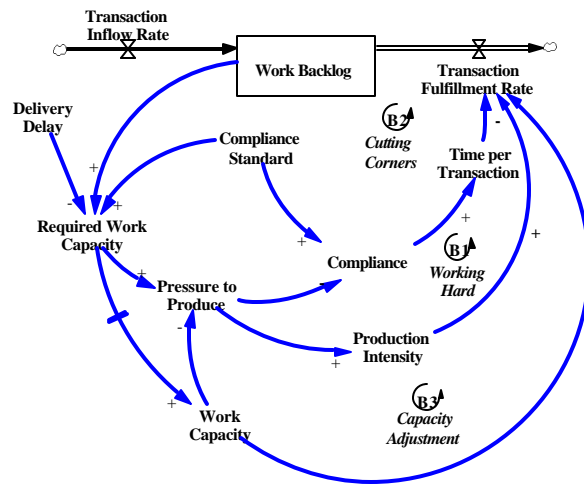


Figure 2.—Responses to Pressure to Produce

The third response is for the firm to invest in work capacity (WC) by increasing the number of employees, upgrading technology, or redesigning processes. Higher work capacity generates a larger order fulfillment rate, which in turn reduces the work backlog, the required work capacity, and the pressure to produce (see the Capacity-Adjustment Loop in Figure 2). Such investments can be made only after a period of delay, and they involve new costs and process disruptions. Therefore, before the firm undertakes substantial new investments in work capacity, they are likely to encourage employees to work harder, and pressures to “cut corners” will occur.

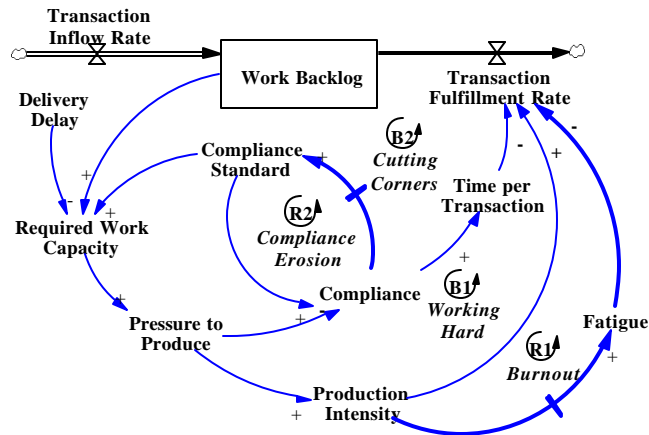


Figure 3.—Consequences of Responses to Pressure to Produce

Performance Traps

Relying on “working harder” and “cutting corners” (higher Production Intensity [PI] and reducing Time Per Transaction [TPT]) over an extended period brings unwanted consequences. First, sustained periods of high PI can cause fatigue which, when persistent, reduces the productivity of the employees lowering the transaction fulfillment rate. A lower order fulfillment rate, all else being equal, translates into a higher work backlog, further increasing pressure to produce and pushing employees to work even harder (see Burnout Loop in Figure 3).

The second unintended consequence of relying on employees' responses to work pressure is much more pervasive. Extended periods of lower compliance resulting in reduced TPT tend to adjust the compliance standard of producers, internal controllers, and regulators to recent experience. With lower compliance standards, the ‘normal’ level of compliance is reduced, reducing time allocated per transaction for compliance activities, thus reducing the compliance standard even further (see Compliance-Erosion Loop in Figure 3). As discussed earlier, research on securities firms, as well as firms in other industries, indicates that the strength of “compliance cultures” varies (McCaffrey et al. 2004b). A set of expectations around what will be permitted or encouraged eventually is internalized as a “norm for compliance” or ‘compliance standard’ within the firm that becomes part of its operating culture. The compliance norm is less tangible than daily pressures for production; in fact, those working in internal controls within firms indicate that their political positions usually are fragile because they are defending rules with unspecified and ambiguous future benefits that may prevent current, profitable transactions (Richards 2003). The compliance standard is updated as compliance changes over time, creating a reinforcing cycle: the higher or lower is the compliance level, the higher or lower the compliance standard will become over time. The

level of the compliance standard acts as an anchor for future adjustments of compliance (Kahneman, Slovic and Tversky 1982). The unintended consequences discussed here are embedded in reinforcing mechanisms that create organizational traps (structurally eroding compliance levels in the firm) that are difficult to identify and break.

Increasing work capacity avoids the performance traps of employee burnout or erosion of compliance standards. Adjustments of work capacity, however, are not easy to obtain, are not instantaneous, and directly affect the cost structure of the firm.

Additionally, as Oliva (2001) argues:

To a certain extent, it seems desirable to use the flexibility and immediacy of the employees' responses to deal with short variations in work pressure. While the individual effects of these responses to work pressure are simple to understand, it is more difficult to comprehend the tradeoffs presented by the interaction of these responses and to assess their long-term consequences. (p. 32)

Reducing the compliance level expedites transactions and lowers the pressure to produce. However, lowering compliance levels opens up the opportunity for problems to increase while the transactions are being produced. It is for this reason that firms establish internal compliance officers (internal controllers) and the industry as a whole has external regulators. These monitors intend to keep compliance within reasonable limits.

Monitoring Compliance

Producers actually engaged in production, however, are in the best position by far to know the real level of rule compliance. Internal controllers and external regulators perceive deviations from compliance mainly through its consequences: problem generation and problem accumulation.

Problems in firms are created as a result of the interaction of three basic factors (see Figure 4): the production level (*work outflow rate*), the level of compliance with the rules (*compliance*), and the quality of the firm's system of rules—operational rules and internal control rules. The higher the production level, the more problems expected. The higher the compliance levels in the firm, the lower the number of problems. The higher the quality of the system of rules in the firm, the lower the number of problems that will be generated. In this model, however, the quality of the system of rules will be assumed to be in the boundary of the model and fixed over the simulation period. (Exploring and understanding the changes in the system of rules and its dynamics is a matter for further research.)

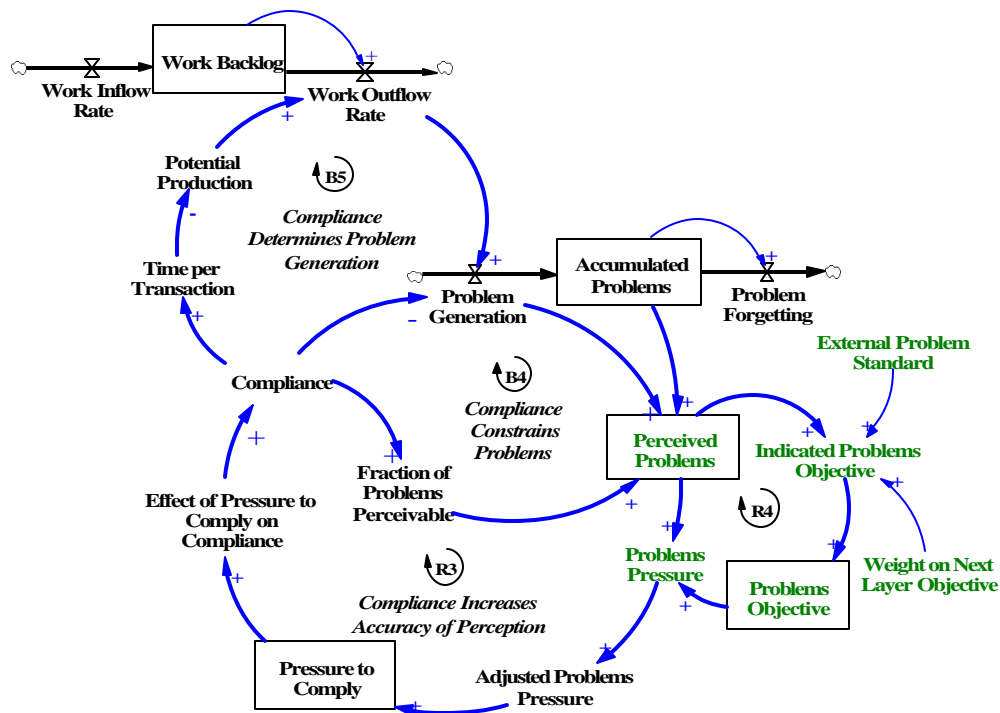


Figure 4.—Determinants of Problems

Producers, internal controllers, and external regulators look to the number of problems generated and to the level of accumulated problems to assess the situation at any given point in time. Problem generation—the *flow* of problems—indicates to producers and internal controllers the conditions of current operations while the accumulation of problems indicates how past conditions lead to new problems. In this model we simplify the complex process of recognizing problems by saying that producers, internal controllers, and external regulators combine information from those two sources with different relative weights and different time constants, creating potentially different views of the same situation. Producers have a closer view of the problems and more rapidly identify problems than internal controllers or regulators do. Once different actors recognize problems, they compare problems to their varying standards to identify a pressure to comply with the rules. The higher the pressure to comply, the higher the effort exerted towards increasing compliance in the organization, thus bringing down the problem generation rate and the appearance of problems (see in Figure 4, B4 compliance-constrains-problems loop).

As portrayed in figure 4, compliance efforts in the firm have three different effects. First, as explained before, compliance efforts influence the problem generation rate by modifying the number of problems produced per transaction (see loop B4 in figure 4). Second, compliance efforts influence the work outflow rate by modifying the time per transaction (TPT) that leads to potential production. If compliance grows, fewer transactions will be made and the lowered volume of operation will bring fewer problems (see loop B5 in Figure 4). Third, compliance efforts influence how easy it is to identify problems by increasing the

clarity of the organization's operations; in the presence of high levels of compliance, it is easier to identify problems as they are generated (see loop R3 in Figure 4).

Increased compliance reduces the probability of individual transactions creating legal problems. Perfect compliance would mean that the only problems generated would be those intrinsic to the quality of the control system. In reality, control systems are never perfect due to human interaction, and regulators hope for strong compliance, commonly accepting "bumps" that are remedied expeditiously as legitimate mistakes (Sparrow 2000). Furthermore, producers, internal controllers, and external regulators, through ongoing social negotiation in a relatively closed system with limited enforcement resources, may at least for a time come to accept deviations from somewhat ambiguous rules as "normal" or "realistic" accommodations of the tension between production and rule enforcement (Vaughan 1996; Rasmussen 1997). The tolerance by central regulators of investment analyst/investment banker conflicts of interest and even questionable mutual fund practices in the late 1990s—discussed earlier—are examples of this process. Eventually, regulatory sanctions can come to redefine "gray" behavior as illegitimate, reducing the behavior.

The control system can be strengthened either by increasing the level of compliance or by improving the control system's quality, and when either of these components weaken, the overall strength of the control system decreases. The number of problems that the system generates per unit of work done is used in the model as a proxy for the quality of the control system. (For examples of the use of the formulation see (Keating, Oliva, Repenning, Rockart and Sterman 1999; Repenning and Sterman 2002). This formulation recognizes that problem correction and problem prevention are two different but complementary ways of improving organizations (Deming 1986). Improving the control system in the firm improves the quality of the stream of transactions generated by the firm, lowering the likelihood of problems.

Nested Mechanisms of Control

The model portrays three different layers of control on the firm: the producers' self-restraint, the internal controllers' actions, and external regulatory activity. The three layers differ in their approach to rules within the firm. As discussed earlier, producers are rewarded for their volume of production subject to at least a minimum level of rule compliance, creating a bias in favor of production over rule compliance. They develop sliding standards for the definition of reasonable risk, creating the conditions for them to take progressively greater risks in subtle, reinforcing ways. The internal controllers will demand more rule compliance than producers will. However, the internal controllers are located within the firm, and as such are subject to the political and organizational demands of production. Given these pressures, the controllers' standards of "reasonable" risk can erode, just as can those of producers. In the case of

drifting standards, the controller will see the risk but will not be able to identify it as dangerous due to a normalization of deviance process discussed earlier (Stermann 1994; Vaughan 1996; Rasmussen 1997; Vaughan 1998).

The last layer of control is external regulation. As we have discussed, external regulators—and certainly those in financial regulation—are interdependent with firms. However, compared with producers and internal controllers, they primarily are concerned with the system as a whole, and not the interests of any particular firm, with a more comprehensive approach to problem identification and risk profiling. Public regulators, especially, are accountable to a wider range of constituencies.

At the fundamental level of data management and signal detection, the three layers go through very similar processes. However, they integrate and assess information and signals in different ways due to their different preferences, sources of information, resources, technology, incentives, motivations, biases, and political processes. They, accordingly, have different perceptions, priorities, and response times.

In the model, the same structure is replicated for the two indicators that are monitored by the actors in the system, namely, problem generation and problem accumulation. Here the input metric is represented by x . First, each of the actors ($j=1, 2, 3$; producer, controller, regulator) updates its perception of the metric (P_j). The perception process is assumed to be an exponential smoothing, that is, the adjustment is proportional to the gap between the current perception level and the problems that are perceivable. As discussed above, only a fraction (ϕ) of the problems are perceived, and this fraction is a function of the level of compliance observed by the firm. The more compliance, the easier it is to perceive deviations from it.

The speed of the perception adjustment is thought to be proportional to the access the actors have to the metric, and how frequently they are observing it, thus it is safe to assume that $\alpha_1=\alpha_2=\alpha_3$. External regulators do not have the routine inside exposure to information enjoyed by producers, and, to a somewhat lesser extent, internal controllers; thus, the regulator's normal period to react and change will be longer than that of producers and internal controllers.

$$\frac{dP_j}{dt} = (x_j - P_j) \mathbf{a}_j \quad \text{where } 0 \leq \mathbf{a}_j \leq 1$$

$$\mathbf{j} = f(C) \quad \text{where } 0 \leq \mathbf{j} \leq 1 \text{ and } f' \geq 0$$

Each level of control also creates its internal standard, or goal, for the perceived metric. This standard (P_j^*) is formed from past perceptions of the metric (P_j) and the desired goal for that metric from the upper echelon of control (P_{j+1}^*). Again, the process of formation of these goals is assumed to be an exponential smoothing of the combination of inputs and the speed of those adjustments is proportional to the flexibility each of the echelons would have on updating its internal standards, thus $\beta_1=\beta_2=\beta_3$. In order for

external regulators to change their standards, a lengthy process needs to be followed. In the case of internal controllers, it is easier to change standards because the number of constituencies that they serve is limited compared those of the regulators. The producers, because they are closest to the technology and operations, and because they basically serve themselves, can change standards the easiest.

$$\frac{dP_j^*}{dt} = (wP_{j+1}^* + (1-w)P_j - P_j^*)b_j \quad \text{where } 0 \leq w \leq 1, 0 \leq b_j \leq 1 \text{ and } P_4 = k$$

Problem pressure (p^\wedge) is defined as the proportional gap between the perceived and the desired problem level. The proportional gap measurement ensures that the absolute difference between desired and actual performance becomes psychologically less significant as performance increases, thus making the adjustment process multiplicative (Kahneman and Tversky 1982). Finally, the pressure to comply felt in the operator level (p) is a combination of the problem pressure from the three levels.

$$\hat{p}_j = (P_j^* - P_j) / P_j^*$$

$$\frac{dp}{dt} = \left(\sum_j \hat{p}_j q_j - p \right) g \quad \text{where } 0 \leq g \leq 1, q_j \geq 0 \text{ and } \sum_j q_j = 1$$

The pressure to comply felt in the operator level might come from the two different metrics of performance – problem generation rate and accumulated problems – and these two pressures are combined in the model to form a single pressure to comply, thus closing the set of balancing loops that keep compliance under control.

Behavior of the Model

The base case of the behavior was parameterized to match a basic firm in which the only drivers of the behavior of compliance are the pressure to produce and the inertial effect of the compliance standard in which the producer is operating. In the base case, no control mechanisms are active (not even the self-restraint of the producer)⁵. The base case present a typical firm being subject to a 25% increase in work inflow—the increment introduced to the model at time 3. This stress triggers the internal dynamics of the firm to adjust to the increment. During the adjustment time, the producers increase their production intensity first to compensate for the increased pressure to produce, after some time, the increased production accumulates fatigue that decrements productivity and causes the work outflow to decrease and the perceived productivity to suffer. Additionally, the compliance is driven down by the increased pressure to produce and by the inertial effect of the compliance standard moving downwards (see Figure 5). The pressure to produce peaks at time 7; however, compliance does not stop to decrease until it reaches 0.68 at time 36 when it finds its new equilibrium level.

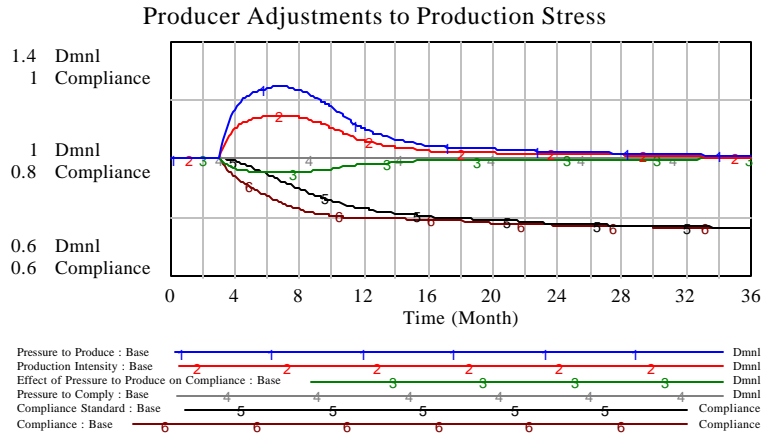


Figure 5.—Behavior—Base Case—Producer Adjustments

The system adjusts to production stress by first increasing the capacity via production intensity, and then via increasing the nominal capacity—bringing in new resources, personnel, etc—to deal with the added work. Productivity increases sharply after the introduction of the increased work inflow as a function of increased production intensity, after the fatigue effect settles in, capacity flattens out and eventually declines after the overshoot that takes care of the added work backlog disappears and the system reaches a new steady state equilibrium level. In the base case presented, producers in the firm adjust their activities responding to pressures to produce.

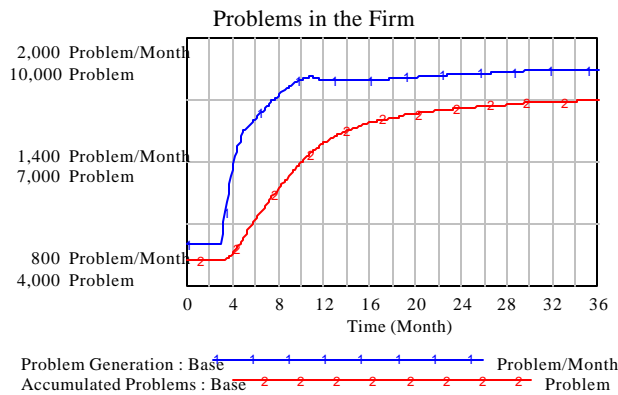


Figure 6.—Behavior—Base Case—Problems in the Firm

One important response that producers use is erosion of compliance. In this case, even that accumulated problems and problem generation are increasing rapidly (see Figure 6), the consequences of eroding compliance are not perceived by anyone in the firm and, therefore, are not considered in order to adjust compliance. The next set of simulations will incorporate the use of layers of control within the firm to

maintain compliance at reasonable levels. Three layers will be added, the producer’s self-control mechanism, the internal controller’s activities, and the regulators interventions in firms.

Simulating the Control Mechanisms

In order to explore the impact of addition of the control mechanisms in the model, three combinations of runs were executed and analyzed—each controller independently, combined controllers, and the introduction of fixed goals for problem identification of controllers. Figures 7 and 8 present the behavioral patterns of compliance change as the different layers of control are introduced. Compliance improves with each layer of control added to the model going from a 0.68 in the no-controls scenario to 0.74 when all of the controls are active. In this case, even when the three layers of control are active, a 6% loss of compliance settles in the system due to the stressed induced for an increase in workload. The run that generates the highest final compliance (at time 36) is the one in which the regulators view is the only one used for compliance purposes—77% compliance, just 3% loss.

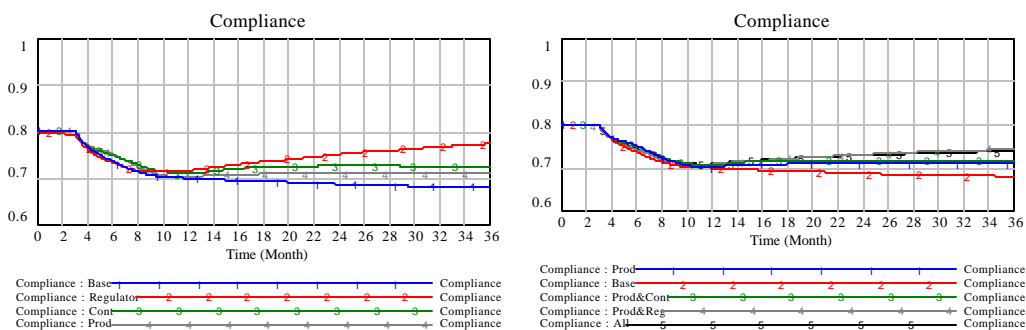


Figure 7.—Behavior—Independent Controllers and Combinations—Compliance

When fixed goals are introduced (see Figure 8), final compliance improves dramatically generating a situation in which the compliance level does not erode; actually, it appreciates to a new equilibrium level of 82%. This appreciation is achieved because the pressure to comply remains at higher levels (see Figure 9-a) for a longer period of time. Additionally, when fixed goals are maintained, the level of problems that the firm experiences declines due to the effectiveness of the control loop. As the level of problems rises, due to an initial dip in compliance, the pressure rises, due to the existence of fixed goals, activating the pressure to comply pushing compliance upward. An increased level of compliance prevents new problems from being generated and brings down the total problems experienced by the firm.

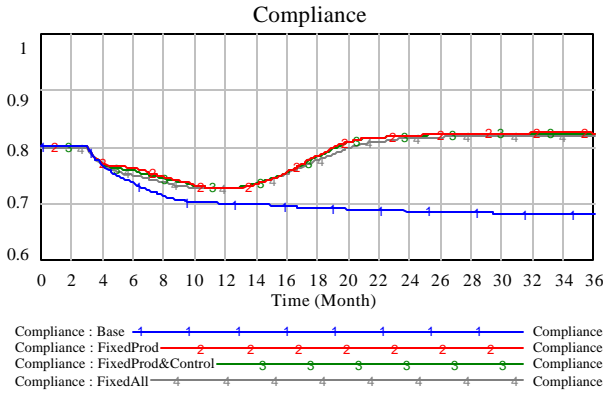


Figure 8.—Behavior—Fixed Goals—Compliance

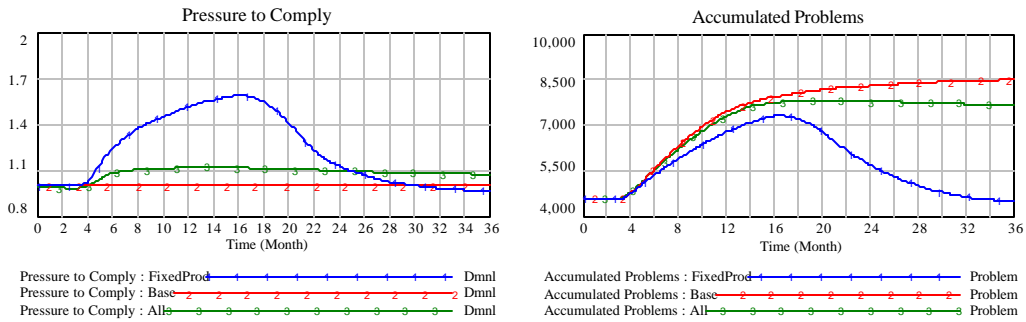


Figure 9.—Behavior—Compliance and Problems

Figure 10 present the different views of problem pressure that the different actors in the system experience. The producer (see line 1) is the closest one to the production of transactions and, therefore, is the first one to realize that problems have emerged. However, it is also the first one to fall prey of the normalization process and change its view dramatically. The controller (see line 2) raises its perception of problems after the producer and keeps it high for a longer period to then deactivate the pressure derived form the existence of problems in the firm. The external regulator (see line 3) is the last one to realize that problems have emerged, but at the same time, is the one that creates a more consistent view of the situation for a longer period of time creating pressure to comply in the firm.

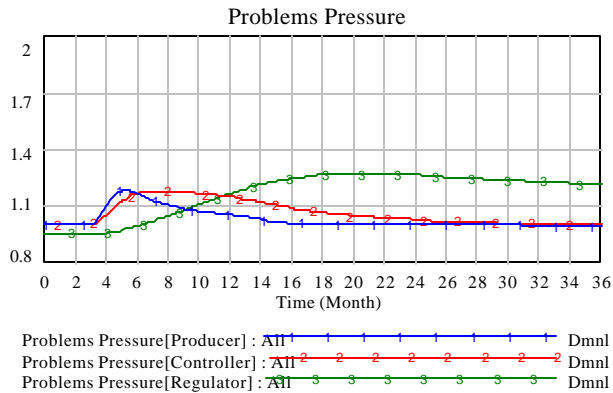


Figure 10.—Behavior—Problems Pressure

The three views, if considered by the producer, create a complementary view of the situation inside the firm that allows the level of compliance to be in check. Compliance, if left unchecked, will structurally erode and will not come back to its original levels before the introduction of added work inflow. The combination of the three views, paired with sensible policies about goals for problems and responses to pressures can create a situation within the firm that will foster a culture of compliance and would avoid compliance erosion.

Future Research

The study of rule compliance and its effects is challenging to say the least. A very complex web of interactions creates several possible combinations of parameters, scenarios, and policy levers. The study reported here opens the road to that extended exploration and understanding starting with a limited number of simple experiments. Additional experiments are needed to continue exploring all the possible behavioral modes and understanding about compliance, rules, and the interaction between changes in rules, stability, and improvement in control systems.

For instance, additional exploration of key behavioral differences can be obtained by comparing and contrasting the behavior over time of key constructs of the model—e.g. determinants of compliance—and identifying the elements and timing that can make important differences in behavior and contribute to the enhanced understanding of the compliance dynamics.

Additionally, besides comparative analysis of behavioral patterns, a detailed analysis of the different policy levers may be conducted to find leverage points in the system that will create better ‘futures’ of compliance, improvement in the system, and the level of problems experienced. This exploration should include changes to the relative strengths of the responses of the producers to the different endogenously generated pressures that they are subject to in the model, as in real life.

A compliance dynamics model was built using evidence from the literature, quantitative data about disciplinary actions in the securities industry, and detailed qualitative interview data. The model was used to identify key feedback structures responsible for the evolution of the dynamics of compliance and for the exploration of the consequences of modifying different assumptions and parameters of the model. Part of the results obtained seems to indicate that, first, in the presence of fixed standards; systems recover compliance levels better than in the presence of moving standards. Second, compliance erosion settles in the system even in the presence of control mechanism due to normalization of deviance processes.

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¹ The NASD reports are not as useful for our purposes as those of the NYSE. The NASD reports identify only briefly the parties, violations, and penalties, while the NYSE describes in anywhere from three to 30 or more pages the individual or firm disciplined, details of the alleged offenses and their resolutions, the time periods involved, and the ways the violations were brought to the attention of the Exchange.

² The NYSE is an auction market with a physically centralized trading floor and a limited membership, supported by an extensive electronic infrastructure, and its regulatory system is embedded within its operations. In 2004 the NASD is in the process of selling the NASDAQ system, a decentralized "dealer market" of brokers and traders linked by a communication system developed by the NASD. At present the NASD's regulatory operations are organizationally separate in key respects from NASDAQ, and in selling NASDAQ it is moving to being a purely regulatory organization ([United States General Accounting Office, 2002 #387]The NYSE's physical location and limited membership give it a stronger, more stable culture of insiders than the NASD. In 2003, the NYSE responded to complaints about its regulatory operations by reorganizing them. It established a separate board with direct oversight of regulation, giving regulation somewhat more independence of NYSE market operation.

³ In 1996 the SEC sanctioned the National Association of Securities Dealers for failing to prevent market makers from keeping prices artificially high or low for their own benefit (SEC Release No. 34-37538, August 8, 1996). In 1999 it charged the NYSE with not “preventing independent floor brokers, who are members of the NYSE, from exploiting their advantageous position on the NYSE floor for personal gain to the detriment of the investing public” through illegal trading and profit and loss sharing on the floor (SEC Release 34-41574, June 29, 1999). In 2003 it charged the Chicago Stock Exchange with not effectively overseeing market making on its system (SEC Release 34-48566, September 30, 2003). In 2003 and 2004, the SEC and NYSE investigated NYSE specialists’ violation of market making rules, resulting in its five largest specialist firms paying monetary penalties of about \$242 million; in April 2004 the SEC was considering whether or not to file charges against the NYSE itself for allowing the alleged violations to develop ([Solomon, 2003 #367;Cohen, 2003 #360;Kelly, 2004 #368;Kelly, 2004 #372]).

⁴ SEC Chair Arthur Levitt’s challenging of behavior in the accounting industry during his tenure was an exception to this pattern, although he was generally defeated on the issue in the face of Congressional and industry opposition ([Levitt, 2002 #234;Seligman, 2003 #148])

⁵ The parameters used for the base case, and full documentation of the model is available from the first author.