COWBOYS VERSUS CATTLE THIEVES

The Role of Innovative Institutions in Managing Risks along the Frontier

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From the Fall from Grace to the fall of Enron, it has always been with us. It has been the primary reason that man is so often trapped into fatalistic acceptance of poverty and ignorance. And once mankind accepted the Promethean challenge to improve his condition, the issue of how best to deal with it has been a central element of controversy. Should the elites control it centrally, or should individuals deal with it directly? And when the unpleasant aspects of it occur, should we retreat or evolve institutions to make future mishaps less likely? In any event, it involves degrees of uncertainty and, invariably, an element of danger; therefore, it must be addressed in a balanced and careful fashion. Progress—civilization itself—may be seen as the gradual evolution of institutions that manage it.

It is risk—the possibility that a desired event will not occur or that a feared outcome will. [1] Risk was—and remains—the major factor limiting mankind's existence. And, even though mankind evolved in a risky world and is continually forced to choose between risky alternatives, risk is the major factor limiting our future. This is tragic; yet, as the lat Aaron Wildavsky noted, the greatest risk of all is the effort to avoid all risk! (Douglass and Wildavsky, 1983). Civilization began when mankind came to realize that there were risks as well as lost opportunities in a world of stasis, a world where innovations were restricted or banned. Moreover, our existence on this earth creates changes—we use the more readily available resources and must continually engage in a risky search for replacements; we employ vaccines and antibiotics to save lives and find that diseases become resistant. As we change the earth and our institutions, we find again and again that our older risk management arrangements are inadequate. To retain stability, to gain access to the wealth-enhancing opportunities of change, it is essential that we continually evolve new risk management institutions and technologies to address these newer risks and older risks in their new guises. In effect, mankind is doomed to live in an *Alice in Wonderland world:* To stay in place, we must run; to progress, we must run more swiftly. We must take prudent risks to reduce these emerging risks!

But how should we discipline and regulate such innovative risk-taking activities? Certainly, we must manage such risks; behavior must be regulated. The dispute is about the best way of doing so (Hayek, 1978b). The question, in other words, is not whether risks should be regulated, but rather how should they be regulated and by whom?

The primary regulatory alternatives to managing risks are hierarchic (or political) and decentralized or competitive. Both types of regulation seek to ensure that only prudent risks are assumed, but they do so in very different ways. Political risk management relies heavily on central hierarchical bodies—tribal councils in traditional societies, regulatory agencies in the modern world. Political risk management is generally precautionary—nothing should be allowed until the experts decide the risks are apropriate.[2] This centralized gatekeeper role tends to reduce the risks of innovation (by reducing the rate of change) but may well increase the risk of

stagnation (by reducing the rate of risk reducing change).

Competitive risk regulation, by contrast, encourages prudence by targeting the impacts of the innovation on the innovator, by allowing the parties to better attain that level of risk they prefer, and by remaining open to further refinements over time. Competitive risk management institutions evolve to enforce a set of general principles rather than to explicitly prescribe permissible behavior on a case-by-case basis.

Civilization can be seen as the gradual evolution of ever more creative risk management—from the family and private property to derivatives and structured financing arrangements. The goal is to permit an ever-greater scope for the prudent assumption of risk. Because knowledge is dispersed, only that expanded scope offers any hope of fully using the varied skills of all the peoples of this planet. Civilization is the story of the advances and retreats of such prudent risk management expansions.

Civilization makes it possible to better manage risks in the financial, technological, and social fields. Indeed, a reasonable metric for assessing the level of civilization is mankind's success in evolving institutions that permit an ever-larger scope of prudent risk taking. Prudence is best defined as a careful calculation of the risks of change versus the risks of stagnation—and the development of institutions that encourage that careful balancing.

Risk management is most important and least developed at the frontier of civilization. There, not only do new risks emerge, but also old risks are encountered in new guises. Moreover, innovation on the frontier is undertaken by individuals who are self-selected risk takers. Finally, the institutional arrangements for managing risks in these areas are often embryonic. Note that the cowboys of the Old West were often portrayed as renegades and misfits, yet they played a critical role in policing borderless boundaries—reducing the risks to the cattle herds from wandering and rustling. Indeed, until the advent of barbed wire, the cowboy was *the* central feature of the risk management landscape, as well as perhaps the most often misunderstood.

Most individuals attracted to the frontier share similar goals—love of adventure, the spirit of competition, the thrill of innovation and discovery, and the willingness to take chances. It is not always easy to distinguish legitimate entrepreneurs and risk managers from frauds and miscreants. A thin line separates the cowboy from the rustler—in some cases, cowboys succumb to the weak monitoring of their activities and themselves *become* the cattle thieves.

Of course, all organizations face this traditional principal/agency risk—the risk that an employee will take advantage of his localized knowledge and power to advance his personal agenda at the expense of the organization. The confusion that characterizes activity on the frontier makes this all the more likely. And the focus on the novel risks present along the frontier too often leads to weakened scrutiny of traditional risks. Often old errors occur in these new settings, largely because they are not recognized as such and the older risk management strategies are less effective in the new setting.

And, when the inevitable errors do occur and potential risks become real losses, the instinctive response is often to retreat, to restrict the innovation. Rarely do policy makers consider whether existing policies might have made such losses more likely or whether modifying or strengthening some element of the competitive process might have reduced them. Too often, the inevitable losses associated with the trial and error process lead to quixotic attempts to seek a trial without error approach.

The Enron story follows this scenario. That Enron was staffed with cowboy entrepreneurs is not disputed. The real question is: When, where, how, and why did some of these legitimate risk-managing cowboys stray and become rustlers? And, more important, why did the traditional safeguards that had prevented such straying in earlier years fail? Why did the institutions—both private and political—designed to detect and prevent such a migration from legitimate entrepreneurship to abusive corporate malfeasance cease to discipline Enron management?

Many critics seem to believe that it was the company's involvement with novel financial products such as *derivatives* and *structured finance* that led to its financial losses. Had Enron

avoided such complex and poorly understood innovations, it would have escaped its subsequent fraud and deception problems. Wrong, wrong, wrong! As discussed in the preceding chapters of this volume, Enron's problems arose from more traditional business mistakes—paying too much for acquisitions, acquiring companies that required management skills that Enron did not possess, and failing to put in place internal checks and monitoring requirements to ensure that employees were adhering to corporate policy. Enron's failures largely reflected the mismanagement of the traditional risks faced in any corporation—the "old cloudy wine in new but equally cloudy bottles" problem.

Enron did operate at the frontier. Its corporate financial policy, specifically its innovative ways of raising funds for its often-creative energy market activities, were pathbreaking. *Some* of Enron's corporate financing innovations, as discussed in Chapters 8 and 9, have been adopted by most global energy market participants as legitimate financing methods. Enron's derivative operations were actually largely profitable; they reduced rather than increased the overall riskiness of its operations. Enron's financial *market maker* role allowed other firms to reduce their commodity price and inventory risks. In brief, Enron's frontier-area activities in financial markets appear to have *reduced* overall societal risk. It is true that Enron's operations at the corporate finance frontier did leave it somewhat exposed. Still, Enron's problems arose less from the innovative nature of its financing strategies than from its failure to adequately *monitor* the use of these innovative financial instruments.

Doing so, of course, was not easy. Traditional accounting and tax reporting rules proved inadequate to clarify the riskiness of the special purpose entities (SPEs), stock options, and other innovations implicated in the Enron fall. The procedures developed to ensure prudent business practices in the tangible asset-based sectors of the economy failed to keep pace with Enron's increasingly complex—sometimes *overly* complex— financial activities.

Enron's problems, it should be noted, emerged only after the firm had shifted from a traditional energy firm focused on the distribution of oil and natural gas to a new economy firm dealing with the *financial* aspects of these physical energy transactions. After the partial deregulation of the 1990s, Enron's management began to see its comparative advantage as managing the virtual rather than the physical aspects of energy production and distribution. Enron pioneered the now famous *asset lite* strategy explained in Chapter 1. In this brave new world, Enron would allow others to manage the physical flows; it would focus on managing the financial risks associated with these flows. Enron's background as an energy services firm gave it the knowledge needed to address these risk issues, to design new financial instruments and strategies to help manage these energy-related financial risks. Enron also provided liquidity to make these emerging markets possible. Despite later monitoring failures, Enron's innovations in these areas were beneficial.

Enron's losses reflected the misuse of its creative innovations. It was its failure to prevent dishonesty and misrepresentation in this new setting that triggered the disaster.

The outrage over the Enron experience reflects in part the egalitarian concern that such innovative financial practices—even when honest— generate excessive profits. Yet, as Joseph Schumpeter noted long ago, extraordinary profits are "the baits that lure capital on untried trails" (Schumpeter, 1942, pp. 89-90). This confusion at the frontier, coupled with year after year of continued high profits, led many in corporate management to fall asleep at the switch. The errors and crimes now uncovered would have been less likely had Enron been operating in the "interior" of the economy. Still, Enron's innovations remain valuable; its failures demonstrate the nature of man, the fallen angel, rather than man the manipulative genius. Enron demonstrates that trial and error can be extremely costly. Yet, it remains the only viable path to the future. Trial without error is a Utopian fantasy.

RISKS AND CULTURE: VALUES AND ATTITUDES TOWARD RISK

Human nature has changed little over recorded history. Humans value the immediate more highly than the more distant—both in time and space. We emphasize those things that affect us rather than others, and we continually face conflicts of interest between competing goals—for example, more food today versus the potential tightening of our belts tomorrow. And all this occurs in an environment where mistakes have consequences, often very painful consequences. Effective risk management institutions, therefore, create incentives relevant to man as he is— not man as we would have him be.

Douglas and Wildavsky suggested that cultural factors determine the way in which various societies respond and adapt to risk (or, more exactly, those risks that are not directly relevant to that individual). Attitudes toward such risks, they argued, are best viewed as "selected" to reinforce the legitimacy of the values they hold. Risks, in effect, aren't “out there" but rather are "internal constructs" useful for structuring a complex world. Douglas and Wildavsky (1982) defined four cultural values that they believed captured much of the varied views various peoples and societies hold toward risk and how best to manage it: fatalism, hierarchy, individualism, and egalitarianism.

Fatalism

The fatalist believes that risk is random. The appropriate response is to resign oneself to whatever fate the capricious gods might dole out.[3] Progress is an illusion; whatever one person gains, another has certainly lost. Wealth creation and the prudent risk-taking activities necessary for its advance have little traction in such cultures. In fatalist cultures, prudence is irrelevant since risk is random. Fatalists aren't political—there's no use fighting city hall!

Such extremely risk-averse societies were characteristic of man's early history—when our powers were weak compared to nature and our understanding of the world was rudimentary. Even today, many nondeveloping nations and some minorities within developing nations adhere to this dead-end cultural value. There are few risk takers in societies where the potential of action is viewed as nil and where the successful individual is seen as harming others. The fatalist culture gives way to more change-oriented cultures only when forced to do so by external circumstances or by internal collapse.

Hierarchy

Hierarchists believe that society should be ordered—that those most expert, most capable of leading society should be granted power and authority. Risk taking is necessary, even valuable, but the risks must be carefully monitored and supervised by the wise. Prudence is best ensured by leaving the decision as to which risks can be taken in the hands of those most qualified to decide for all.

Traditional societies and much of modern society have long been organized along hierarchic lines. The tribe or hunting band looks to the headman or chief to decide which risky actions should be banned and which encouraged. Today, similar faith and power are given to bureaucrats manning the various centralized political risk management institutions— the Securities and Exchange Commission (SEC), Environmental Protection Agency (EPA), Commodity Futures Trading Commission (CFTC), Food and Drug Administration (FDA)—and a host of other risk management agencies.

Hierarchic regulators realize that risk taking is essential; however, they are the sole arbiter of what constitutes "prudent" risk.[4] Note that hierarchic regulators do not capture the full gains of prudent risk taking (regulators are rarely residual claimants); however, they will face heavy criticism if their approval leads to some mishap. As a result, hierarchic agencies tend to adopt some variant of the *Precautionary Principle*—the policy that the risks of innovation should generally be weighed more heavily than the risks of stasis.

In practice, hierarchical risk managers seek *trial without error* and thus, in practice, tend to slow or even ban institutional and technological change. Hierarchic risk managers operate at some distance from the actual risk-taking activity, which makes it very difficult for them to incorporate the specialized knowledge that is dispersed widely. Further, the costs incurred in gaining approval to take some specific risk discourage some innovations.

Hierarchic societies can be very stable—there are few internal tensions to encourage reform. Regulators typically liberalize their anti-change rules only when faced by external competitive pressures from less restrictive risk management regimes (other political jurisdictions, for example). National hierarchic cultures are even more stable. For example, Japan, after its civil war, moved to create a stable world and largely succeeded. Change did not occur until the Europeans entered Asia in force in the nineteenth century.

Individualism

Individualist societies view risk as largely a personal matter—especially in areas where institutions are believed adequate to contain and target the impacts of risk taking. Society's role is to develop generalized rules to assign responsibility and to ensure that the consequences of individual actions are isolated. (Individualists tend to believe that this separation has largely been achieved.) [5] Individualist societies arise both as risk-targeting institutions allow the risks associated with an individual decision to be localized and as external pressures on hierarchic societies force liberalization. Individualist cultures enlist a greater fraction of the citizenry in the critical task of exploring the economic-frontier. Because risk taking is individualized, each person is able to use the information that he or she alone possesses—thus society benefits from dispersed information unavailable in hierarchic risk management systems.

Individual risk taking requires, of course, a wide array of institutional arrangements to ensure that the well-being of the society isn't endangered by the careless acts of a few aberrant members. Modern society, as discussed in the next section, has evolved a wide array of institutions—private property, contracts, and the rule of law—to advance that objective. These generalized rules make decentralized risk taking more palatable to the society's more risk-averse members. Moreover, as risks are incurred and sometimes disasters result—that is, when the potential risks of the trial and error approach become reality—individualist societies respond by seeking out new institutional arrangements to reduce the likelihood of a reoccurrence of such disasters. By opening the frontier to entrepreneurial risk takers, individualist cultures have greatly accelerated economic and technological growth.

Egalitarianism

In modern societies, the major struggle is between hierarchic and individual risk management. Yet, the policy debate often focuses on another cultural value—the egalitarian concern over whether risk taking is compatible with fairness. In a society already characterized by vastly different rewards and status, egalitarians worry that entrepreneurial risk taking, if successful, will worsen existing inequities. Initially, new technologies will be available only to the powerful; thus, any wealth or life quality improvements that might result will accrue only to the few.[6] Besides, egalitarians argue, while the innovator will gain the benefits, the risks are too likely to fall largely on the downtrodden. For such reasons, modern egalitarians increasingly view change negatively.[7] The world is too fragile and change too likely to prove destructive to allow hierarchic—much less individual—risk taking. We should not expend time or energy in the impossible search for ever-greater economic and technological growth; rather, we should seek fairness by finding ways to equate wealth and power in the current world.

In many ways, the modern egalitarian has returned to the negativism of the fatalist.[8] Unlike the fatalists, however, egalitarians do have a political agenda. Believing that change makes the

world a less fair place, they view our planet and our societies as extremely fragile—one misstep and disaster is ensured.[9] Thus, they oppose all novel risks: biotechnology, global warming, and derivatives. In a world that has become freer (satisfying those seeking greater individual freedom) and wealthier (reassuring those seeking a well-ordered society), the egalitarian perspective has become more significant. And, because total opposition to all change would render them politically irrelevant, egalitarians seek instead ever-stricter hierarchic regulation, seeing in that approach their best hope of blocking, or at least delaying, change.[10]

The Evolution of Risk and Culture

The hierarchic *enterprise-wide* approach to risk management has many *virtues for individual firms.* Indeed, the firm itself is best seen as an institutional arrangement for managing and coordinating the various risks associated with the production and marketing of goods and services. The managers of the firm can more readily consolidate positions and exposures for integrated risk measurement, can more easily monitor the evolving risks, can more readily address those risks as they are revealed, and can adjust the overall risk profile of the firm to that desired by its shareholders.

In contrast, *socially* centralized and hierarchical risk management (e.g., SEC regulation) is far less adaptable to tailored risk management. Neither the SEC nor any other centralized political risk manager is able to make full use of the knowledge dispersed across the numerous market participants. Those localized individuals who will benefit or lose based on the wisdom of specific investment decisions are far more knowledgeable about the prudence of a specific financial risk, yet their knowledge is inaccessible to the bureaucrats. The complexity and tempo of modern financial markets, moreover, makes them extremely difficult to monitor. How can any central authority understand in a timely fashion the ever-changing local situation? How can they ensure that their policies are being implemented? Individuals with the wisdom and foresight to accomplish that task may exist but they are unlikely to be found in governmental agencies.

As noted earlier, the fact that the gains from innovation accrue to the innovator and not the regulator creates a residual claimant problem—the regulator bears the risks of approval but does not gain the economic rewards that might accompany that approval. These difficulties encourage political regulators to move slowly, to shy away from approving any novel technology. It also makes them susceptible to any information suggesting reasons for delay or denial. Because successful innovations threaten existing economic interests, the centralized regulator will be lobbied fiercely by competitors providing many reasons why the innovation is too risky for approval. An interesting example of this special interest effort to block technology was Edison's efforts to frighten America away from alternating current; that ban would have made direct current—his entry into the electricity sweepstakes—a winner.

Political agencies also are influenced by *realpolitik.* They will consider more carefully the impact of their decisions on the powerful—and those relying on current technology and arrangements will generally be more powerful *today* than the innovators representing *tomorrow.* Powerful groups may be allowed risk-taking privileges denied to those perhaps better prepared to incur such risks. Again, the evidence on the riskiness of the innovation will be weighed more heavily. And if such preferred firms or individuals incur losses, they may find themselves reimbursed from taxpayer funds.

That passive fatalistic societies would gradually be replaced by limited risk-accepting hierarchic cultures is understandable, as is the fact that competitive pressures would gradually liberalize centralized hierarchic regulatory systems. In time, individualistic risk taking schemes would gain greater sway. However, we should not be surprised that egalitarians, distrustful of both individualism and hierarchy, would urge retreat from innovative risk taking whenever errors—inevitable in a system of trial and *error*—occur. The history of mankind's gradual effort to manage risk (summarized in more detail in the next major section) is a tale of slow advances and

many retreats, sometimes for centuries. Even today, most financial risks are heavily regulated by a host of political risk managers. And, as the response of the Administration and Congress to the Enron crisis demonstrates, this progress is fragile, all too easily reversed when disasters occur.

History suggests that civilization is never secure. The innovative entrepreneurial society has no deep roots, and few passionate defenders. Yet, hierarchic regulatory bureaucracies are poorly designed to balance the risks of innovation against the risks of stagnation. In contrast, the competitive marketplace encourages that balancing very well. A business would always prefer to play it safe; yet, in competitive markets, the firm that spends nothing on R&D will soon be outflanked by firms that do make such productivity and quality-enhancing investments. Market prices guide firms toward prudent risk taking (rising prices suggest the value of investments in that area). If their intuition is correct and their innovation proves viable, they may well profit handsomely, attracting other resources to this new field. Prices signal the risks for which prudent investment is warranted; profits determine which investments are appropriate. Together, these competitive market forces guide risk taking at the economic frontier.

However, both fatalist and egalitarian values are biased against such competitive risk management. Fatalists lack any confidence that risks can be managed. Egalitarians fear the inequities that reliance on prices and profits might create. Moreover, the hierarchic view that centralized risk management offers greater security does have deep roots. Current society is influenced by the fact that for many millennia we obeyed the autocratic leadership of tribal priests and chiefs. Taboos blocked risk taking on all sides to protect the tribe against the risks of the wayward individualist. Given the fact that early societies operated close to the edge—even minor setbacks might well lead to the destruction of the tribe—these anti-innovation rules had some validity. Moreover, for much of mankind's prehistory, the risk-management institutions that today help to isolate risks, targeting their impact on those directly involved, were weak or nonexistent. In that era, competitive regulation of risks was often unfeasible. This prehistory has left society with a profound bias toward "priestly" control over risk taking. Even today, many believe that "objective" experts freed from any economic motive are far more likely to choose wisely for society than would economically motivated individuals disciplined by competitive markets.

That instinctive preference for hierarchic control over change often leads—in times of crisis—to the imposition, or reimposition, of centralized regulation. This weakens the evolving competitive forces that promise to make such disasters less likely in the future. Indeed, political intervention in response to economic mishaps often increases risk from *moral hazard*— the tendency of individuals to act in a riskier fashion if they believe any costs of such risks will be borne by others. In America, for example, the bank collapses of the 1930s led to federal deposit insurance, the "hostile" takeover battles of the past half century led to state and federal rules strengthening traditional management against outsiders (and weakening the incentive of outsiders to monitor errant performance by corporate managers), and failing corporations (airlines most recently) were granted access to federal loan guarantees. These interventions undermine competitive pressures for prudent risk taking.

Institutions that alleviate the pain when risks become reality and socialize the losses associated with those adverse events misdirect resources and energies toward imprudent risks. We spend too little in areas where prudent risk taking would be beneficial; we spend too much on imprudent risks in areas that have been socialized. Also, we weaken the incentives of the parties most knowledgeable about risks to innovate, to explore improved ways of focusing the gains and losses associated with such risks.

INSTITUTIONAL RISK MANAGEMENT— A BRIEF HISTORY

Having developed in the previous sections the broad framework for the evolution of risk management from the Fall from Grace to the fall of Enron, I now review very briefly some of the major events in this process. Civilization, as noted earlier, can be viewed as the gradual

development of improved risk management capabilities, but that process is erratic. Mishaps, as noted, often lead to sharp reversals that slow or even block creative risk opportunities for long periods.

Important Historical Events and Changes

The move from tribal fatalism to hierarchy to modern individualism was made possible only by the development of institutions that limited the fallout of risks. These institutions make it possible to better reconcile the risk-averse attitudes of the majority and the risk-taking propensities of the entrepreneur.

The earliest risk-management stratagems (e.g., joining together to hunt larger animals) tended to place great weight on acting as a team. The individual who failed to hold the ring could permit the escape of the stag, leaving everyone hungry that night. But that value also led to a general suspicion of individual experimentation. Because most innovations fail, and, in the tribal collective, a loss by one was a loss to all, tribal cultures place a high premium on conformity and disparage the innovator. Tribal man first invented the Precautionary Principle—the rule that the risks of innovation should be weighed far more heavily than the risks of the status quo. In a world where the Gambler's Ruin outcome (the prospect of exhausting all resources) was always a very real possibility, such risk-averse policies made some sense.

Yet, the greatest risk is the refusal to take risk. Optimizing for an unchanging world is rational only if the world is indeed stable; but it is not stable. Societies that overly specialize, that eschew all forms of risk taking, become vulnerable. There are risks in innovation but there are also risks in the status quo. Folk wisdom has long noted this tension in well-known aphorisms: "He who hesitates is lost!" and "Fools rush in where angels fear to tread!"

Americans, now among the wealthiest people in history, seem increasingly willing to shut their eyes to this risk/risk reality. As the flurry of recent securities fraud shareholder suits and SEC fines suggests, the current demand is for risk-free investment opportunities. The current whine is: "They didn't tell me I could lose money!"[11]

Having attained much, we seem to want it all. Americans seem no longer content to take the bitter of uncertainty with the sweet of progress; instead, we insist on having the sweet only and rely on government to protect us from the bitter.[12] But, as Wildavsky (1988) has shown, the effort to "have it all" is both paradoxical and futile. It is paradoxical because we become safer only by allowing dangerous innovations that are less dangerous than the older products they replace. It is futile because the risk management strategies of today will increasingly prove inadequate to address the risks of tomorrow. We *must* change because the risks that we face are also changing. For example, resource depletion requires that we undertake risky explorations and developments around the world, that we finance risky new processing technologies, or that we explore substitute materials or technologies that may not prove out. Disease risks are also constantly changing—the flu vaccine of last year has little value today.

This decline in the value of existing risk management stratagems— this growing *resistance* to any given risk management strategy over time— means that almost every risk managed today will require different risk management techniques tomorrow. As noted earlier, ours is an *Alice in Wonderland* world: To stay in place, you must run; to get ahead, you must run even faster. The remainder of this section discusses key milestones in that race to get ahead.

Domestication of Wildlife Mankind arose in a highly risky environment. Animal attacks were a fact of life; acquiring food involved risky hunting and foraging efforts. Domestication of flora and fauna drastically reduced these risks. Wolves became dogs; pigs, cows, and horses were brought under man's dominion, greatly reducing the risk that such resources would not be available when required.[13]

The Family as a Risk Management Institution The basic family unit is an excellent

example of a risk reduction strategy. Father, mother, and children have strong mutual reasons to work together to create a better life. The family workforce could specialize, allowing greater productivity without increasing risk. The family unit also permitted risks to be taken at the subtribe level, thus allowing experimentation at lower risk. Entrepreneurial families could move out to the frontier, where the freedom to innovate was greater. If their efforts were successful, the tribe benefited; if they failed, only the one family unit was lost.

The risk-taking propensities of individuals in tribal society was constrained by cultural norms. Although the family permitted some degree of innovation, the tribe still might be held liable for transgressions by one of its members. Richard Posner has discussed one of these cultural risk management rules—the *blood guilt* concept in which all members of the tribe were held liable for any act of violence committed by any individual member of that tribe. This custom, Posner argued, reflected the high cost of policing violence committed by outsiders. Because a tribe would have greater knowledge about the violence potential of its members, this collective assignment of risk responsibility was an efficient risk management rule. The classic clan feuds such as those between the Hatfields and the McCoys are survivors of early risk-management strategy.

Private Property One of the most significant risk management innovations was the evolution of private property. Prior ownership arrangements were collective—land and goods were owned in common. Such collective ownership regimes allow little scope for innovation. Private ownership— and the associated institutions of fencing, monitoring, and protection— made possible a much wider variety of management experiments. And as fencing technologies improved, the consequences of successful and failed experiments could be more readily constrained to a person's own property. The entrepreneur gained the freedom to manage resources in a novel way. The greater scope of action made possible by privatization made it far easier to explore the technological and institutional frontiers. That advance in prudent risk taking greatly accelerated change.

Institutional mechanisms for policing private property rights are an essential component of frontier risk management. In the early days of western settlement, cowboys were virtually the only institutional device for policing borderless parcels of land, of protecting the crops and animals on that land. But as the cowboys and cattle thieves became harder to distinguish, the need for a more efficient fencing technology became evident. That technological innovation took the form of barbed wire, an invention that not only helped protect property rights but also made it easier to distinguish between the cowboys patrolling those now-fenced boundaries and the trespassing cattle thieves.[14] Note, also, that the institution of private property enlists non-owners in the risk management process. Those inventing and manufacturing barbed wire, for example, weren't concerned about reducing the risks associated with land management, but rather with their selling a new product. Yet, innovation did reduce such risks!

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Contracts Once resources were under collective or private ownership, owners sought to make arrangements about their transfer or use. These agreements evolved into modern contracts. The first contracts were highly ritualistic promises between chiefs, specifying the agreements of each toward the other. Contracts were solemn affairs, sometimes sworn in blood. Contracts greatly extended the risk-taking abilities of society by allowing parties to bind themselves to take certain actions if a risk did materialize. This ability to protect against the worst aspects of a risky venture greatly expanded the risk-taking options available. Because contracts are most valuable when widely used and honored, contracts strengthened the power of the individual. This point is made explicit in Richard Wagner's musical drama work *Der Ring des Nibelungen,* where the giants successfully resist the threats of the god Wotan, because his power rests on the sanctity of contract (Wagner, 1997).

Trade Decentralized control over resources led to a vast increase in voluntary exchanges, at

first within the tribe but then gradually to outsiders. Trade is a major risk management strategy because it allows the trader to acquire resources that are locally scarce (though often only temporarily). The first trades occurred in hierarchic societies where traders would sometimes be adopted into the village before being allowed to exchange goods.

Arbitrage In *The Wealth of Nations,* Adam Smith reviewed eighteenth-century public attitudes toward specialized types of trade that were among the first important and then-innovative risk management strategies. In his discussion of the evolving trading arrangements, he discussed two: *forestalling* and *engrossing.* Forestalling was an activity in which corn was purchased during times of plenty in hopes it could be resold when prices rose. Engrossing was a similar activity in which corn was purchased in one region and transported to another in hopes of being sold at a profit greater than the transportation cost. Both innovations were fiercely opposed by merchants in areas enjoying favorable prices—the arbitrage role of these innovators tended to drive prices up in areas where corn was abundant and to lower prices in areas where corn was scarce. The traditional merchants in both areas saw these newcomers as interlopers who were profiting at their expense. After all, they noted these *middlemen* produced no corn—they simply benefited by taking advantage of the local conditions.

The antitrade Corn Laws were intended in part to restrict forestalling and engrossing. Smith, nonetheless, noted the obvious (but neglected) risk reducing benefits of those activities:

> By making [people] feel the inconveniences of a dearth somewhat earlier than they might otherwise do [forestallers and engrossers] prevent their feeling them afterwards as severely as they certainly would do, if the cheapness of price encouraged them to consume faster than suited the real scarcity of the season. (Smith, 2001)

Smith went on to call forestalling and engrossing a "most important operation of commerce." He noted:

> The popular fear of engrossing and forestalling may be compared to the popular terrors and suspicions of witchcraft. The unfortunate wretches accused of this latter crime were not more innocent of the misfortunes imputed to them, than those who have been accused of the former. (Smith, 2001)

Smith's view ultimately prevailed; the Corn Laws were repealed, and England's economy grew to be one of the largest in the world. Still, popular reaction to almost all economic innovations is hostile. The value of such innovations is often not well understood; existing businesses are often discomfited by the introduction of the new arrangement, and the profits earned in such frontier areas are often large. Egalitarians and hierarchs alike view such situations with suspicion. Civilization advances slowly in the face of such reactionary pressures.

Insurance Insurance is the development and marketing of risk contracts, specifying the payments to be made if a risk materializes. Insurance contracts allow the shifting of risks associated with an investment to specialized risk pooling groups, while retaining the management of the enterprise itself with the specialist in that area.

Insurance originated in the maritime industry. Early insurers would lend money to shippers, collecting a healthy premium from the shipper if that ship came home safely, forgiving the loan if it did not. Such non-recourse conditional loans evolved into the modern insurance contracts of today. Underwriters evolved to correctly "price" insurance contracts; then these contracts would be syndicated among wealthy individuals (the Lloyd's model).

Insurance was the first business based solely on risk management. Insurance requires

assessing the level of the risk, determining what contractual terms would best limit those risks (e.g., requirements that sea captains be highly trained, that fire suppression systems be installed, that loss limits and deductibles be included to discourage frivolous claims), and then investing the premium income anticipated to produce a cash flow suited to the risks being covered. Were insurance not available, a vast array of risky activities would not take place—or would occur at much reduced levels. That point was made evident in the aftermath of the 2001 terrorist attacks in New York City and Washington. The lack of coverage weakened the recovery, as firms proved unwilling to invest in new construction without some assurance that they would have access to risk coverage.

Insurance has also played a largely unrecognized role in allowing homeowners to accept risks that have improved the aesthetic quality of our communities. An example is homeowner acceptance of the risks of large trees adjacent to their homes. Absent homeowners' insurance, the modern city would be largely absent of such inherently risky flora.

The Corporation To Nobel laureate Ronald Coase, the firm is a creative arrangement to assemble a set of tasks that are better performed within the hierarchic command-and-control structure of the firm rather than the exchange arrangements of the market (Coase, 1990). The decision as to "correct" bundling of activities (what to do under "one roof" and what to do separately) is always provisional and depends on many factors. These include the culture of that society, the sophistication of the market including legal liability and contract rules, the nature of unionization, and technology. Generally, tasks involving exchanges of tangible goods or services are more likely to be handled via market exchanges. Tasks involving goods and services that are intangible and not readily valued are often best handled by being bundled into the corporation.

The firm must address a range of internal risk management problems. One key example is the management of the inherent conflicts of interest that occur whenever one individual is assigned a specialized subtask within a larger organization. In fulfilling this task, will that individual create excessive problems for others within the firm? This is the widely discussed "agency problem."

The development of the modern corporation allowed great gains in risk management. The limited liability aspect of the modern corporation reduces the risks to the investor and permits specialized management skills to be deployed without requiring ownership in return. A firm could acquire the specialized skills to perform some valued service, organize those skills to efficiently produce that good, and profit accordingly. Investors need only consider the broad capacity and prospects for that adventure; they are not held liable for any misadventure of the firm itself.

To further reduce risks to investors, the firm specifies the nature of its charter, the terms and selection criteria for its governing board, and the financial reports it will file for public (or, at least, shareholder) review. The evolution of accounting as a means of reporting its condition has become an important part of the firm's reporting obligation. Investors are more likely to invest in firms that clarify their status and the riskiness of their operations.

Note that the evolution of the modern corporation was preceded by the joint stock company. The events were not dissimilar to those around today's Enron affair. Investors had become intrigued by the potential of foreign investment and had poured money into various schemes. A crash occurred—the South Sea bubble—and politicians rushed to punish the miscreants and ensure against any future risks of this type. Laws were enacted that virtually prohibited joint stock companies—in England, one such law was the Bubble Act of 1720. That act was not repealed until 1825, which forced England to rely on alternative capital acquisition arrangements such as limited liability partnerships. The Bubble Act is thought to have curtailed the ability to acquire capital to develop the frontier.[15]

Accounting To ensure accurate reporting of the firm's financial condition, accounting has

evolved. This is a heroic attempt to assign static value to a dynamic concern. Accounting data assist management in determining internally the wisdom of alternative policies. External use of such data is to determine the viability of the firm, the wisdom of investing in it. The firm's accounting data provides one glimpse of the firm; external analysts and takeover experts provide other perspectives.

Double-entry bookkeeping was perhaps one of the most important elements in the evolution of accounting, making it harder to make mistake and more difficult to defraud. The problem, of course, is that valuation techniques are highly subjective. Audits essentially inform both parties of gross discrepancies but are limited by the honesty of the data provided. Few firms conduct the expensive forensic audits that seek to determine the validity of the data itself. Most audits, therefore, are of the "if what you told us is true, then here's your condition" nature. Therefore, the ability of an auditor to ensure accuracy is minimal.

Accounting has worked reasonably well for firms whose assets are tangible (brick and mortar, machinery) but has proven far less adaptable to newer forms of asset value. However, the modern firm has much of its value in complex assets such as intellectual property (whose value depends on innovations elsewhere in society), goodwill, and "going concern" value. The accounting profession is well aware of the growing discrepancy between such critical valuation efforts and the assigned value of the firm but has made little headway in recent years in developing precise valuation techniques.

The Enron situation has been viewed as a failure of accounting—and in one sense, that assessment is correct. However, there is little evidence that accounting is up to the task assigned it. The highly specialized and thinly traded financial instruments employed by Enron are clearly useful but inherently difficult to value. The inherent risk of such difficult to value instruments was clearly not well understood by either management or the external investment community. The best sources of value information may well be those external to the firm—analysts, customers, and rivals. Yet, as discussed elsewhere in this volume, these guardians relied on the same type of information as did management.

Accounting changes designed to better value the modern firm may have made matters worse. One example was the attempt to mark intangible assets to market. This effort was again an even more heroic attempt to quantify the nonquantifiable.

External Monitoring Another institutional response to risk management concerns is the monitoring of a company's decisions by outsiders. Sometimes these outsiders have a direct relation with the firm they are monitoring, while in other cases external monitors have evolved as monitoring businesses in their own right.

Direct monitoring is performed by financial institutions with significant credit exposure to the monitored enterprise. In some cases, junior creditors rely on the credit analysis of those more senior "delegated monitors" for financial information and credit quality assessments.

In Europe, banks became the specialized financiers and external watchdogs of many corporations. In the United States, this evolution was blocked by populist fears of excessive corporate power. American banks were, however, more free to develop the modern credit industry—developing elaborate statistical methods to determine the riskiness of extending credit to individuals. Credit databases and credit scoring schemes evolved, which made it possible to predict reasonably well the risk associated with providing varying amounts of credit to specific groups of consumers. The resulting loans were then bundled, securitized, and syndicated. This process dramatically lowered the cost and increased the availability of consumer credit in America. In Europe, political restrictions on the ability of financial institutions slowed a similar evolution.

Some firms also function as *indirect* monitors of the credit risk of other institutions. These monitors—chiefly, the major rating agencies—are indirect monitors inasmuch as they have no

direct exposure to the firms whose financial integrity they are policing, but rather provide such watchdog services for a fee. Corporate credit benefited from this parallel effort to rate corporate financial instruments (bonds and equities) and again lowered the costs of acquiring capital. These rating services, like accounting, worked best on established firms with well-traded instruments dealing with tangible assets. For the reasons mentioned previously, they were less accurate when dealing with the modern firm based on intangible, thinly traded assets.

Derivatives Another important institutional response to the need for better corporate risk management naturally occurred with the growth of *derivatives activity,* or transactions that derive their value from some underlying asset, reference rate, or index. Derivatives may be either *exchange-traded* or *privately negotiated* (i.e., over the counter [OTC]). Derivatives are themselves primarily a risk management instrument—another example of how private contracts can facilitate the transfer of certain risks to firms best able to retain those risks. In that sense, the use of derivatives by institutions is often an important signal of prudent internal risk management.

In addition to their role in helping companies best achieve the level of risk their shareholders seek, derivatives have also created an important additional layer of monitoring and discipline on firms' other risk-taking and risk-management activities. Exchange-traded derivatives are relatively standardized and are negotiated in a transparent organized marketplace. Further, performance on exchange-traded derivatives is generally guaranteed by a *central counter party* (CCP), or a clearinghouse, that becomes counter party to all transactions after the trade is done. Because of the risks this creates for the CCP, risk management by CCPs is among the most conservative in the world and includes credit risk management features such as regular cash resettlement of open positions, margin or performance bond requirements on trading participants, capital requirements on participants, and regular financial surveillance and monitoring.

By contrast, OTC derivatives traditionally are privately negotiated and thus do not trade in a transparent organized marketplace. This makes such transactions hard for outsiders to observe, and this often makes people nervous. At the same time, the fact that OTC derivatives do *not* have a clearinghouse guaranteeing performance makes derivatives participants almost hypersensitive to counter party credit risk concerns. Risk mitigation mechanisms adopted by OTC derivatives "dealers" include bilateral and close-out netting provisions, credit enhancements such as collateral, and periodic cash resettlement.

The primary use of derivatives is by firms seeking to *reduce* their own risk exposures. Despite this fact, as well as the heightened degree of risk monitoring to which users of exchange-traded and OTC derivatives alike are subject, derivatives have long been subject to the types of witch hunts we have come to expect on the frontiers of financial innovation. U.S. politicians in the 1930s initially sought to blame financial activities and "speculative excesses" for the Great Depression. Legislation was enacted, for example, to eliminate financial contracts called *privileges,* which were viewed as tools by which people could gamble recklessly on company stock prices. The hysteria prevailed and succeeded in a ban on those contracts, which were not finally deemed "economically beneficial" enough to legalize until 1981. When they did reappear, they were called *options.* Options on company stock, foreign exchange, commodities, interest rates, and other physical assets and financial products now dominate the global financial landscape, and even the most populist politician would hesitate today before attacking their merits.

The futures industry has also been a frequent victim of political attacks. Senator Arthur Capper (R-KS), a sponsor of the 1921 Grain Futures Act regulating futures markets, referred to the Chicago Board of Trade as a "gambling hell" and "the world's greatest gambling house" (Markham, 1987). In 1947, President Harry S. Truman claimed that futures trading accounted for the high prices of food and that "the government may find it necessary to limit the amount of trading." He continued, "I say this because the cost of living in this country must not be a football

to be kicked about by gamblers in grain" (Markham, 1987). Indeed, since futures began trading in the United States in the 1800s, more than 200 bills have been proposed by Congress to prohibit, limit, tax, or regulate futures markets.

Derivatives traded on organized exchanges, of course, did become accepted as not only beneficial, but in fact a necessary component of commerce. Without futures and options markets, corporations would be left at the mercy of the volatility of global financial markets. That futures and options have significantly enhanced the resilience of the financial architecture can no longer be questioned.

In the 1990s, however, concerns arose about OTC derivatives. Close on the heels of major public derivatives-related losses at entities such as Procter & Gamble, Orange County, Barings, and Metallgesellschaft, politicians were quick to condemn OTC derivatives. Former House Banking Committee Chairman Representative Henry Gonzalez (D-TX) said of derivatives:

"Is it money . . . for the procurement of goods, for firing the engines of manufacturing and production? No. It is paper chasing paper, reduced to highly speculative and instantaneous transactions of billions of dollars . . ." (Congressional Record, 1993). Despite such claims, derivatives have numerous benefits for their users, global capital markets, and the economy. Corporations, governments, and financial institutions have benefited from derivatives through lower funding costs, diversified funding sources, enhanced asset yields, efficient management of exposures to price and interest rate risk, and low-cost asset and liability portfolio management.

Like other financial activities, derivatives also have risks. These risks are no different from the risks inherent in making a mortgage loan or holding equity, but they are risks that must be managed. Naturally, firms sometimes fail in the risk management process, and when established firms such as Procter & Gamble encounter losses, the long knives come out. Politicians are quick to decry these innovative practices as involving "too much rocket science and not enough sweat." Novel innovations rarely get respect; the criticisms here of derivatives and related financial instruments are all too similar to the earlier criticisms of the innovative middlemen functions of forestalling and engrossing.

Ironically, the failure of Enron has simultaneously vindicated concerns about most OTC derivatives. Now the great villain is *structured finance,* or the use of SPEs to couple asset divestiture decisions with risk management and corporate financing decisions. And many of those who have been quick to criticize Enron's abuses of structured finance have been equally quick to argue that had Enron used plain vanilla derivatives instead, where market controls are more mature and better established, Enron might not have been allowed to get away with the same degree of abuses.

Lessons from History

Several observations can be drawn from this brief survey. First, the development of institutions that localize and target risk—and thereby provide the confidence needed to permit a wider range of risks to be taken by a higher percentage of the population—is evolutionary, not revolutionary. Second, this process seeks to allow the citizenry the flexibility to attain *their* risk preferences—the result may be less or *more* risk. The goal is to allow widespread prudent risk taking—risk aversion per se is not a societal goal. Third, as novel mishaps arise in the innovative frontier region—that is, when the inevitable "errors" of the *trial and error process* materialize—some will argue that these losses could or should have been prevented, that we must tighten political control over risk taking in this area. Yet, losses are inevitable in any learning experience, and the risks reduced by that innovation are almost certainly more than those incurred. The loss event, moreover, will likely already have triggered changes, making future errors of this type less likely. But these are all points too rarely raised in the heated political debate. Most important, the call for a retreat from the risk frontier and the championing of more restrictive political control over

risk taking are all too likely to weaken the competitive pressures to continuously improve risk management practices. The result? Civilization's slow progress slows still further.

Still, as noted previously, all societies are risk averse and naturally biased against innovation and entrepreneurial activity more generally. In most societies at most periods, novel practices and innovators are viewed with suspicion, and blame for disasters is placed on the novel aspects of the situation rather than on their misuse. Note the attacks on Enron's use of SPEs and derivatives, rather than on its failure to consolidate the financial impacts of these essentially internal arrangements. As noted earlier, this response is not new: From Prometheus onward, societies have feared both the innovation and the innovator. Cowboys were initially viewed with a mixture of skepticism and fear, as was the advent of barbed wire (surely one of the most important risk containment innovations in the area of property rights). Opponents were quick to point out that this technology would surely increase the risks to children and animals that might haplessly wander into the sharp metal fencing.

Experience suggests that the all-too-likely response to unanticipated risk is a retreat to more restrictive hierarchical risk management approach. Today, that retreat generally takes the form of hasty federal legislation or administrative action to impose greater restrictions on that sector of the frontier economy. The result is to slow the innovative process, to weaken the incentives to devise arrangements to address risk directly—why concern yourself with risk when government promises to assume the burden? An excellent example is the overreaction to the South Sea Bubble disaster cited previously. The retreat response led to a century-long suppression of joint stock companies in England that, almost certainly, slowed the Industrial Revolution in that nation. That the private losses stemming from this event might well have been adequate to "civilize" this frontier sector, to reduce the likelihood of this type of failure, seems not to have been considered.

To better understand the risks that a retreat response entails, consider the Promethean legend again. Note that Prometheus democratized fire, by taking it from the gods and making it accessible to mankind. His critics argued that this would increase the overall fire risks—at worst, only the elite priesthood should be authorized to take on such risks. And, of course, they were right—as to fire risk alone. However, restrictions on fire use would also limit its risk-reducing value. The risks reduced by fire—animal attacks, harsh weather, and starvation—were much greater than the novel risks fire introduced. Also, decentralized fire management accelerated the development of fire-risk management practices. Individuals found innovative ways of banking fires at night, of keeping flamma-bles far enough away, and of providing adequate ventilation. Moreover, these risk reduction innovations were quickly shared among the community. Decentralized risk management encourages more rapid development of enhanced risk management practices. A wide scope for trial and error more quickly reduces the magnitude of error.

This chapter is not concerned with *whether regulation is warranted* but rather with the question of whether private competitive or political hierarchic risk management is the better path. In the aftermath of the Enron crisis, competitive risk management was dismissed as impractical, as totally inadequate to address the risks of modern financial instruments and methods. Too often, such dismissals are accepted as soon as they are voiced. For the moment, America seems to have fallen in love with political risk management. One consequence is a transformation of public expectations concerning risk. In other areas, we are more rational. We expect insurers to mitigate the effects of unfortunate events, not to prevent their occurrence. We expect doctors to cure diseases (most, anyway), not to make us immortal. But, today, many seem to feel that the SEC and other political risk regulators will somehow eliminate financial risk.

This expectation is as much the result of modern political risk management as it is its source. Once society demands the elimination of risk, government gains a vast advantage over private risk management. Only government would even purport to pursue the Utopian goal of eliminating risk; only government has the power and the resources to compensate losers—with no regard for

their own coresponsibility—by raising revenue from less visible and less powerful sources.[16] Only politicians promise "free" health care, "zero" pollution, and "risk-free" investment.

The desire for zero risk—and the belief that government regulators can somehow bring it about—dovetails with today's general distrust of markets and corporations. The underlying notion is that the profit motive encourages businesses to cut corners, to sacrifice safety and the environment for profits. This notion presupposes that consumers and intermediaries (such as insurers, rating agencies, or purchasers somewhere along a product's distribution chain) have little interest in the riskiness of a product or service and fail to discipline producers when problems become evident. Sometimes, it is argued, political risk management is necessary in those areas where the purchases are large and infrequent—auto and home sales, moving services, some investment services. In these areas, it is said, firms are indifferent to the risks of losing repeat business and thus face weak competitive disciplines. But that presumption ignores the role of reputation as the screening device for risky services. And reputation can easily be destroyed by even a few horror stories that gain attention all too easily in the modern low-cost information world. Markets are very effective risk management institutions.

By promising the impossible, regulation becomes subject to a variant of Gresham's law: Deeply flawed, political regulatory schemes drive out more realistic efforts to enhance risk management institutions. Regulations become ever more restrictive; fewer entrepreneurs are willing to explore that sector of the economic frontier. In effect, we address frontier risk by closing the frontier, reducing the incentives to devise improved competitive risk management alternatives. The tendency to retreat to hierarchic regulation when frontier disasters occur is atavistic and reactionary. Our hope is that, as inflated public expectations are chastened by reality, this love affair with political regulatory schemes will also end and we will reexamine the case for competitive risk regulation.

Indeed, financial risks were once primarily considered a private matter. After all, most economically valued resources at risk were privately owned, and their owners protected them, relying on the courts when necessary, against trespass, theft, fraud, and misrepresentation. Individuals negotiated on risk matters, typically through private contractual agreements. Risks were shifted to private insurers as desired, while private rating services provided information about the nature and level of risk in countless fields.

Of course, private parties make mistakes. Managers fudge financial reports, and some commit actual fraud. Rating agencies do not always spot imminent financial failures. Private systems are not immune from sabotage or error, either. Indeed, for those who are predisposed to distrust markets, Enron-style failures come to signify the inevitability and catastrophic consequences of allowing free and nonpolitically controlled markets. Markets, it is argued, cannot adequately discipline risk.[17]

Appealing as this *market failure* argument may seem, though, it is too facile. The fact that markets are imperfect does not, in itself, demonstrate the superiority of political strategies; rather, it calls for a balanced comparison of the respective ability of private and political institutions to regulate the risks of financial transactions. Competition is indeed a process of creative destruction; many firms based on outmoded institutions or technologies disappear continually. Still, history mandates skepticism toward attempts to remedy such ills by replacing market-based competitive discipline with grandiose hierarchic political regulatory schemes.

Unless we want to march mindlessly down the road mapped out by the market failure paradigm and pave the road to serfdom with investor-protection bricks, we must begin to take the task of financial reform seriously. Enron's bad management was perhaps less to blame than were earlier "reforms" that weakened the ability of the market to discipline corporations and halt such bad management before getting to Enron-like levels of trouble. Would, for example, Enron's problems have been as severe if the caveat emptor instincts of investors had not been anaesthetized by SEC assurances? Had prior reforms not limited hostile takeovers, would not

outside analysts have devoted more effort to understanding Enron's supposed profitability—to raid the corporation or sell it short?

Past regulatory policies have often weakened the incentives that might have addressed the deep-rooted institutional and political incentives that sometimes incline some in business toward imprudent risks. Expanded investor protection laws, improved financial risk assessment procedures, increased public participation in corporate decision-making processes, larger compliance and surveillance budgets for the agencies, new governance and oversight regulations, enhanced accounting and disclosure standards—all do little to counteract these biases and do little to strengthen the incentives for other market participants to monitor and challenge aberrant corporate behavior.

Consider the idea of expanding *public participation* in the corporate governance and risk management process. For the public at large, the costs of obtaining sufficient information and setting aside sufficient time to participate in a meaningful way are prohibitive, so participation is never really *public.* Instead, the likely participants are either business interests or the leaders and attorneys of ideological "public interest" groups. Thus, public participation in effect shifts power from *shareholders*—the owners of the firm—to well-organized *stakeholders*—nonowners who seek to force the firm to act in their interests. This increases the risk that the firm may take actions not justified on economic grounds. Enron, for example, was very active in the politically correct "green energy" field, spending hefty sums for solar and wind power companies. All these proved non-profitable and added to the underperforming assets that ultimately killed Enron (see Chapter 1). In practice, granting self-appointed "publics" power over corporate decision making is likely to exacerbate an already-existing bias favoring the politically powerful interests of the present, against the emerging promise of the as yet unidentified producers and consumers of improved risk management products.

Civic education is also unlikely to resolve these problems. It is unquestionably true that the public is often inadequately informed or positively misinformed about the operations and functions of financial institutions and markets. Civic education has value; indeed, this volume calls for a radical revision of the way in which we as a society think about risk—a civic education project of monumental proportions. However, civic education is an undertaking fraught with perils, especially when it is done by government.

In a very real sense, ignorance may be not only bliss, but also rational. Rational ignorance serves to filter out remote and exotic risks, thus leading individuals to focus on those risks which are more substantial and more immediate. It may seem desirable that shareholders be made aware of all financial dangers, including those posed by complex business practices. Realistically, though, most people have little incentive to spend much effort becoming well educated on such remote and insignificant (to them) risks. Thus, the SEC could play a positive role in countering hysterical and misleading calls for bans on innovative risk management practices. The SEC might well educate the public on the causes of investor fraud and suggest steps to strengthen the competitive regulatory process (e.g., by clarifying the positive role of hostile takeovers and by reviewing the way in which bans on insider trading weaken incentives to develop more accurate information on the financial status of a firm). However, experience gives little hope that the SEC—or indeed any government agency—will actually play that role. The line between education and propaganda is not always very clear, and it is crossed with particular ease when the issues are highly uncertain, as they typically are in the world of derivatives, structured finance, energy markets, and other frontier financial activities.

Political agencies such as the SEC and CFTC, moreover, have a strong incentive to emphasize the ill effects of risks that fall within their jurisdictions. Agencies are plainly motivated by a desire to build political support for an expansion of their mandate and budget. Thus, the basic agency bias is to alarm, not to inform.

Reforms must simulate and institutionalize the internal and external forces that should

discipline and inform risk taking by corporate management. But political controls are designed and monitored far from the modern world of intangible assets, rapidly changing institutional and technological realities, and complex financial accounts. Political regulators experience only indirectly—if at all—the costs of their actions; thus, the costs of restrictive regulation—most important, the slowing of the risk management evolutionary process—are weighed too lightly. Moreover, the bias of the political agency—its reluctance to approve changes that harm powerful interests—naturally inclines it against innovation.

THE CASE FOR COMPETITIVE RISK REGULATION

The Enron crisis has blinded us to the value of competitive regulation— to the idea that the best way to discipline the financial investment sector is to encourage the evolution of institutions that would profit by discovering and profiting from uncovering inept corporate management. To achieve this goal, we should mobilize forces both internal and external to the firm.

The corporation itself is an evolving arrangement for ensuring that employees keep management informed of what is really going on. Given the strong incentives that exist in any bureaucracy for employees to present only positive information to their superiors, this principal/agency problem is always a serious one (see Chapter 3). Employees have little reason to blow the whistle on aberrant behavior—and many reasons to remain silent. The obvious counterincentive—their ability to profit by capitalizing on their knowledge that profits are misstated—is highly limited because of current rules against insider trading. The result is that current policy ensures that the most informed information about the future state of the corporation never reaches the market.

External monitors are less well advantaged to obtain this information; moreover, the incentives to gain control over a company that is more or less valuable than generally perceived have been weakened by anti-corporate takeover regulations. The result is that the very idea of competitive regulation as a substitute for political regulation now seems strange to most people.

This policy blindness, we may hope, is temporary. Societies that suppress innovation cannot thrive long. In most economic areas, we do not seek to control private risk taking, even though competition does entail serious risks: business failures, job losses, and, sometimes, the ruin of entire cities or regions.[18] We accept competition because we understand that competition is a process of creative destruction and that we cannot prevent these costs of change without losing the risk reduction benefits of creativity and innovation. Perhaps more importantly, we understand that the alternative to centralized political management is not anarchy—it is decentralized private risk management arrangements by competition itself.

To see this, let us reexamine the very concept of regulation itself. All human activities must be disciplined and regulated in some way. Everyone desires that problems be handled as rationally as possible. In so doing, we should use as much foresight as we can command. In this sense, everybody who is not a complete fatalist accepts the need for regulation. The debate over regulation is, therefore, not a dispute on whether we ought to choose intelligently among the various possible organizations of society; it is not a dispute on whether we ought to employ foresight and systematic thinking in planning our common affairs. It is a dispute about what is the best way of doing so (Hayek, 1978b, p. 234). The question, in other words; is not whether risks should be managed, but who should manage them for whom?

Private and political risk managers face many of the same tasks: They must seek out data, assess the level and nature of any emerging risks, and determine whether any action is appropriate. The case for private competitive risk management rests on the proposition that the knowledge base for risk management is far too dispersed and fragmentary to permit central planning.[19] Competition regulates risks by placing a premium on creative risk management within the firm and by creating a rich array of external institutions eager to discipline the firm for any

aberrant behavior. The challenge to the firm is to encourage creative entrepreneurship while still retaining adequate oversight authority. Firms approximate this ideal by formal reporting requirements, internal reviews and audits, rotating job responsibilities, salary and bonus arrangements, and a host of other formal and informal mechanisms designed to align the interests of the employee and the firm. Firms also seek to match the risk skills of their employees to their assigned roles within the firm. The result is a wide array of firms—some operating very cautiously within the economic frontier; others blazing boldly out in the most innovative regions of the economy.

Competitive regulation recognizes that all checks and balances can fail and thus relies on external actors to reinforce internal firm-specific regulatory controls. External groups routinely monitor the firm, assess its performance, and stand ready to discipline aberrant behavior in various ways. Such external checks and balances include outside directors, insurers, auditors, rating agents, creditors, suppliers, and customers—and, perhaps most important, current and potential investors (both long and short) and corporate raiders. Outsiders are sometimes motivated to play this role because of their close relationship to the firm—as supplier or customer—or their financial stake in the enterprise.

Most important, outsiders are prompted by the fact that information about the viability of an enterprise is valuable. Firms may be under- or overvalued, and it is very profitable to gain that information before others do. There is much profit in buying or shorting the shares of a poorly valued firm and, thus, in acquiring the information to determine that status. Outsiders may also believe that a firm has lost its core—that its assets are being used unwisely—and seek to take it over.

Political regulators must also solve somehow the knowledge problem— what risks of what type exist where? Unfortunately, central bureaucracies are too far from the action to have access to the localized knowledge essential to wise risk management. Moreover, even if they could somehow achieve this incredible feat, political risk managers would still face the even more daunting task of motivating millions of people to act in accordance with their decrees. Competitive risk management allows us to approximate that standard: Markets entail myriads of voluntary transactions allowing the risk averse and the risk takers to coordinate their risk preferences. As such, markets register private risk preferences and tolerances far more accurately than even the most informed and open political process.

The private sphere facilitates the development of this risk management function. Many private investors seek to shift their residual risks to others. In a world where risk can be managed privately, insurance and other institutions evolve to meet that demand. For example, users of price-volatile commodities such as chocolate historically sought to escape that price risk, and cocoa and other commodity futures markets developed accordingly. Notice that the goal of private risk management is not to *reduce* risk but rather to allow more parties to more closely achieve the level of risk they seek. Private risk arrangements would take full account of the parties' concerns—but *only* the parties' concerns. Third parties might comment on private arrangements, but they have no power to determine them.

Although error is inevitable in both the private and political worlds, you can expect better performance from private risk managers. The incentives to *get it right* are superior! However, the proper comparison is not between the political risk manager and the *average* private actor but between the politician and that one marginal private actor who, among millions of others, *does get it right:* His or her actions will soon dominate the market.

Private risk managers are far more likely than political institutions to consider risks in a more balanced fashion. Risks are ubiquitous—any decision increases some risks and reduces others; therefore, the question of balance is critical. Consider the issue of whether a new technological process or institutional arrangement should be approved: Both private and political groups will weigh heavily the risks of change. On the other hand, stagnation and doing nothing are also

dangerous. If only for competitive reasons (e.g., fear of losing market share), a private firm will take the risk of stagnation seriously. In contrast, few political risk managers experience any pain by delaying or even blocking change. The victims of inaction are statistical artifacts of the wealthier, safer world that might have been; their voices are scarcely heard in the political process.

RECONSIDERING THE ENRON SITUATION

The market failure case for political regulation is not persuasive. Indeed, the market failure argument actually works in favor of competitive, not political, regulation. Private risk management can, after all, create costs for which private managers and market participants escape liability. Sometimes—as in the case of force and fraud—those activities are criminal, requiring state action. Other times, however, potentially mutually advantageous agreements are blocked by the lack of key underlying market institutions. Such market failures might best be addressed by removing all barriers to competitive market regulation of financial risk. As the economist Ludwig von Mises stated concerning the case for political regulation of environmental risk:

It is true that where a considerable part of the costs incurred are external costs from the point of view of the acting individuals or firms; the economic calculation established by them is manifestly defective and their results deceptive. But this is not the outcome of alleged deficiencies inherent in the system of private ownership of the means of production. It is on the contrary a consequence of loopholes left in the system. It could be removed by a reform of the laws concerning liability for damages inflicted and by rescinding the institutional barriers preventing the full operation of private ownership, (von Mises, 1966, pp. 657-658)

Rather than viewing Enron as a market failure, we should consider whether political controls might have blocked competitive forces, which would have identified and addressed the problem earlier.

We do not (yet) have a Federal Bureau of Secure Investment charged with defining the socially correct level of financial risk that an individual investor may assume, although several recent SEC chairmen seem to have interpreted securities laws in this fashion. And we certainly do not have any agency charged with eliminating investment losses. In America, private investors are considered adults and thus able to determine for themselves the level of acceptable investment risk. And investors in turn discipline the firm by deciding to buy or sell the stock.

Real problems do occur in the marketplace, as some of the shenanigans of Enron, WorldCom, and others have plainly illustrated. But the task of distinguishing deception from puffery, complexity from fraud, mistakes from willful nondisclosure—cowboys from cattle thieves—is never easy. It is doubtful that it could ever be performed better in the political arena. The interests involved, the bias against innovation, and the incentive to build agency power rather than to protect investors all suggest the superiority of private, competitive risk regulation.

Because the optimal level of investment losses is not zero, moreover, the inherently risk-averse nature of the political process may unnecessarily raise barriers to innovation and thus make capitalization of financially innovative firms much more difficult than it is today. To hold the future of our economy hostage to the investment acumen of government bureaucrats would exacerbate, not reduce, risk.

Under a private regime, firms fail, investors suffer losses, and monitoring processes do not always work as expected. Monitoring boards are not foolproof, nor are accounting firms and other external monitors. Yet, too often, the response to major losses and monitoring failures is to blame any business practice that cannot readily be explained. This "blame-the-innovation" bias threatens the evolutionary process that offers the best hope of improved risk management over

time. The public, goaded on by the press and crusading politicians, can all too easily agree that innovation itself is the culprit. That risk is evidenced by the demonization of joint stock companies, forestalling and engrossing, derivatives, structured finance, and the like.

In contrast, as noted earlier, in a competitively regulated world, the market does respond quickly to unexpected problems by developing new risk management institutions or technologies. The private market's response to business failure is not paralysis; it is innovation and capital re-allocation. After the Enron debacle, hundreds of billions of dollars moved from firms that had failed to clarify to the investor community adequately their internal risk management strategies. The level of that discipline dwarfed any fines that even the most aggressive SEC regulator might have levied. Note also that the inventions of outside boards of directors, frequent audits, quarterly reports, and disclosure policies were the market response to earlier business failures. A world that looked only to government to manage risk might never—or only belatedly—have developed such investor-protection arrangements. Moreover, the great variety in people's sensitivities to risk suggests that the decentralized competitive approach would explore a much broader range of innovative solutions, far earlier than the typical crisis-driven political approach.

Some of the monitoring institutions that evolved in response to earlier failures did not function as intended in the case of Enron. That simply means another wave of innovation in the monitoring process is at hand. Those institutions whose monitoring failed will be disciplined by the market, and those gaps that we now realize were left open will create opportunities for new innovative institutions to close them.

Markets are not rigid, frozen arrangements unable to address emerging concerns. They are exquisitely sensitive to changed expectations and flawed reporting. For this reason, we need to place greater reliance on private risk management to strengthen the demand for more accurate monitoring of corporations' financial status. Monitoring intelligence firms specializing in determining the actual profitability of a firm—and the wisdom of its investment, employment, production and internal management policies—will flourish. Such external monitoring will give a comparative advantage to investors active in either shorting or purchasing the stock. Moreover, such external information will encourage takeovers of mismanaged firms. Political regulators, in contrast, have little incentive or capability to conduct such detailed monitoring of the modern firm. They have even less incentive to encourage private firms to acquire such monitoring capacity. Indeed, they may view it as a threat to their authority. Established firms have political clout and, too often, the political authorities will view their mission as preserving the status quo, not encouraging the creative destruction necessary for a more efficient economy.

The major impediment to competitive regulation of future Enrons is political regulations that restrict the *market for corporate control* (see also Chapter 3). A vigorous market for corporate control is a powerful disciplining agent on companies that deviate from acceptable business conduct. Indeed, even firms that cannot explain their practices clearly, might well attract takeover bids. Sadly, the Enron debate has largely ignored the role of such competitive regulatory devices.

Pending such strengthening of competitive regulation via the removal of the protective policies introduced to shield errant firms and political regulators from market disciplines, we might consider reforming the political regulatory process. One idea that might counter the institutional and political bias against innovation would be to assign financial regulatory authority only to agencies having both a promotional and a risk management role.[20] Because private investors do face this conflict of interest (the desire for security and high returns), so also should the SEC. This capital formation role should conflict with the SEC's mission to reduce the risks to investors. If the SEC is unable or unwilling to play that role (a most likely outcome), an Office of Economic Advocacy—a "devil's advocate" agency charged with making the most compelling case possible against regulatory impositions in the economic risk area—should be established elsewhere (perhaps in Treasury where that tax collection agency has already established a National Taxpayer Advocate which heads the Taxpayer Advocacy Service). The Advocate's Office should

receive a budget comparable to those financial risk regulatory agencies it monitors. It should have access to all agency data and help mobilize constituencies that bear the costs of regulation.

Other legal and institutional problems also make private risk management difficult, and those should be seriously reconsidered in light of the Enron affair. For example, the predisposition of U.S. securities laws allows class action lawsuits against the officers and directors of companies. Of course, a firm's shareholders should be able to hold their manager and directors accountable. But current laws allow suits to be filed on behalf of a class of investors before that class has even been certified by the courts. Attorneys may directly threaten officers and directors with the prospect of huge personal liability. Suing officers and directors discourages qualified individuals from serving those roles.[21]

CONCLUSION

Enron has taught us a valuable lesson. Sometimes the innovators and entrepreneurs on the frontier cross the line from cowboys to cattle thieves. Institutions must be in place—or should be allowed to evolve quickly—to detect such problems when they occur, and cattle thieves, when caught, should be severely punished. But in our effort to address such risks, we should remain vigilant to several cautionary axioms.

First, the need to penalize cattle thieves does not create an open license to attack all cowboys.

Second, while the private institutions to detect and deter inappropriate activities sometimes fail (especially on the frontier), that does not justify a hierarchical, political approach. We should first consider whether some existing political policy might not have weakened superior private risk management institutions. The greatest risk is not always the cattle thief, but rather the political risk that a regulatory agency will go after cowboys and cattle thieves with equal vengeance—or even worse, that our efforts to prevent the risks of theft endanger the values created by the honest cowboys.

Despite the numerous causes for frustration, the reform case is not hopeless. The political response to the Enron problem has assigned financial regulators extraordinarily ambitious tasks that they cannot fulfill without great harm to technological and economic growth. As the Enron crisis fades and its consequences are viewed more dispassionately, the risk of political overreach will become more evident. And Americans are already aware that excessive political control can be very risky indeed.

Like disease, political risk regulation is not an inevitable element of life—it can be addressed, treated, and cured. As the Utopian excesses triggered by the Enron situation fade, risk reform will again become viable. Life is inherently risky, but it need not be inherently political. A world without risk is impossible, but one with reduced political risk is not. Thinking about the evolution of risk management institutions is a useful starting point. The Enron disaster may yet prove a valuable step in civilization's long term efforts to improve its risk management capabilities.

NOTES

1. Parts of this introduction draw heavily from Smith (1992).
2. A caution is needed here. There are risks of moving ahead too fast (of ignoring the risks of innovation), and there are risks of moving ahead too slowly (of ignoring the risk reduction benefits of innovation, the risks inherent in the status quo). That is, the real world presents us with a risk/risk trade-off. Political agencies prefer the simplicity of dealing with one or another of these risks. Thus, political agencies tend to be *either precautionary or promotional.* Either bias can make the world a more risky place. This chapter focuses on the risks of precautionary agencies; however, the recent disintegration of the space shuttle *Columbia* illustrates that promotional agencies can also increase risks. The strong institutional desire of the National

Aeronautics and Space Administration to increase its visibility by launching more shuttles more frequently, led to suppression of information about risks- The results were tragic.

3. In a fatalist culture, risks can be portrayed as a marble on a flat plane. The marble may move or not—there is no direction, no rising or falling.
4. The appropriate view of prudent risk taking in hierarchical cultures is that of a marble in a narrow shallow bowl. Within limits, the marble can move around; but once the marble has exceeded those bounds, it will fall. To hierarchs, risk taking must be carefully controlled to prevent disaster.
5. The individualist view of risk is akin to a marble resting in a deep high-lipped cup. Society is inherently stable. The individualist may or may not be cognizant of the rich array of institutions that act to focus the consequences of risk taking on the innovator and that, therefore, account for this stability.
6. Note, however, that first-generation innovations (the first central heating systems, automobiles, computers, and cameras) are often costly. The rich, by providing a test market for such novelties, pay dearly for what (in historic terms) are low quality products. I've argued that we might see the innovations—that, if successful, will eventually become available at much higher quality and much lower price to the larger population. Egalitarians have largely ignored this aspect of change.
7. See the discussion of this trend in Wildavsky (1991).
8. I use the term *returned* here because egalitarians once were far more optimistic about change and more skeptical of the virtues of centralized risk management. Thomas Paine and Andrew Jackson, two early populist egalitarians, saw no virtue in granting power to political institutions. Nor were they opposed to change. Egalitarians today—or perhaps more precisely, modern liberals—have displayed an increasingly negative attitude toward change. But that shift, in my view, reflects their belief that time is no longer on their side—that the cultural tides have shifted and their values are losing ground to resurgent individualism.
9. Risk is viewed by egalitarians as akin to a marble balanced delicately on an upturned globe. The slightest perturbation in any direction and the marble will fall. Nature and society are fragile and we must tread very carefully, lest they be damaged irrevocably.
10. It should be noted, however, that this creates a major tension within this cultural group. Thus, one sees calls for increased government regulatory power coupled with severe criticisms of the existing use of such powers. For instance, Naderites seem convinced that all existing government agencies have been captured by special (generally economic) interests but still demand that the powers of these agencies be increased!
11. As this article is being completed, the SEC has informed Credit Suisse First Boston, for example, that it will have to pay $250 million to settle probes into whether its analysts misled investors so as to benefit the firm's investment banking practice. Citibank has been told the price tag to end a similar probe there is around $500 million. Other firms under investigation include Bear Steams, Goldman Sachs.JP Morgan Chase, and UBS Warburg. All this follows an agreement by Merrill Lynch to settle a similar claim for a fine of $100 million.
12. Douglas and Wildavsky (1982) have noted that values determine what people choose to fear. Individuals focus on risks that validate and reinforce their values. Modern intellectuals, who distrust free enterprise, focus on the risks of economic and technological change and weigh natural risks much less heavily. For example, environmentalists give little attention to the massive quantities of chlorine, particulates, and acidic material spewed forth by volcanoes, while attaching great significance to the CFC residues from aerosol containers.
13. The story of plant and animal domestication is told with great skill in Diamond (1996).
14. For an interesting account of the evolution of property rights in the West, see Anderson and Hill (1975).
15. This paragraph relies on personal correspondence between the author and Colin Robertson and Forrest Capie (e-mail July 3, 2002). See also Harris (1999/2000)
16. Of course, the courts also play a similar risk compensation role. The *predation through litigation* problem has grown dramatically in recent decades. Today, the guilt or innocence of a party may have little relevance to its liability.

17. The rhetoric of the policy debate often prejudges the outcome. Competitive regulation, for example, is often referred to as *self-regulation* as though the firm would have sole control over the type and nature of these disciplining forces.
18. The exceptions, of course, are force and fraud, which are *criminal* activities.
19. This observation is key to the analysis of Hayek and other economists of the *Austrian school* (see Chapter 1). See, for example, Hayek (1945).
20. The Federal Aviation Administration (FAA) for many years was responsible both for promoting air travel and for ensuring that air travel was safe. These conflicting roles—the first arguing for lower cost air travel, the second demanding ever more expensive safeguards—encouraged the FAA to trade off the safety advantages of additional expenses (three engines instead of two, three pilots instead of two, and mandatory child safety seats rather than lower cost family airfares). Sadly, that "conflict" was removed recently when the promotional role of the FAA was eliminated by Congress. The all too likely result is that the FAA will now become another risk-averse precautionary agency—concerned only with ensuring air safety to the detriment of overall travel safety (forcing travelers from the three-dimensional safety of air travel to the two-dimensional world of land travel will generally increase risks).
21. Private risk management means little unless such ownership encompassed the rights to manage your property. Regrettably, the rights of property and contract have been seriously eroded by legislatures and by the courts. Contractual arrangements have been replaced with tort law, which, in turn, has been almost completely socialized. Today, courts often award compensation to parties who have suffered no demonstrable damages while imposing liability on parties who have caused no harm. In fact, modern tort law has become an even more ambitious and misguided effort to redress risk harms than regulation; government regulators, at least, are subject to budgetary and political constraints that establish some minimal threshold of regulatory concern. Civil liability is constrained by little other than the ingenuity of lawyers.

REFERENCES

"Accounting Failures Aren't New—Just More Frequent." 2002. *BusinessWeek* (January 28). Available at www.businessweek.com/magazine/content/02_04 /b37677l3.htm.

Alchian, A. A., and H. Demsetz. 1972. "Production Information Costs and Economic Organizations." *American Economic Review* 62.

Alien, W. T. 1992. *Redefining the Role of Outside Directors in and Age of Global Competition.* Ray Garrett, Jr. Corporate and Securities Law Institute, Northwest University, Chicago.

American Bar Association, Section of Business Law. 1978. "Corporate Directors' Guidebook." *The Business Lawyer* 33 (April).

American Bar Association, Section of Business Law. 1994. *Corporate Directors' Guidebook.* 2nd ed. Chicago: Author.

American Bar Association, Section of Business Law, Committee on Corporate Laws. 2001. *Corporate Directors' Guidebook.* 3rd ed. Chicago: Author.

American Bar Association, Task Force on Corporate Responsibility. 2002. *Preliminary Report* (July 16).

American Institute of Certified Public Accountants (AICPA). 1959. *ARE 51: Consolidated Financial Statements.* Retrieved from FARS/Original Pronouncements/Committee on Accounting Procedure Accounting Research Bulletins (ARB), CD-ROM, Release September 1, 2002. Norwalk, CN: Financial Accounting Standards Board.

American Institute of Certified Public Accountants (AICPA). 1971. *APB 18: The Equity Method of Accounting for Investments in Common Stock.* Retrieved from FARS/Original Pronouncements/Accounting Principles Board Opinions (APB), CD-ROM, Released September 1, 2002. Norwalk, CN: Financial Accounting Standards Board.

American Law Institute. 1994. *Principles of Corporate Governance: Analysis and Rec-*

ommendations. St. Paul, MN: American Law Institute Publishers.
Anderson, T. L., and P.J. Hill. 1975. "The Evolution of Property Rights: A Study of the American West." *Journal of Law and Economics* 18(1).
Arrow, K.J. 1974. *The Limits of Organization.* New York: Norton.
Azarchs, T. 2001. "Enron Credit Exposures Widely Dispersed Through Global Financial System." *Standard and Poor's RatingsDirect* (December 6).
Bainbridge, S. M. 1995. "The Politics of Corporate Governance: Roe's Strong Managers, Weak Owners." *Harvard Journal of Law and Public Policy* 18.