KNIGHTS RAIDERS & TARGETS

The Impact of the Hostile Takeover

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Preface

On November 13–15, 1985 Columbia Law School's Center for Law and Economic Studies hosted the Conference on Takeovers and Contests for Corporate Control that generated the papers for this volume. The conference included a broad range of thinking and research on hostile takeovers, and as a result, the principal papers, comments, and floor discussions collected here will give the reader a lively introduction to current controversies. We hope that the volume will provide a basis for further debate and that it will prove useful both to those on Wall Street and in the business community with direct experience of the phenomenon the book addresses and to students and scholars of law, business, and financial economics who can benefit from a wide-ranging survey of existing research.

The conference was sponsored by the Center for Law and Economic Studies with the assistance of grants from several organizations (listed on page xiii). The center is very grateful to these donors for their support. The conference would not have been possible without their generous contributions. We also wish especially to thank those corporations that have sponsored the center over the years—Exxon, General Electric, General Motors, and Philip Morris. Such assistance is crucial in permitting the center to undertake less visible but no less important activities, such as student fellowships and faculty research grants, and gives us the financial base that permits the planning of conferences such as this one.

Along with the editors of this volume, the conference was organized by a group that included Martin Lipton of Wachtell, Lipton, Rosen & Katz; Ira M. Millstein of Weil, Gotshal & Manges; and Walter A. Schlotterbeck, General Counsel of the General Electric Company. We are grateful for their ideas and encouragement but, of course, absolve them from any responsibility for the result. In addition, we want to thank Walter Schlotterbeck for serving as head of the center's Board of Advisors until his retirement from GE in 1987 and for being so willing to help us in our efforts to further interdisciplinary work at Columbia Law School.

Center Director and Professor of Law and Political Economy Susan Rose-Ackerman
March 1987

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Contents

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KNIGHTS, RAIDERS, AND TARGETS

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Introduction

The ABC Company issues "golden parachutes" to its executives and pursues a "scorched earth" policy by selling its "crown jewels" and issuing a "poison pill" to its shareholders, all in an attempt to foil a takeover bid by Mr. Z, a well-known "shark" and "greenmailer" who floats junk bonds with abandon. When Mr. Z persists, a white knight, otherwise known as Company X, arrives to fend off the hostile attack.[1]

Variations on this scenario have occurred frequently in recent years, are dramatically reported on the nation's business pages, and are followed by at least some members of the public with the intense attention otherwise reserved for contests reported on the sports page. But fascinating as takeovers are, it is far from clear what underlying forces are at work and what their longer-term consequences are. The debate over these questions has taken on a polarized character. Some see takeover threats as a disciplinary mechanism that induces managers to behave efficiently and moves assets to higher-valued uses or into the hands of more effective managers. Others claim that corporate raiders have produced few observable increases in operating efficiency but have, instead, disrupted business planning, enforced a preoccupation with the short run, and tilted the balance sheets of corporate America toward dangerously high debt levels. The sharp conflicts in theory and evidence have produced considerable confusion in Congress and elsewhere in government over the appropriate policy response. A score of bills have been introduced in Congress, but legislators are no more in agreement than scholars. Meanwhile, the stakes keep growing. Mergers and acquisitions have increased in dollar value 15 times in the past ten years,[2] and the circle of those threatened by the possibility of a takeover is wider still.

Yet in spite of the importance of a deeper understanding, partisans have seldom engaged each other in a sustained effort to refine and clarify the issues. To foster such a dialogue, the Columbia Law School's Center for Law and Economic Studies sponsored a symposium in November 1985 that elicited the participation of a broad range of practitioners, investment bankers, business executives, and scholars.

The chapters which follow reproduce the scholarly papers presented at the conference along with the discussants' remarks. On the night before the beginning of the formal proceedings, informal presentations by a panel of chief executive officers served to frame the debate and sound themes that echoed throughout the conference. The three CEOs—Warren Buffett of Berkshire Hathaway; Michael Dingman, then of Allied-Signal and now of The Henley Group; and Harry Gray of United Technologies—reached a high degree of consensus. Their views, however, were sharply challenged by other conference participants.

First, the CEOs were unanimous in their belief that acquirers are paying inflated prices. That, said Dingman, is "where [he] left the takeover party; the prices are . . . just too high, by cash flow, by assets, by earnings, by gross margins or whatever the measure is."[3] But how, the economist asks, can a price ever be too high if a willing buyer and seller agree to it? Debate over this issue turns on whether the managers of bidding firms are doing a good job of representing the interests of their shareholders. Do managers make high bids because

they see profitable opportunities not being exploited by present management or because they are motivated by hubris and a will to power? This question was a recurring theme of the conference.

Second, the CEOs asserted that prices in the stock market frequently fail to reflect a firm's long-term prospects under current management. If this is so, then many targets will not be badly managed firms in need of an influx of new ideas and market discipline. According to Buffett, "auction markets . . . periodically . . . price securities at far less than negotiated prices." While most commentators accept the idea that the per-share price for a controlling interest in a firm may exceed the price of an individual share, they differ on how to interpret this evidence. Some claim that the firm which bids for control is willing to pay more because it has a special ability to increase the real value of the firm by improving the efficiency of its operation or by liquidating or converting surplus or underutilized assets. Other commentators, while recognizing this possibility in some situations, argue that the efficiency-enhancement hypothesis applies only to a few cases, in part because the volatility of stock prices makes them poor measures of long-term value even under current management.

In overview, the CEO panel seemed, at first glance, to be articulating two inconsistent ideas: that stock market prices are too low and that takeover prices are too high. One might respond that if stock prices are too low, then maybe takeover prices are just right. In contrast, if takeover prices are too high, then stock prices may be just about right as a reflection of long-term values. However, it is logically possible for both statements about prices to be correct, and many people, not just the CEO panel, hold this view. Since some of the papers presented at the conference found that bidders paid up to 80% over preannouncement market prices, it could be true that stock prices undervalued publicly traded corporations but that competitive bidding raised the cost of the corporation as a whole in the takeover market to an "excessive" level. Possible explanations include such factors as the behavior of the stock market, conflicts between managers and shareholders over risk levels, empire building or "hubris" by bidders, tax incentives favoring acquisitions, and structural changes in the economy that make partial liquidation the most profitable strategy for some corporations. Each of these factors was explored over the next two days by the conference panels.

The first substantive panel—"Capital Markets, Efficiency, and Corporate Control"—with papers by Robert J. Shiller and Martin Shubik, directly addressed the possibility of stock market undervaluation. Stock market efficiency has always been an important assumption of those who have made the case for the efficiency-enhancing properties of the takeover, because stock price data show that target shareholders profit handsomely from takeovers (while bidders seem to incur either small gains or statistically insignificant losses). Yet if, as Shiller argues, the stock market is characterized by a high degree of volatility, stock market gains do not necessarily imply economic efficiency. The bidder and target could easily reverse roles if, in the market's next permutation, their stock prices were reversed. Moving beyond his earlier work on market volatility, Shiller argued that the historic tendency for markets to experience "bubbles" and "fads" compromises our ability to use the market as a proxy for economic efficiency. Economists need to spend more time understanding and explaining market anomalies, he suggested, before financial economics can be used as a neutral tool by which to resolve questions of public policy.

Next, Shubik frontally attacked the theoretical underpinnings of the claimed economic benefits of takeovers. He emphasized the dynamic nature of financial markets and argued that stock prices will not reflect all the information possessed either by managers or by sophisticated observers. As a consequence, stock prices tend to be biased in favor of short-run performance, and asset conversion through takeovers can be a profitable financial strategy. Accordingly, Shubik argued that "good finance and good industrial policy" could diverge. Conduct that makes good financial sense as a response to low stock

prices might not maximize economic efficiency. To correct this disparity, Shubik proposed giving shareholders a more permanent stake in their companies by reducing the liquidity of their shares. Both Shiller and Shubik were disputed by Franklin Edwards and Michael Salinger, who argued that while the available empirical evidence shows some market anomalies, it does not support the more generalized charges of market inefficiency made by Shiller and Shubik and does not suggest that restraints on takeovers would be beneficial.

The second panel, on "Managerial Behavior and Takeovers," addressed issues that virtually every commentator touched upon at some point during the conference. What changes in managerial behavior has the takeover wrought? Two business analysts, Malcolm Salter and Wolf Weinhold, opened this panel with a taxonomy of takeovers. They distinguished between transaction-related asset restructuring (such as an LBO or a bust-up takeover) and more complex operations-coordination restructuring (such as a synergistic merger). In their view, the latter form of combination seldom can be achieved by financial entrepreneurs, because it requires special managerial skills and sensitivities to "the political pressures and social nuances of any large organization." This managerial analysis provides an explanation of why many takeovers do not seem to result in any observable increases in operating efficiency.

John Coffee began from a different starting point and viewed the new wave of "bust-up" takeovers as, at bottom, motivated by a basic conflict between managers and shareholders over the level of risk that a firm should assume. Because shareholders tend to hold diversified portfolios while managers are inherently overinvested in their firm, managers will tend, he predicted, to be more risk-averse than shareholders. This risk aversion differential thesis helps explain behavior which an earlier generation of managerialist theorists attributed simply to strong managerial egos and a desire for empire building. Viewed through the lens of portfolio theory, a policy favoring asset retention, conglomerate acquisitions, low dividend payout, and little use of debt or resort to the capital markets can be seen as symptoms of managerial risk aversion. This thesis also helps explain the "undervaluation" of target companies: The assets of firms that are managed in such a risk-averse fashion will have greater value to shareholders if the firm is broken up in a takeover. Yet because restructuring and higher debt levels expose managers to uncertainty, they resist entering into transactions that maximize value for shareholders. To reduce managerial resistance to takeovers, Coffee proposed alterations in our system of managerial compensation to offset the new level of risk that has been imposed on managers. He concludes that the recent wave of takeovers is forcing management to accept a higher level of risk, and this transition may impose externalities on society generally.

In response, Oliver Williamson suggested that the manager's conflict with shareholders is related less to any difference in their level of risk aversion than to the problem of "firm-specific" capital, which the manager uniquely has at risk. While they disagreed on how to characterize the operating force, both did agree that the manager in the public firm has been subjected to a new level of unbargained-for risk as result of the takeover wave and that this change could justify compensating changes in managerial compensation and other contractual protections. However, Victor Brudney and Melvin Eisenberg strongly disagreed with this latter proposition and, in particular, disputed the "implicit contract" model of the executive/shareholder relationship.

Michael Jensen also postulated a conflict between managers and shareholders. In his view, the core conflict surrounds the payout of free cash flow. To the extent that agency costs are high, managers tend not to pay out this free cash flow to shareholders but, instead, often invest it in relatively unprofitable forms of expansion. As a case study, he examined the oil industry, where he found investment in research and exploration to have been excessive in light of oil prices and the costs of holding these assets. While retrenchment would have been

profitable, managers resisted proposals that would have reduced the assets under their control—until they were disciplined by takeovers that in his view understandably focused on the oil companies (e.g., Gulf/Chevron, Getty/Texaco, Dupont/Conoco). In his view, the bust-up takeover has forced desirable retrenchment and ended the wasteful investment of assets in unprofitable exploration and development. He also argued that the increased leverage which may accompany a takeover or be part of an attempt to fight one off can also help to motivate managers by bonding them to pay out a higher proportion of the firm's cash flow. Jensen supported Coffee's view that takeovers have had an important impact on the managerial labor market, which requires the adjustment of managerial compensation, including a greater toleration for *ex post* compensation devices, such as the "golden parachute."

The third panel—"Evidence on the Gains from Mergers and Takeovers"—produced one of the most vigorous debates at the conference and also made the principal empirical contributions to the continuing debate. Each of the papers presented evidence suggesting that a high proportion of acquiring firms suffer losses of wealth from mergers and takeovers—a conclusion that was vigorously contested by some of the discussants on the panel. Ellen Magenheim and Dennis Mueller reported on their longer-term stock price study of 78 acquiring firms that announced mergers or tender offers between 1976 and 1981. Their central finding was that although acquiring firms had experienced abnormal positive returns in the years prior to the acquisition, their postacquisition performance declined significantly, by as much as 42% according to their computation. The inferences that can be drawn from such a finding suggest that the bidder's loss may equal or exceed the target's shareholder's gain. Warren Law, a discussant, interpreted this data to corroborate his own judgment that "social welfare has [not] been increased by any of the acquisition binges of the postwar period." Conversely, Michael Bradley and Gregg Jarrell discounted these findings, arguing that the methodology used to arrive at them was flawed and, when properly interpreted, the postacquisition performance of bidders was statistically insignificant.

Other findings presented at this panel also supported this picture of takeovers as producing wealth transfers from bidder shareholders to target shareholders, rather than real social gains. David Ravenscraft and F. M. Scherer reported on three separate studies they are conducting: (1) Using Federal Trade Commission "line-of-business" data, they studied 27 years of merger history, covering over five thousand acquisitions, to compare premerger and postmerger profitability on the premise that line-of-business data might be more sensitive to changes in acquired business performance than either stock price or published accounting data; (2) they studied sell-offs of businesses using line-of-business data; and (3) they intensively reviewed fifteen specific mergers that resulted in sell-offs in order to understand the factors that led to their disappointing performance. They found that the acquisition game is a search for what they call "gold nuggets, not for dross that could, by some managerial alchemy, be transformed into gold." They also conclude that acquirers did not on average improve the operating results of target firms. Again, there was methodological criticism of the approach taken; Bradley and Jarrell opined that studying sell-offs was like "studying marriage by interviewing only divorced couples." Still, we believe that even a study of a skewed sample can yield new insight into the perplexing topic of whether acquisitions create real value.

Finally, the study by Edward Herman and Louis Lowenstein used reported accounting data to study 9 years (1975–1983) of hostile tender offers, 56 transactions in all. They also sought to compare the profitability of successful bidders before the tender offer with the profitability both of targets and, after the acquisition, of the surviving firm. The principal findings, which were preliminary because a control group was lacking, were that the takeover process seems to have changed over time.

In the earlier, 1970s transactions, bidders were more profitable on average than the companies they acquired. Even though they paid high prices for targets, their performance continued to improve in the years after the acquisitions. In the later, 1980s transactions, the targets enjoyed outstanding results prior to the announcement of the bid and yet the bidders continued to pay enough to yield price-earning ratios that were almost two times the market average. Following these more recent takeovers, however, the bidders suffered sharp declines in profitability, a finding which is consistent with the corporate executives' view that recently there has been a price inflation that is difficult to justify by rational expectations.

Richard Roll's paper provided a framework for interpreting this data about the disappointing postacquisition performance of acquirers. According to his "hubris" hypothesis, the winners in the competitive auctions that result from recent takeover contests are those bidders who most overestimate either the target's value or their capacity for achieving a turnaround. Hence, in an auction environment, successful bidders tend to overpay, and the resulting problem of the winner's curse may at least partially explain both the "overpricing" of target stocks noted initially by our panel of CEOs and the bidder's lackluster postacquisition performance.

Some commentators claim that takeovers are motivated by tax subsidies that bidders exploit without creating real economic value. Again, this hypothesis would partly explain why acquirers will pay more than ordinary shareholders in the trading market, because the latter cannot liquidate or merge the target to realize these benefits. Panel 4—"Mergers and Takeovers: Taxes, Capital Structure, and the Incentives of Managers"—assessed this contention. The papers expressed doubts that this tax subsidy hypothesis could explain more than a marginal amount of takeover activity. The paper by Ronald Gilson, Myron Scholes, and Mark Wolfson is a carefully structured theoretical analysis which argues that the tax calculation must be made on a comprehensive basis, because the gains to the acquiring company are often offset by tax losses to the target company and its shareholders and by transaction costs. These losses are an implicit cost of the transaction to the acquirers. Perhaps more significantly, substitute ways of capturing tax gains are available and thereby reduce the incentive to carry out business acquisitions. The opportunity to increase tax deductions by borrowing money, for example, is also open to corporations that borrow for nonacquisition purposes such as stock repurchases. The authors suggest that in an efficient market the prospective tax gains would in any event be incorporated into the price of the target company shares, thus mitigating the alleged incentive.

In their paper, Alan Auerbach and David Reishus examined a large sample of business acquisitions over the period 1968–1983. An extremely difficult undertaking, theirs is the first empirical attempt to quantify the tax incentives for mergers, and this paper represents only a preliminary report. The authors studied three types of tax benefits—net operating losses, stepped-up basis of acquired assets, and the interest deductions—generated by a more leveraged capital structure. They concluded that there are little if any tax gains from the stepped-up basis or from the increase in interest deductions from long-term debt, but that transfers of net operating losses and tax credits do appear to generate merger tax benefits. As the authors note, however, there is a risk that an aggregated data base such as theirs may conceal significant benefits from some sources, such as a basis step-up.

Discussants were less certain, however, that the tax benefits could be discounted as heavily as both these papers concluded. Martin Ginsburg, one of the discussants, described the acquisition of Electronic Data Systems by General Motors at an aggregate price of about $2.6 billion; he noted that the purchaser wrote up computer software by as much as $2 billion, with little if any recapture. The stepped-up basis could then be written off for tax purposes over a five-year period, producing annual deduc-

tions of $400 million, which could not have been achieved in any other way. His conclusion, which seems consistent with that of other tax practitioners, is that net quantifiable tax benefits are "often" available and that "at least some of these would not [otherwise] be achievable."

The remainder of the conference shifted the focus from the causes and consequences of the takeover movement to the legal rules governing takeover contests. Deborah De Mott contrasted the takeover regimes of Australia, Canada, and Britain with that of the United States, noting that these other systems regulate both the bidder and the market more intensively than does the United States. She also contrasted the pattern of shareownership and corporate cross ownership in these countries. Her analysis helps explain why the takeover has not emerged as a significant check on management in Europe but has throughout the Commonwealth. In addition, her analysis points up the much greater emphasis placed by Commonwealth law on equal treatment of shareholders and sharing of the control premium. Peter Frazer, deputy director of the British Panel on Take-Overs and Mergers, provided an in-depth discussion of the British regulatory approach, which in its administrative and informal manner of operation contrasts sharply with the United States' reliance on litigation. Nevertheless, Frazer argues that the panel provides a flexible and effective method of curbing abuses in the British context.

DeMott's emphasis on the equal-treatment rules under Commonwealth legal systems also set the stage for Lucian Bebchuk's analysis of the problem of coercion in takeovers. Bebchuk argued that shareholders' decisions to tender may be distorted by their fear that even if the offer is inadequate, they will be worse off by not tendering. If sufficient shares are tendered to pass control to the bidder, then dissenting shareholders will lose the value of the control premium. Bebchuk offered an elegant but simple solution modeled after the English practice which would require a majority shareholder vote at the time shares are tendered. Unless such an "approving" vote is secured, the bidder could not accept the offer. This mechanism permits shareholders to tender and yet vote against the offer, thereby protecting themselves from the prospect of being made worse off if the offer succeeds. Douglas Ginsburg argued, however, that Bebchuk's proposal would cost shareholders more than it would help them.

The final panel focused on shareholder voting and a new trend toward "dual-class" capitalization that entitles some shareholders to greater voting rights per share. The impact of this trend is to permit management (or an incumbent control group) to hold majority voting control based on only a much smaller equity ownership. Joel Seligman traced the history of the New York Stock Exchange's "one-share, one-vote" rule and argued that the circumstances that led to its adoption are no less applicable today. In his view, current proposals now pending before the New York Stock Exchange to relax this rule would result in a destructive "race to the bottom" among the stock exchanges and a loss in corporate efficiency and shareholder accountability. His views were vigorously disputed by Daniel Fischel, who found competition among the stock exchanges to be desirable and "dual-class" capitalization to permit flexible governance structures that do not injure shareholder interests. Other discussants took intermediate positions, but all recognized that the nature and structure of shareholder voting rights could be in the process of rapid change.

Where, then, did this conference leave us? As usual, important issues have not been finally resolved, and few conference participants behaved like Saul on the road to Damascus. Yet important data was brought to bear and original new interpretations were offered. That target shareholders receive gains from takeovers was never in doubt, but whether these gains reflect wealth creation, wealth transfers, or even wealth reduction remained very much in dispute. While takeovers may increase wealth by enhancing the efficiency of the economy, it is also possible that even if target shareholders gain, the economy may

lose if the new firm operates less efficiently than the old one or if the acquirer can exploit monopoly power. Furthermore, very different kinds of wealth transfers are possible—between bidder shareholders and target shareholders, between creditors and shareholders, between managers and shareholders. The source of takeover gains or losses is, if anything, a deepening mystery, because as this conference showed, there is plausible evidence that many acquirers do poorly in takeovers. Moreover, this conference aired new theories about "hubris," risk aversion "differentials," and "free cash flow" that can explain at least some aspects of takeover activity. The debate will continue, but we believe it will be enriched significantly by the new evidence and new interpretations contained in this volume.

NOTES

1. A rough translation of the first two sentences is: The ABC Company seeks to fend off a hostile takeover by giving its executives generous severance agreements, selling highly profitable divisions, and issuing a security that will permit shareholders other than Mr. Z to exchange their shares for a package of securities at a very favorable exchange ratio that may deter a takeover bid. The aggressive Mr. Z finances his bid by issuing high-risk debt backed by the assets of the firm he is trying to acquire. He is known as a person who sometimes buys a substantial part of a company and then lets himself be bought out at a higher price by a friendly bidder such as Company X.

2. W. T. Grimm and Co.

3. Now that Mr. Dingman has become chief executive of The Henley Group, Inc., and the company has sold $1.3 billion of new shares to finance acquisitions, we asked him whether his earlier comments were still operative. He replied that they were. While he still feels that prices are in general too high, he nevertheless believes that "there are still undervalued stock opportunities in the market which have yet to be recognized." He states that he is "hopeful that Henley will indeed participate in making those investments more valuable to our shareholders." (Private correspondence to Professor Rose-Ackerman.)

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Hostile Takeovers and Junk Bond Financing: A Panel Discussion

WARREN E. BUFFETT
MICHAEL D. DINGMAN
HARRY J. GRAY
LOUIS LOWENSTEIN, Moderator

For the discussion on November 13, 1985, three CEOs—Warren Buffett of Berkshire Hathaway, Michael Dingman then of Allied Signal now with the Henley Group, and Harry Gray of United Technologies—were asked to comment on the steadily growing level of takeover activity. What did they think was producing it, and as the character of the process changed, did they think that takeovers continued to be useful? The total value of mergers and acquisitions had increased from $12 billion in 1975 to $122 billion in 1984. (It would increase by almost 50% more in 1985, to $180 billion.) The successful bidders, whether the hostile black knights or the friendly white ones, were paying premium prices for target company shares that averaged about 80% over the prebid prices.

While the bidders continued by and large to offer cash to the target company shareholders, many of them lacked the necessary cash or normal borrowing power to finance bids that were by then often for a billion dollars or more. A new class of bidders had entered the picture, and the question was, Where did their money come from? In substantial part it came from junk bond financing, which in turn was largely the creation of a single investment banking firm, Drexel Burnham Lambert Inc.

Traditional bond financing had left the public market for straight, i.e., nonconvertible, debt closed to all but investment-grade issuers, those major companies with strong balance sheets and with pretax incomes that typically exceeded interest and other fixed charges by ratios of 4:1 or more. Junk bonds as such were not new, but until the late 1970s, they were so-called fallen angels—bonds of once strong companies that had fallen on hard times. Weaker, smaller firms borrowed money instead from banks, leasing companies, and other institutional lenders. Except for short "window" periods, they could float public debt only by offering convertible or other hybrid securities.

Drexel Burnham changed these patterns by marketing as new public issues bonds that would have failed the traditional tests by a wide margin. Thus in many junk bond offerings the issuers had total debt well in excess of, sometimes several times larger than, equity capital. And rather than covering fixed charges by a multiple of four or more, the earnings often failed to cover interest charges even once. The shortfall, or the threat of a shortfall, thus helped to produce that new creature of corporate finance, the zero-coupon junk bond,

on which "zero" interest was paid until the bond matured six, eight, or more years later. These junk, or "high-yield," bonds, as they were sometimes called, paid interest rates three or four percentage points higher than investment-grade bonds to compensate for their greater riskiness.

Had Drexel Burnham discovered a gap in the public debt market, or was the generally low default rate thus far a function of the fact that most of the bonds had yet to be tested by an economic downturn? While the higher interest rates reflect the fact that junk bond investments are more likely to turn sour than investments in high-grade bonds, are the rates high enough to reflect the risks of this growing source of financing? For the time being, where Drexel Burnham ventured, others feared not to tread. The first-tier, major banking firms soon followed, drawn by the larger underwriting commissions that such issues generated and the more general fear of losing ground. By 1985, the total value of all junk bonds in the marketplace was estimated at about $80 billion, of which about half had been underwritten.

Junk bond financing had a particularly close nexus to takeovers. By 1983, ambitious potential bidders with relatively limited personal resources could turn to Drexel Burnham to finance takeovers of some of American's largest and best-known oil companies, airlines, etc. It seemed as if almost anyone could buy anybody. Where would the process stop? Or should it?

CEO Panelist: Harry J. Gray

Let me start out by postulating that there's nothing wrong with mergers even though no one here has said there is anything wrong with them. I think that mergers also suggest that there may be takeovers involved. I would add that I don't think there is anything wrong with takeovers, either friendly or unfriendly. In fact, I think they are just business. It's all a part of business as we've defined it, and . . . I don't think that there's anything to take a moral position on. Many of you are familiar with United Technologies. Let me start off by saying that I think our situation is probably a little bit unique from what a lot of other acquisitors have done. Let me explain and see if I can get your sympathy as I say it. When I first joined the corporation in 1971, I found we had a problem. Ours was a dependence upon two customers which I thought was not a good idea. One was a 99%+ dependence on aerospace, and the other was a 55% dependence on the U.S. government. Those were really the bases from which we began our diversification and acquisition program. What we did is probably not unique amongst the annals of other corporate structures, but there are takeovers and then there are other takeovers.

I'd like to address my comments to really what I consider the constructive takeover: one where at the end of the road you've built a better business and you've got a better value for your shareholders. In our case we have something in excess of a 10-to-1 multiplier over the time from which we started—I'm talking about net worth or I'm talking about stock value. Cash flow is probably not as good as that, but by most measures, you'll find that it's a pretty solid set of acquisitions and a pretty solid set of businesses. On those things which have not worked out as planned, we've taken the tough medicine and taken the steps to get rid of them.

I submi to you that there's a big difference between our kind of a takeover approach—which was financed out of our own equity, financed off our own balance

This chapter contains the informal remarks of the panelists and the discussion which followed at the opening session of the Conference on Takeovers and Contests for Corporate Control.

sheet, financed from our own performance—and the kind of takeover where junk bonds are involved. It's those that I think we would take exception with. We, as we look at our own future, would not consider junk bond takeovers as a course of action.

Now, we've entered mergers because we felt that it would strengthen our existing businesses and in some cases give us diversification. At the same time we believe that the merger would strengthen the target companies' position in the marketplace. So under that set of equations everybody wins. Our aim has been to mesh our skills and our know-how with the target companies in such a way that the whole becomes stronger than its parts. And I submit to you that so far that has been the case. All this is another way of saying that when we take over another company, we do so because we intend to run it.

Junk bonds being used in takeovers are different, at least as we perceive them. I would say that they add up to an abusive kind of takeover. The junk bond people, I don't believe, are interested in companies as institutions. They don't enter into the merger for the purpose of diversification or expansion or what we would call orderly growth. That's because junk bonds are really used to break apart companies as opposed to putting them together. Frequently, this is even a stated plan of action as the bonds are issued. The bonds themselves are in turn financed largely with borrowed money, and this debt is paid off largely from the target's own cash and assets. And I'm sure you've all read about some of these proposed affairs, where, indeed, the entire junk bond issue is based upon what, in a predetermined manner, will result from selling off pieces. There's no agreement to sell them off, but let's say there's been some awful good "market research" done in order to evaluate the underlying assets.

Those who own shares in the company can make money this way. Certainly, the raiders, if you want to call them that, can make money. Literally, they can come out like bandits. But everyone else, in our opinion—including the company—loses. The junk bond takeover restricts the ability of the affected business to grow or to provide increased productivity and employment. It encourages management to focus on the short term to avoid becoming a takeover target via the junk bond, which uses your own assets to finance the takeover. It results in defensive measures to ward off actual or anticipated threats. Though these measures are justified when it comes to the junk bonds, they are probably unhealthy in a normal takeover situation.

In our opinion, junk bonds do not add to the national wealth. They merely shift money from those who have an interest in running the company to those who don't. Junk bonds, in my opinion, are not soundly financed. They put the target company in a precarious financial position. In fact, they are so highly leveraged that they are in danger of placing our banks and our credit managers in jeopardy. You can accuse me of having a highly opinionated point there. Junk bonds clearly abuse the takeover process. The market generally corrects itself for abuses. But in the case of the junk bonds, these abuses have become so much a part of the system that, in my opinion, nothing else but legislation will work to stop them.

CEO Panelist: Warren E. Buffett

I took this assignment partly because I thought the commitment would force me to figure out what I thought. I have puzzled over this subject for a long time. And the more I have puzzled and observed, the less satisfactory all the usual answers seem. I didn't always puzzle over how takeover questions should be resolved; but I now bring to it a fair number of perspectives, and those perspectives probably make it a tougher subject for me rather than an easier subject. I have been an investor for 44 years; I've been a CEO for about 20 years; I've been an outside director of a fair number of companies. I know a number of CEOs and directors who, because I won't name names, have been willing to tell me a lot of things about their decision-making process that you won't find in proxy state-

ments. And because my mother isn't here tonight, I'll even confess to you that I have been an arbitrageur.

When I bought my first stock in 1942, I was 11 years old. I bought three shares of Cities Service. Incidentally, it took a long time for that takeover to occur—forty years—and that's probably why my credentials as an arbitrageur are suspect. The position of the stockholder as the unquestioned boss in all corporate matters seemed very simple to me then. I immediately got my three-share certificate ordered out because I didn't want it sitting in street name. I wanted to see that little piece of paper that said I was the owner of Cities Service Company, and I felt that the managers were there to do as I and a few other co-owners said. And I felt that if anybody wanted to buy that company, they should come to me. They didn't for a long time, 40 years after I sold. But I was perfectly willing to have them come directly to me. And I felt that it was essentially like buying an interest in a grocery store—that if somebody came to the manager of a grocery store and said that he wanted to make an offer for it, I should hear about it and make the decision whether or not to sell. The hired hands were to run the operations but not to make ownership decisions.

And I might say that, as chairman of a company that has a number of subsidiaries, if someone came to the manager of one of our subsidiaries, See's Candy or the Buffalo News, and said that he wanted to buy the place, I would feel a little put out if that manager didn't relay that offer to his owner in Omaha. I find interesting the feelings that CEOs have that their subsidiaries should be very subservient to the parent company that owns them, but they sometimes forget that they, too, have an owner, the shareholders of the parent company.

But in any event, I had this idea that some sort of economic Darwinism would work and that if offers were made, it was the invisible hand working and that it would improve the breed of managers. And then over the years I've been troubled by two things I've observed—and I don't know exactly where this leads me—I'll just tell you what bothers me. The first thing is that over a good many of those 44 years and a good many of the past 10 years, the very best managed companies I know of have very frequently sold in the market at substantial discounts from what they were worth that day on a negotiated basis. It isn't just the weak managements or the companies that are not meeting their potential that are vulnerable to takeovers because of market disparities from negotiated business value.

The best-managed company I know (and I would have said this a year ago when we had no commitment to buy the stock) is Capital Cities Communications. If you'd bought into that 30 years ago—roughly, when it went public—you'd have had a compounded return of 22% per year. And that's been done through management, and it hasn't been done through shenanigans. They've issued very few shares. They've played no games. They've been in a very good business. They've had enough sense to stay in a good business. And they've run the properties very well. It's the best-managed company I know. They treat the people well. They are high class. And in 1974, that company was selling in the market for one-fourth what, that day, you could have had an auction of the properties for and gotten in cash and you would have had a dozen bidders. They happen to own the kind of businesses to which buyers stepped up and stepped up for very fast, and would pay cash for. However, in 1974 the general thinking was you didn't take on anybody that had FCC problems. At the time, they were protected from a hostile offer by the FCC rules, not by ownership. The management owned nothing to speak of: Tom Murphy, the CEO of Cap Cities, owned 1% of the stock and the whole group probably owned 5%. The stock was heavily institutionally owned. That company, if those circumstances existed today, would be gone.

The trouble is, everybody is acting rationally. If you have a very well managed company that is selling in the market at 50% of what it's worth because most companies are selling at 40% of what they are worth, the shareholder who gets an offer for 70% or 80% of what it's worth should

make the decision to sell and go into something else that's well managed and selling at the 50% figure. An auction market does not consistently produce negotiated market prices, and the auction market is the one from which owners are forced to make a decision. The owners have their alternatives in the auction market; their alternative is buying into other businesses in the auction market, and if they are offered a price that is well above the auction market comparison, they're going to make the shift. They are going to make the shift whether they own poorly managed companies or whether they own the best-managed companies.

I don't know any way in the world to avoid revolving-door ownership of businesses when there is no cultural or regulatory restriction operating and when you are dealing with auction markets that periodically are going to price securities at far less than negotiated prices. I don't have the answer for that. I don't think it's a good idea that the Tom Murphys of the world are replaced by people whose primary interest is reshuffling the assets. I don't know the answer for it exactly because there is a second problem I'll get to shortly. But I don't think the present situation provides a great environment for managerial stability, and I think today if the Washington Post did not have two classes of voting stock, I think if Capital Cities wasn't perhaps protected by a large owner, whatever it might be, I think those companies would be gone in no time.

The Washington Post in 1974, the whole company sold for 80 million dollars. You could have sold the business that day for 400 million, and only the fact that there was a class A stock with special voting power kept that from happening. Now the bars are down unless a large owner who cannot be tempted by price owns a major portion of the voting stock.

Now the second problem I have is that essentially the people who end up buying businesses in this environment many times do so for very good reasons; this is not a blanket indictment—but it's not a selection inspired by a divine being. In some cases, purchases reflect the megalomania of people who, through natural selection based upon political skills or hunger for power, move to the top of organizations. And people behave very differently with corporate money frequently than they behave with their own money.

I have a friend who is the chief fundraiser for a philanthropy. Been that for about five years. And he calls on corporate officers and he has a very simple technique when he calls. All he wants to do is take some other big shot with him who will sort of nod affirmatively while he meets with the CEO. He has found that what many big shots love is what I call elephant bumping. I mean they like to go to the places where other elephants are, because it reaffirms the fact when they look around the room and they see all these other elephants that they must be an elephant too, or why would they be there? So when you see the Bohemian Club and the Business Round Table and things like that, it gives you some insight into what moves people. So my friend always takes an elephant with him when he goes to call on another elephant. And the soliciting elephant, as my friend goes through his little pitch, nods and the receiving elephant listens attentively, and as long as the visiting elephant is appropriately large, my friend gets his money. And it's rather interesting, in the last five years he's raised about 8 million dollars. He's raised it from 60 corporations. It almost never fails if he has the right elephant. And in the process of raising this 8 million dollars from 60 corporations from people who nod and say that's a marvelous idea, its prosocial, etc., not one CEO has reached in his pocket and pulled out 10 bucks of his own to give to this marvelous charity. They've given 8 million dollars collectively of other people's money. And so far he's yet to get his first 10-dollar bill. So far, the Salvation Army has done better at Christmas than essentially he's done with all these well-reasoned arguments that lead people to spend other people's money.

You'll find similar behavior with corporate aircraft, where I happen to know what the habits of many CEOs are. They've explained them to me, and they even explain what they get the board of directors to do

in order to make sure that it can get by the shareholders and the IRS and so on. I think they probably buy a little different kind of corporate aircraft than they might if they were buying it with their own money. And I think they probably maybe even eat a little differently when they're eating on the company.

And I also notice that when they eat companies, they behave a little differently with the shareholders' money than they would with their own. You see, the equation of the CEO is frequently very different from the shareholders' equation. I might have wanted to own the Redskins when I was a kid. Now if I have to buy the Redskins, that's a lot of money, you know, just to have them look up at me in the Super Bowl with fourth and two with a couple of minutes left and say, "What play do you want to call, Warren?" Of course that would be worth a lot. But it's not worth what the team prices are—at least to me. It was worth it to the guy who bought the Tigers for 50 million because all he wanted to do was put the little cap on that said "Tigers" on it. And he's very honest about it. And he bought it with his own money, which I admire. But my equation might be a little different if I could rationalize some way to buy that with somebody else's money. If I get the ego satisfaction and the check is written on someone else's bank account—say, the shareholders'—the equation can change.

If I owned the *Wall Street Journal,* I would be a more significant guy. I mean, there's no question about it. My personal equation in owning the *Wall Street Journal* at 15 times earnings, 20 times earnings, 30 times earnings—if I own practically 0% of my company stock, it's very clear I become much more significant in life, and the price becomes no object. I'm only going to live once and it doesn't hit my bank account. So I think that you have a major problem in acquisitions in terms of the managers' equation being at odds with the investors' equation.

And the second problem you have is that to be the best in the acquisition game, which is very competitive, and to pay top dollar, there is a great incentive to deal with phony currency. In the late sixties when the medium of exchange for acquisitions was much more equity-oriented, the operator who could paint the most deceptive mirage for a while in terms of what his company really was worth had the best piece of paper to acquire with. The sillier you could get the price on your own stock, the more you could mislead investors, the better the currency you could use to acquire things. You saw plenty of that in the late sixties. Now it's become much more debt-oriented, and the fellow who is willing to borrow the most money and the fellow who really is the best at selling the junk bonds that Harry talked about has got the edge. I mean, you don't give managerial or ethical tests to these people to determine who should buy businesses. You don't test them by the Boy Scout oath. You simply say who can place the most money on the table. And the fellow who can place the most money on the table these days is the guy who can borrow the most money.

I'm bothered by that; I'm bothered by what the casino society leads to. I went back to Keynes in *The General Theory,* Chapter 12, and he talked at that time, in the midthirties, about the problems of the casino market—believe it or not, in the midthirties. He pointed out the dangers of the American market vs. the English market, because there was this much greater propensity to turn the American market into a casino market. And he had the idea that excessive liquidity in markets essentially was antisocial. In talking about this, he was talking about the question of speculation vs. what he called enterprise and he said, "Speculators may do no harm, as bubbles on a sea of enterprise, but the position is serious when enterprise becomes the bubble on a sea of speculation. When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill done." I think those words have some meaning today.

In the end I'll tell you where I come out. I'm not happy with my conclusion, but there is a narrow range of alternatives. Someone has to have the ability to make the decision on selling a business, and it's going to be the shareholders, it's going to

be the management, or it's going to be government or some combination thereof. You notice I don't include the board of directors, because my experience overwhelmingly has been that the boards of directors (there are exceptions) tend to go along with what management wants. So I put them in the management classification. And managements are usually going to resist sale, no matter how attractive the price offered. They will advance all sorts of high-sounding reasons, backed up by legal and investment banking opinions, for rejection. But if you could administer sodium pentathol, you would find that they, like you or me, simply don't want to be dispossessed—no matter how attractive the offer might be for the owner of the property. Their personal equation is simply far different from that of the owners. If they can keep the keys to the store, they usually will.

When I get all through, my heart belongs to the shareholders; I come down with the shareholders, but I would like to figure out ways to attack those problems that I've talked about. Thank you.

Moderator: Louis Lowenstein

I'm reminded, because of the focus on junk bonds, of a conversation that I was having with Stanley Sporkin before the dinner began. Stanley, I wonder if you want to inject your ideas on the junk bond dilemma at this point?

Stanley Sporkin: Yes, I was going to discuss it tomorrow, but I'll do it now. It occurs to me that one way to deal with this problem is through credit regulation. We don't have a model right now, and I don't want to use Regulation T as the model, but it seems to me—and my thinking's confirmed by what you said, Harry—that we do need a restriction of credit. Therefore, it seems to me we know how to do that. We've done it in Regulation T. Again, I haven't figured out all the ramifications, but if you look at the purpose, you could look at the amount raised and you could either do it through a reserve requirement or through credit regulation similar to the regulations that apply to stocks. I think that might be a way to deal with the problem. It is quite like the model that we know best. It has merit in the sense that if Harry is right, that the problem involves an allocation of credit and there is a need to protect the marketplace, then credit regulation would be the appropriate measure to adopt. I haven't heard this idea before, has someone else written on this?

L. Lowenstein: There was a speech by Gerald Corrigan, the president of the Federal Reserve Bank of New York, in September, suggesting that the level of debt in American industry as a whole was reaching worrisome proportions. Many link that, of course, to the level of public debt. But just looking at American industry, he projected that if we continue to turn equity into debt at the same rate for the balance of the year 1985, we would have, in total, for the years 1984 to 1985, turned 150 billion dollars of shareholders' equity into debt in those two years alone, or roughly the net amount of shareholders' equity that had been created by new issues since the Korean War. Are your concerns about the individual companies, or are you concerned about industry as a whole? Warren? Harry?

H. Gray: I'm worried. I'm worried only if it continues to go at the kind of rate or an accelerated rate that you've indicated. The two worrisome sources—one we've identified, which is the junk bond. It carries too high a premium. As everybody knows, it's not a good-rated security. I'm also worried about the leveraged buy-outs. Should I worry about them right now in 1985? I guess so, but I'd really worry if we had a downturn in the economy. I'm not sure I can tell you exactly where all the junk bonds go, but I'm worried about some places that they go, and that includes savings and loans, because that is a troubled industry as it is. There are a lot of small or medium insurance companies that have bought junk bonds, because they've gone out and sold guaranteed-performance contracts, particularly to pension funds where there is a great deal of pressure for perfor-

mance. And I'm worried, too, in the leveraged buy-out that some managements have taken a debt structure that they will not be able to service during slower times. Those are the two things that worry me the most; and if that accelerates and you have a downturn, I can see a fundamental collapse in a portion of the credit industry. And if that happens, I think the problem will come to rest on the federal government's doorstep, and that costs the taxpayer money, because I don't think they'll allow all the savings and loans to fail.

W. Buffett: Well, I didn't realize it till tonight, but it's probably our company's New England roots that make me so negative on debt. There's probably a Cotton Mather or something in the background that influences me. I don't view debt as an overwhelming problem in terms of the economy as a whole. And there is a certain rationale, of course, to corporate debt in that the federal government owns a very peculiar kind of what I call class A stock in American industry. This "stock" is entitled to 46% of the earnings and has no share in assets. It's a very unusual stock; it's an income stock. And you can get rid of it. I mean that by substituting debt, you can buy in the government's class A stock for nothing. I've always been intrigued by companies that buy in stock. And when you can get rid of a 46% shareholder by reconstituting the capital structure with debt, that is tempting to people. You might argue that it's surprising it hasn't been done more. It's hard to do with yourself, because you have to have at least 20% change of ownership to satisfy certain IRS rules for favored tax treatment. But maybe if the law didn't read that way and you didn't have to have any change of ownership, everybody would just issue tons and tons of debt to their own shareholders. You might say that if pension funds owned all of American business, they might as well distribute out very large dividends since they are not going to incur any tax on distributions. And they might distribute out very large dividends in the form of debt instruments and get rid of that 46% shareholder, so that instead of the pension funds owning 54% of the pretax income of the company, they could own 100% of the income of that company.

One problem with debt is that those who like issuing it almost always tend to go too far. Lou mentioned that we own a savings and loan, and he said that it had shrunk a lot. Actually, it hasn't shrunk so much. The deposits are about 280 or 290 million dollars, but now we do it out of one branch instead of 15 or 16, which has certain advantages in cost. We could dress up the earnings of that company incredibly by one of two things. Either we could arrange deals where we get a lot of fees in return for committing debt money, or we could buy junk bonds and show spreads of 400 to 450 basis points over our cost of funds. And if we were desiring to go public or if we were just dumb, that would be a very tempting course of action. We, literally, could raise our reported return on equity to 30% this year by following this policy. And automatically, our earnings growth could be staggering. If somebody were going to shoot me at the end of the year unless I could get the maximum price for our savings and loan, I don't want to think about what I might do in the next few months. Because it's the easy way to do it. It's a no-brainer. And if I lose, FSLIC picks it up. Society is going to mutualize my losses and I get to privatize my gains, and that's a very tempting way to operate. As a matter of fact, it's damn near the only way to operate now. Because if you insist on credit quality and match maturities, there isn't any money in the business. So it tempts people.

I personally think, before it's all over, junk bonds will live up to their name. I went back again to Keynes in a memorandum for the Estates Committee at Kings College, May 8, 1938. He says, "Another important rule is the avoidance of second-class safe investments"—safe means fixed income as he defined it—"none of which can go up and a few of which are sure to go down." And then he goes on and explains why he doesn't believe in what we now call junk bonds. Ben Graham wrote the same

thing, stated in all four editions of *Security Analysis,* and I recommend that you read it. When, essentially, you have extreme competition for buying businesses, and then, in effect, the debt holder puts up all of the money for the business, plus all of the vigorish that goes to the investment bankers and so on that Lou was talking about, you're talking about debt of 105% of an extremely competitively derived purchase price. And, believe me, American business is not so stable that you can do that time after time after time without a lot of chickens coming home to roost.

L. Lowenstein: I wonder that someone from Britain might get the impression that the junk bond market is going to dry up, because everyone is against it and there are no dissenting voices. But I know that we have some dissenting voices here. Mike Bradley, for example. Mike, what's wrong with these concerns about junk bonds? I know that you are of the view that the junk bond is only a somewhat different form of equity. There's nothing really all that dramatic happening in the market. Can we engage you on this?

Michael Bradley: Well, you stole my punch line—I am troubled by the use of the pejorative term *junk* to describe these high-yield securities. As you stated, it is my opinion that from this perspective, the "junkiest" bonds in the market are common equity securities. What we are talking about here is the underlying risk of these securities. Now there may be a problem if institutions that are not permitted to hold equity decide to hold these so-called junk bonds, since the latter are indistinguishable from the former. In other words, holding junk bonds may be a way for some institutions to hold essentially equity securities even if they are legally permitted to do so, and this may be troubling to some. But this does not mean that the holders of these junk bonds are naive and do not know the type of instrument that they are holding. If you look at the contracts of these junk bonds, they're pretty much wide open—with very little in the way of restrictive convenants. So I would just argue that junk bonds lie on the "high end" of the continuum from completely safe, risk-free debt to equity, where there are no promises. But I expect that they are fairly priced to reflect their underlying risk.

L. Lowenstein: Warren, what do you think? It's just equity with a fixed figure on the certificate.

W. Buffett: It may be equity, but if we have a savings and loan with 280 million dollars of deposits and 15 million dollars of equity, I question whether we should have 280 million dollars worth of disguised equities on the asset side. And those junk bonds would be unusually weak equities because the creditors will have a difficult time exercising rights due to the form in which those instruments are put together. Junk bond indentures are not models of tight draftmanship.

I'd like to make one more comment about whether it'll die out. It won't die out without a big bang. There's too much money in it, and Wall Street never voluntarily abandons a highly profitable field. Years ago, there was a story about the fellow down on Wall Street who was standing on a soapbox at noon and giving lectures like they do. He was talking about the evils of drugs. And he ranted on for 15 or 20 minutes to a small crowd, and then finally he finished and he said, "Do you have any questions?" And one very bright investment banking type said to him, "Yeah, who makes the needles?" Well, the needles of the acquisition game are now junk bonds, just as they were phony equity securities in the late sixties, and Wall Street makes the needles.

A. A. Sommer: I want to take issue with what Mike said about the lack of difference between equity and junk bonds. You don't go into default when you don't pay your common stock dividends. You don't have a fixed obligation to pay it off at a given time, and you don't go into receivership and bankruptcy because you didn't pay a dividend. I think there's a hell of a differ-

ence between the lowest-rate bond and the highest-rate equity.

M. Bradley: We must keep in mind the practical ramifications of going into default. The real effect of default is to trigger a process to determine whether the firm's assets are worth more in the hands of the current managers (a reorganization) or in the hands of another management team (a liquidation). Just because a firm defaults on its commitment to bondholders does not mean that real assets will be destroyed—they will just be reallocated.

A. Sommer: It's a social phenomenon. That's not something to be lightly taken, I think.

M. Bradley: I don't mean to imply that corporate defaults and bankruptcies are to be taken lightly. I just wanted to point out that in these proceedings, assets will flow to their highest-valued allocation and that they will not be inefficiently destroyed.

L. Lowenstein: Well, I think one response might be that part of the market consists of financial institutions, and they play a role in the economy somewhat different from private investors, whom I think Mike may have been talking about. And the fragility of the banking system is such that we may be aggravating it through the excessive use of the junk bonds. Thus there is the concern that in fiduciary, financial institutions, insurance companies, and banks you have a peculiar class of buyer with potential spillover effects that would be more widespread than if you were selling these bonds to United Technologies.

Unidentified questioner: Let me ask you a question. We seem to be focusing on junk bonds. But isn't that really a symptom rather than the thing itself?

W. Buffett: Well, I think you are right that the junk bond is symptomatic—but the junk bond has emerged as a major tool to pay the top number for a company in a world of competitive sales, just as poor accounting and promotional earnings reports and so on were a tool that people used in order that they could be the winners in the acquisition game of the late sixties. It is an important current tool, and it does have the effect of detaxing earnings. I could make a powerful argument that if all the securities in the United States were owned by pension funds—every single dollar's worth—that they ought to have corporate America capitalized entirely by debt and forgive the interest whenever a company couldn't pay. In this manner they, in effect, would eliminate the government as a partner. I don't think that's a good idea for a lot of other reasons. But it is not an illogical way to attack the question of getting the top dollar for a business, particularly when junk bonds are so easy to merchandise. I get a kick out of the statistical studies that say, Here is the record of owning junk bonds over the last 20 years and isn't it wonderful, because you get an extra couple of hundred basis points after you allow for the defaults. But it's a totally different animal, of course, now. To me that's like looking at the record of deaths from AIDS in the sixties and then going out now and behaving in an inappropriate way.

Michael Jensen: John Coffee presents some data on the makeup of debt in his paper, and it's very interesting. Measured on a book-value basis, debt has a different set of characteristics than if it is measured on a current-value basis. John, what has been the evidence of the last 20 years on the fraction of debt in corporate America? Has it changed?

John C. Coffee, Jr.: If you look at the market value of corporate debt as a percentage of the market value of corporate equity, the picture shows wide swings over the last 15 years, with the current level being very high but not at a record level. If you look at debt as a percentage of replacement cost, the total debt load seems smaller, but the recent increase over the last two years is more dramatic and much closer to the record levels of 1970 to 1971. Finally, if you look at corporate debt as a percentage of

book value, the picture looks very ominous and we are at a record level (81%), but this is probably the most misleading comparison to use.

M. Jensen: I just wanted to bring out some facts in the situation. We all know we've been through a period of rapid inflation in the recent past. Asset and stock market values have increased substantially. Those values could support a lot more debt. And if you look at the data, as John Coffee has, the current level of corporate debt doesn't look unreasonable at all.

J. Coffee: Mike, let me add just two words to that, because I'm an agnostic on what will be the future of junk bonds. One difference is who are the purchasers—we are dealing for the first time with creditors who aren't real creditors. If you sell junk bonds to a savings and loan, you are selling them to a company 98% of whose assets are held by depositors who are government-insured. This gives you a classic moral hazard problem. In short, normal analysis does not apply if bidders are selling debt to people who are looking to the federal government to protect them, although this may be a unique and maybe short-term phenomenon—selling debt to someone who doesn't care whether or not the debtor can pay it off.

M. Jensen: I think that's an important point to consider, but let's put it in perspective. Think about the problems of the savings and loan business in this deregulated environment in which we have approximately 3500 S&Ls who are facing, in the next couple of years, the prospect of putting together a commercial lending operation in order to survive. Now, I want you to think about both the organizational cost of this activity and the potential amount of bad paper that's going to be issued while all those new commercial loan officers learn how to handle that job. Now suppose somebody figures out how to do the commercial lending operation on a centralized basis through something called high-yield bonds. These bonds are, I think, closely comparable to commercial loans. This means the thrifts can avoid the huge investment in commercial lending operations.

I don't know that all is fine in the high-yield bond market, but it isn't nearly as bad as many people on the sidelines would assert. The issue has been blown out of proportion.

The amount of high-yield bonds that have actually gone into S&L portfolios is a tiny fraction of the total. The amount of high-yield bonds that has gone into takeovers is also a tiny fraction of the total. It becomes an issue in the takeover business because these bonds finally break mere size as an effective defense against takeovers—and that makes a lot of managers of very large companies in this country uncomfortable. I understand that and I think we all understand it. What's basically involved in high-yield bond financing of takeovers is the fact that it allows people to buy companies exactly the way you and I buy houses. There are surely going to be defaults. But I'm a little disturbed about some of the things I read in the press. I think people take the "junk bond" label too literally and don't look behind it to see the economic rationale for what's going on.

My own belief is that high-yield bond financing makes capital available to organizations that couldn't get it through the normal markets or could get it only at higher cost through the commercial lending markets. High-yield bonds may well be the most important technical innovation that's taken place in the capital market in the last 20 years. I think it's premature to be talking about legislation that shuts off this innovation.

L. Lowenstein: Let's put to one side for a moment junk bonds, because we had a pretty active takeover market before there were junk bonds. Let's take out the two-tier bids and the greenmail and other tactics. And when you're done, you all refer, in almost the same terms, to the question of the working climate, the environment in

which American industry is functioning. As Warren said, he doesn't know what the solution is, but he still likes shareholders. I guess, two questions: First, can you be a little more specific about how you see the takeover process affecting the managers, and I don't mean just the CEOs, the managers of American industry, and second, how would you alter the process?

CEO Panelist: Michael D. Dingman

That's a heavy load. But I'll give a very simple answer. When I first went to Wall Street, I came up with a great idea and presented it to some of my colleagues and they said, "Michael, let us remind you of one issue. The problem isn't buying something, it's selling it." And what prompted this whole discussion was really not a question of how you finance an acquisition but how you get back the money that you put out to pay for the transaction. Somebody ultimately has to make the purchase worth more than the purchase price or it isn't worth it. And I guess that's where I left the takeover party; the prices are too high. They are just too high—in terms of cash flow, assets, earnings, gross margins, or whatever the measure is. And today, the issue is breakup values, and lord knows I've done enough in this business to understand it. And it's difficult. It is completely dependent upon somebody buying you out of your position. Well, it's one thing when you are in an organization like ours where you've got talented managers and people who know how to manage an acquisition. It's another thing when you are just an equity owner sitting back saying, "I'm coming into X company to take it over, to break it up, and to clean it up." That's a tough job. And it is particularly tough when you've paid 125% of what something is potentially worth. Today, the problem is that the prices are just too darn high. Maybe it's the tax considerations that do it, maybe it's the junk bonds. They are here. They are going to be around. I think some of the comments that Mike [Bradley] made about junk bonds are pretty compelling. The fact is they are a form of money. Somebody ultimately has to make the investment worth its price. My concern is that the prices are too high.

L. Lowenstein: Mike, what about the short-term performance pressures on managers, meaning primarily managers of potential targets eager to avoid the trap.

M. Dingman: Well, I think everybody is a target today, perhaps even Columbia Law School. There is no way of avoiding it, and that's a fact of life. Now, I know in the companies that I've been responsible for we have never had antitakeover provisions. I just don't believe in it. I sit in Warren's class: If you've got the money and you want to put it on the table, you are entitled to the company—period. However, to keep good managers and to keep the system running, the people in the company need some incentive. Now, that can be contractual, that can be options, that can be equity in the company. Most people I know who really want to work hard and do a job for a business don't have any money to start with. They are trying to make it. That's why they are there. So you have to devise structures and mechanisms to give people an opportunity to make money. Making money may be buying low and selling high. At the same time, you have to run a business day to day. It has to have managers. There may be too many of them, or maybe there are too few. My concern is that the issue has become a real burden. There's no question that people feel very insecure. How you get around that problem and how people choose to look at their company is something we are just beginning to understand.

And we are also going to find out how well people can run the airlines. They are taking over. It's going to be interesting. Running an airline is a hard business. So is running food stores and chains and some of the other businesses that have been acquired. A lot of it is dependent upon people saying they'll buy a division or an operation at a price that is considerably higher than the cash flows will support.

F. M. Scherer: My question is, when you are under this short-term performance pressure, if at all, do you change the way you actually operate the business? Not finance it, not compensate the managers, but *operate* the business.

M. Dingman: You basically cut back on your long-term development and other things that have a long-range payback, the investments that ultimately produce the big wins.

F. M. Scherer: I'd like to know if the others agree.

H. Gray: Speaking for myself, we try to operate our business based upon a set of objectives that we've laid down. Those objectives get adjusted from year to year, but fundamentally they are based upon growth in the sales volume, a good return to the investor, and all those concepts like dividends, which are based on the old-fashioned point of view of a classical type of an investor. We don't try to run it to be attractive to takeover artists or junk bond takeover types of deals. Now, how does it have an impact on a day-to-day basis? Mike's pointed out you only run organizations with people, and the people don't like short-term kinds of goals. Most of them, if they are over 30, want to get married, they want to raise a family, and they want to have some sort of assured source of income. They are willing to change jobs; they are willing to look for other opportunities. But they'll look within a relatively narrow range of the types of companies. We are speaking now primarily of the major corporations of the United States, which is the only thing I'm answering for. The pressure brought about by these short-term requirements is disruptive. Mike says people are insecure, and indeed they are, if they think that there's a possibility that there's a new set of owners coming in who will change them out of their position. And so they do their daily job with one eye cast over the shoulder. And I don't think we get top productivity out of them, because they are worried about something. Now I happen to think for the time being, I emphasize for the time being, we at United Technologies don't have the same degree of worry that I see in some other companies where it clearly is counterproductive.

Mike suggested that you trim back some of the investments that you make. In our company we happen to be in businesses that have cycles of investment ranging from seven to ten years. And if you don't make that seven-to-ten-year investment, and in some cases it's a little longer than that, you will not have the product for the marketplace at the right time. Probably the most classic illustration of that is the aircraft engine business where you can be going beyond the ten-year investment cycle. But if you don't put the money in at the time that's necessary, you will not have the profit. That means that you may not have the short-term profit that the kind of investor we are talking about will try to get. The same thing happens to be true in the elevator business and the air-conditioning business. Their cycles are closer to seven than to ten years. But unless you are dealing with a rapid-turnover, short-cycle thing, like a consumer fad or consumer retailing, those are problems you have to face. You have to have a program of balanced R&D investment, and you've got to have something that the people are willing to go along with on a basis beyond the short-term calendar or quarter-to-quarter measurement. That's what the impact is.

W. Buffett: There are basically two impenetrable defenses, and one is to own half or close to half of whatever stock votes in the company. And that's well understood. The other way is to have your stock sell at a price above its negotiated business value. And that negotiated business value available from a sale of the entire company may include not only economic income but psychic income to the potential purchaser. I have probably talked to at least a half-dozen managers who were worried about takeovers. When they express those worries to me and talk about what they should do, they recognize that they are not going to be able to keep the auction market value above the negotiated market value on a perpetual basis. They may achieve that

goal during buoyant markets or even normal markets, but they can't achieve it 100% of the time.

These managers and I have seen every fine business in the United States sell well below its negotiated market value at some time. So that is not a perpetual defense, and even trying to goose the short-term earnings or something of the sort can't permanently solve the problem. They don't focus on the short-term earnings "fix"; they really focus on how to strengthen the moat around the corporate castle so that stock valuation is not the only obstacle to crossing it. And they explore with me the idea of personally buying the business, or control of it, preferably without money. They also think about somebody owning a fair amount of stock who will stay put and not try to run the castle, even though he might own a big part of it. They explore various things like that. I've had very few that have ever said to me, "What do I do to get the immediate earnings up, how do I change my managerial techniques?" The interesting question is what would happen if all of a sudden I found out my stock certificates at Berkshire were phony. And instead of thinking that I've 45% of the votes, I find out that I haven't got any of the votes. Now in the 20-year history, even though the stock has gone from maybe 8 or 9 dollars to 2600 dollars, it has probably been sold below its negotiated business value, perhaps 75% of the time. In that valuation environment, Berkshire would be taken away from me. Under those circumstances, I would probably think very hard about how I could stick a few crocodiles and alligators and piranhas in the moat. I just wouldn't want to test myself. It's like being left alone in a bank at two in the morning. I don't want to find out how I'd behave.

L. Lowenstein: There's been a lot of discussion about the difference between auction market prices and negotiated market prices. And thus far it hasn't elicited a response.

Elliott Weiss: I'm glad you brought it up, because it's just what I wanted to ask Warren about. Warren, in your opening remarks, you gave us a characterization of managers and elephants that, to my mind, may explain why the spread exists. You talked about the fact that in many companies—maybe not in the best-managed companies—managers are playing with other people's money and use it in ways, as you described it, quite differently from how they would use it if it were their own money or if they were shareholders. Is that what explains some substantial portion of the spread between stock market prices and takeover bids? And, if so, is there something that can be done about it?

W. Buffett: That's one reason but I would say it's down the list a ways. It doesn't explain Cap Cities in 1974, it doesn't explain the Washington Post, I hope it doesn't explain Berkshire Hathaway. But it enters into it. A dollar you can't get your hands on is not the same as a dollar you can get your hands on. With marketable securities, shareholders felt they were beneficiaries of an irrevocable trust in which they couldn't change trustees; if you got a lemon for a trustee, you lived with him. And people marked down the valuations for trusts run by such trustees. You've also seen it in closed-end investment companies; you can figure out very clearly what the assets are worth, but you don't have your hands on them. In poor hands, those assets are not worth 100 cents on the dollar. But cupidity or stupidity is not the only reason for the existence of market price discounts. There are very many well-managed companies, people that behave with the shareholders' money exactly like they would their own, and those companies still sell at very significant discounts from negotiated values at given times in the auction market existing on the stock exchange. And incidentially, it's a rational price. I mean if poorly run companies are selling at 40% of negotiated value, why should a well-managed company sell for more than 60% or some such number? It's a rational value. That's the dilemma.

L. Lowenstein: Is there something about the way the market functions in takeovers

that heightens the focus on short-term performance? When you deal with your institutional investors, is their focus also short term?

H. Gray: Yes, I think that's true, but I guess it varies with the institutions. I can tell you some institutions have held our shares, for example, for the last six years and considered them to be a good investment. But they're institutions who have a balanced portfolio. And they wanted a certain part of their portfolio in what are really heavy industrial, not counting steel as one of those, but industrial suppliers to a part of the economy where they felt there would be some growth. Transportation is one part of it; construction is another part of it. And they've been very satisfied with it. They have not been willing to sell out their positions in order to go into something which would give them more short-term performance. I'll say exactly the opposite about some others. And these other institutions are interested only in getting a higher return whether it's 2% or 5% more than we can get. All I can say is, thank God we've got that kind of investors out there.

M. Dingman: I can't resist this one. It's the ultimate irony that the stock market is controlled by the very pension funds that companies give their money to for high yields so they don't have to put in so much. Now we're getting it right back—as the stock goes up, people sell; if it goes down, they buy. And I don't think you are going to change it. That's the way it is. You can court the long-term investor, but there's just no incentive to be a long-term investor. None. Maybe the investor will hold for six months or a year, but certainly not for a period that matches the time frame of a corporate organization. People buy and sell, and that's what's going on. I'm afraid that what's going to continue to happen.

L. Lowenstein: They're buying and selling at a much more rapid rate than they did a few years ago. Since 1960 the rate of turnover, not just absolute number of shares, but the rate of turnover on listed shares has gone up 500%. Whatever Keynes was concerned about was a shadow of the pace of turnover today. Warren, what is there about the market in either its auction or its negotiated aspects that is aggravating this focus on the short term?

W. Buffett: Well, I guess that it's largely in the institutional field. In our own particular company, 4% of the shares turn over in a year; and if I look back two years, 98% of the shares are held by people who held them two years ago. We don't want institutions. We would not get that kind of long-term orientation with institutions. My experience has been that, leaving aside the 10% of individual investors who like to speculate, individual investors tend to be much more sound than institutional investors because institutional investors are being paid to do something that they can't do, namely, outperform the market. They try to solve that problem with activity, and it has not worked.

S. Sporkin: Mike, I'm bothered by something that you're saying here—that you think it's strictly the stock price. You mentioned that the critical thing here is people. You want to get the best people you can to run your company. If you're managing a portfolio, you want to go out and get the Warren Buffetts and the best people to manage that portfolio. And not be worried about whether to buy and sell all the time. Why isn't that a factor? Is that too much?

M. Dingman: Well, there are exceptions. Like Harry, I can name institutions and individuals, big investors, who have followed us for years. By the same token, when you look at their track records, you find that even the best-managed companies go down in value. They go through a period—for whatever reason—of change in multiples. And most of the institutions I'm aware of sell when they anticipate that change coming. Now, the same institutions may come back in at a later date because they have confidence in the management. But they are not really long-term holders who say, "I'm with you from day one." In our own company, it's the same thing. A person who invested in my stock back in

1975 has made more than 500% on his investment, not counting dividends. But people have come and gone. As a manager, I figure there's zero loyalty. Stan, they don't stick around.

S. Sporkin: I don't think it's a loyalty. I think it's betting on a winner.

A. Sommer: To carry what Mike was talking about a step further, every quarter or every 6 months, the companies review the performance of their pension fund managers, and if a manager fails—2 quarters, 3 quarters, 4 quarters—he's out. Now no manager can be right all the time and only have an ascending performance curve. There is a tremendous competition among the managers to make sure there is continuity in their performance, with the result that they have a strong pressure to take their winners on the short term and liquidate them and go into something else so that they can reflect the profits on a short-term basis. That's the answer to your question, Stan.

M. Dingman: That is the tragedy of the market, I think. And it's the fault of the corporations. That's where it starts.

John Pound: I'd just like to comment quickly on the issue of undervaluing long-term activity by the market, which has indeed become a very widely held perception of one of the forces that causes hostile takeovers. A couple of studies have been done recently—one by the SEC—which have tried to generate some data on this issue, because unlike a lot of theories about takeover incentives, the long-term undervaluation argument has straightforward implications. If you believe that firms tend to become undervalued because they focus exceptionally heavily on long-term planning and long-term expenditures, and you believe that those firms therefore become the targets of unwanted takeovers, you can look at the balance sheets of those companies and determine whether they in fact do seem to be spending an excessive amount or larger-than-normal amount on those activities. Several recent studies have tested this implication by examining expenditures on capital investments. And they've found that, looking at any of these indicators, takeover targets have generally lower, not higher, expenditures than market averages on these measures of long-term planning and long-term investment. So while it's a very appealing argument—it's a very appealing notion of what's causing takeover activity—the facts so far really don't support it. The problem is that it's very easy to test, and you don't see any evidence that it is correct. So I just wonder where else one might look for confirmation of that view, if indeed you have looked at many kinds of expenditures and not found any confirmation for the view.

Unidentified audience member: I don't think there is any evidence that you can make institutional investors more interested in your stock by cutting your investments from long-term projects. It just doesn't demonstrate itself.

M. Dingman: My answer to the question on the long term versus the short term is that it's just today's reality. To sit back and know that you're right, as Harry said, to make an investment of a billion dollars or more today, seven years out, to develop a new engine is a lot of dough. The benefit of that investment is not going to come to today's shareholders; it's going to come to tomorrow's shareholders. Yet if you don't make the investment, you are not going to have a company. It's very difficult to make those kind of arrangements in a volatile environment and to attract people and keep them. Take one of the great companies in America, AT&T and Bell Laboratories. Bell Labs is the finest research institute in America: It can attract people, train them, keep them—it loves them. It's got to be going through tough times right now, although it's a national resource. It's not right, but it's happening. And it's going to affect the Bell System, and it's going to affect a lot of things in our country. This short-term takeover trend is going to affect an awful lot of things that we haven't even looked at. And there are changes in industries that are caused by it. So as we play

with the dollars and the junk bonds; there's a whole other game going on, and it's serious.

M. Jensen: Maybe I misunderstood. Warren Buffett was saying that he didn't observe his own or other organizations cutting back investments in long-term projects to concentrate on the short term. Did I hear correctly?

W. Buffett: That's right.

M. Jensen: There also have been studies of what happens when companies announce increases in capital investment—generally the long-term variety. What we observe is systematic and statistically significant positive relationships between stock prices and announcements of increases in long-term—if you want to call them that—expenditures. And the reverse is true for announcements of cuts in capital expenditures. Cuts in capital expenditures are associated with decreases in market prices. Now that doesn't prove that there aren't managers engaging in short-term-oriented behavior. Also, we're all aware that takeovers have been going on at a rapid rate over the last few years. The year 1984, according to a *Business Week* survey, saw R&D expenditures at an all-time record—up 14% in 1984 to a record 2.9% of sales. So the aggregate data is not consistent with the argument that record-high takeover activity is causing cutbacks in R&D. Not only do we have the testimony of several reputable CEOs that they have not observed the asserted short-run behavior, but we also can't find evidence of this phenomenon in the data.

L. Lowenstein: Warren, you started to say before that the pressures to escape from the risks of a takeover are not manifested in terms of reduced R&D but somewhere else.

W. Buffett: Yeah. If I didn't own any Berkshire and I saw somebody out there scribbling away and taking down Drexel's number or whatever it might be, my first call tomorrow would not be to our candymaker out in L.A. to tell him to quit working on those two new bonbons; it would be to Marty Lipton or somebody at the source, saying, What do I do to build a moat? I agree totally with Mike [Jensen]. I just don't see that as a response at all. For one thing, it would take too long, even if it were effective, which I don't think it would be. If you are worried about a takeover, and a lot of managers are, you're probably going through a time of self-trial when you are trying to remember all those speeches, when you said the company really belonged to its shareholders, whether anybody was taking it down. You don't know quite how you will square those speeches with what you're going to do the next morning.

Let's assume someone told me they were going to throw me out of Berkshire Hathaway, and that the stock was selling at 70% of what it's worth (and it isn't), and furthermore, that I owned very little of it. The only defense I would really have is either to disenfranchise the owners in some way—and to be effective, I should have done this earlier—or to induce the stock to sell above its negotiated business value. But I can't make it sell above its negotiated value all the time.

The investment community leaves me very disappointed most of the time, particularly the institutional investment community. I define an investment as a commitment made where the focus is on the expected results of the enterprise, not the expected price action. In other words, I think that's what investment is all about, trying to figure out what an enterprise is going to do and participate in it, if you've arrived at an affirmative decision. And overwhelmingly, that is not the focus of Wall Street, and I don't think it's likely to be, so I think we ought to deal with the world as it is. Exactly how we deal with that to prevent what I would call revolving-door capitalism, I'm not sure.

F. M. Scherer: Mike Jensen's comment deserves an answer. First of all, the fact that R&D–sales ratios have gone up over the last five years tells you nothing. Productivity growth has been abysmal the past five

years, but I don't think you can correlate either one of those divergent trends with takeover action. Second, there is that SEC study of R&D announcements. When do you *announce* that you've got a new R&D project? Over ten years they managed to find 62 announcements. My best estimate is that there are in any given year 20,000 R&D projects going on in U.S. industry. The study managed to pick up 62 of them over ten years. What kinds of unique events are these, out of 20,000, that they selected to analyze? Third, Harry Gray's company, aircraft engines, spends 10% of its sales dollar on company-financed R&D. There are only 2 or 3 out of 250 manufacturing industries that put out that kind of bucks for privately financed R&D. The SEC study has no controls for interindustry differences in R&D, and until you have such controls, you've got *nothing* in the way of analysis.

L. Lowenstein: In closing the evening's proceedings, let me thank our three distinguished panelists and other guests for contributing to an unusually well focused and yet spontaneous discussion. It augurs well for the remainder of the conference at which the various papers will be delivered and then subjected to comment and criticism. Given such a beginning, the proceeding should be lively and well informed.

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CAPITAL MARKETS, EFFICIENCY, AND CORPORATE CONTROL

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2

Corporate Control, Efficient Markets, and the Public Good

MARTIN SHUBIK

These managements need shaking up—they're horrendous . . . they take money from the peasants [the stockholders] and then hire mercenaries [lawyers] to protect their castle, mainly by browbeating the peasants. So we attack the castle.

Carl Icahn, *Wall Street Journal*, June 20, 1985

DIATRIBE

This chapter has the gall to be divided into three parts. The first, entitled "Diatribe," is devoted to a discussion of the relationship between the law and economic theory and some observations concerning the role of scholarship in an adversarial process.

The second part is entitled "Discourse" and is a discourse on many of the fundamental assumptions and models which underlie efficient-market theory, rational expectations, and much of the microeconomic theory of the efficient, competitive price system. The uses and limitations of these models in furthering our understanding of corporate financial behavior is considered.

The third part is called "Takeovers, Law, and Oligopolistic Competition." It raises questions concerning law, economics, and the fiduciary responsibility of managers and directors to stockholders and vice versa.

Are hostile takeovers, proxy contests, tender offers, leveraged buy-outs (LBOs), and going private good for the public in this best-of-all possible economic worlds? As an economic theorist, I can say with absolutely no equivocation, sometimes yes and sometimes no. Furthermore, as society varies its pantheon of white knights, attackers, defenders, and victims, the acceptable proportions of how badly whose ox is going to get gored will vary.

As a citizen, investor, and believer in the virtues of competitive markets where they are feasible, my social beliefs modified by professional considerations lead me to view with concern the change in debt structure frequently caused by takeovers and LBOs. The possibilities for late-1980s Insull Empires appear to be growing.

One of the beauties of a competitive price system is that even in a moribund bureaucratic economy such as the Soviet Union, economic forces bubble up and magnify or mollify the factors which the bureaucratic rules were meant to control. In our own system, give a tax break to the small-family farm, and many a lawyer and his brother-in-law, the entrepreneur, are going to become small-family farmers. Allow deductions for interest paid, and Uncle Sam is going to help carry a large part of a debt-financed leveraged buy-out.

Legislators and lawyers are well aware that almost always a new law creates a new group of millionaires. Furthermore, because a society is not static, if the rules concerning finance and accounting are in constant flux, then regardless of the fate of small stockholders or corporate managements, the rule makers, lawyers, accountants, financiers, and even some economic consultants will face full employment.[1]

In spite of the relatively recent interest in the common ground between economics and the law, economic theory and legal thought are far apart. The formal and often simplistic models of microeconomic theory and its stepchild, the academic discipline of finance, are basically not congenial with the subtleties of the law.

The science of a discipline such as economics and the sociology of its application may differ considerably. Thus in a society tribal conversions and religious fervor may overwhelm otherwise staid individuals. Many of us yearn for simple nostrums—cures which are scientific, elegant, authoritative, and simple. Behind many an economist lurks a faith that a Benthamite utilitarian simplicity might pay off as well as Newtonian mechanics. All we need to do is to invoke the magic of marginal disutility of going to jail or the electric chair and the economic theory of crime will spring full blown from Bentham's ear. The marginal utility of the *n*th child and some approximate indifference curves[2] showing the trade-off between children and other consumer durables should provide an economic theory of marriage and family. We invoke the magic of an institution-free, anonymous, perfect competition complete with delicious phrases such as *efficient markets, perfect foresight, rational expectations,* and *perfect equilibrium* and expect a stern, rational, fair-market-guided theory of finance to show that Widder Brown with her hundred shares of AT&T and Warren Buffett all march to the same drummer.

The law is messy, institutional, historical, and evolutionary. In spite of the joys of an abstract theory of justice, the fuzzy and highly complex processes of society often make it difficult to distinguish the raider from the victim. "It is a thin line that distinguishes a poor defenseless widow from a greedy old lady going for the last eighth of a point." The small stockholder who may or may not be accidentally helped by a Carl Icahn sometimes may feel that he needs at least as much protection from his corporate management contemplating an LBO as he does from an outsider raider offering him a bailout at above-market.

This chapter is a critique of the uses of several of the basic precepts of modern finance theory primarily from the right but also from the left wing. I suggest that like much of the casual partial-equilibrium economics that finance theory is based upon, it suffers simultaneously by not being sufficiently mathematical or institutional. As such, on questions such as mergers, buy-outs, or tender offers, current finance theory has little to say of any value because its models are not rich enough to capture the essence of the process in the struggle for corporate control. But for those of us who are willing to make our theorizing neat, the mere fact that an economic model does not appear realistic to a lawyer or a nonexpert may be merely a proof that these individuals are unable to reason sufficiently abstractly.

The poor judge who might be cowed by the learned Professor Enterprise averring under oath that the just, right, and fair price for a stock whose controlling stockholder is squeezing out the minority stockholders is that which the market will pay (see, for example, Transocean Oil and Vickers, or Federated Development) may feel that the professor is somewhat cavalier about detail, fiduciary problems, and control considerations. But even so, if the abstract essay of modern finance had useful content as perceptive advice about fundamental economic principles, it would still be of great value to the judge. Unfortunately, the major underpinnings of the theory appear only as a reasonably useful first approximation for a portfolio manager who wants to place a few hundred million and have a fair chance of keeping his job and sleeping well, or it serves as an appropriate parable to let Mrs. Smith know more or less what her 100 shares of AT&T or IBM are worth in the market available to her. The theory is of little value for the topics discussed here because the bag and baggage of efficient market theory, rational expectations, and capital asset pricing are loaded with implicit or explicit counterfactual assumptions. These assumptions, as any good microeconomic theorist can see, are set up to rule out, by assumption, the possibility that the market for a few shares

of the stock of a corporation and the market for control of a corporation may be fundamentally different markets.

The past few years have seen a change in the type of warfare for control with special gimmicks such as golden parachutes and greenmail to reward warriors on both sides with consolation prizes. But regardless of the variation in process, both economic theory and political science indicate that extremely stringent conditions are needed in order to make a competitive-pricing system and a stockholder-voting process logically consistent. In general, these conditions are rarely if ever satisfied in actuality.

The lawyers may talk about a premium for control. But to a true believer of efficient markets, there cannot be a premium for control. If, in contradistinction to the adherents of the single, efficient market, we suggest that there are several more or less imperfect markets involving the market for a few shares, the market for control, the market for going-business assets, and the market for assets in liquidation, then we have a structure for interpreting what is going on in terms of arbitrage among these different markets. But although this might appear to be a commonsense approach to some, good theory is neither mere fact nor just common sense. It has to have a structure which goes beyond the previous theory.

Parsimony is often a desirable feature of a theory; Occam's razor applies. If you do not need an assumption, do not use it. Theorists in general and economic theorists in particular are cognizant of Occam's razor. But there is an extra reason for the use of simplifying assumptions. There is often a trade-off between the complexity of a model and the ability to carry out a formal analysis. Simplification which allows for great in-depth analysis of the relevant variables is clearly a double blessing. It cuts out the peripheral factors and it analyzes in depth those which are relevant. Unfortunately, relevance is often in the eyes of the beholder. What constitutes a nice point to the boys in the quarterlies may be peripheral to legal fact. There is little direct connection between economic theory and legal fact. At any point in time the law is what it is, or at least it is what the current crop of lawyers and judges interpret it to be in the light of current social pressures and precedent. It is emphatically not necessarily what the logic of some economic theory says it should be. Between the law and the theory are the complex mechanisms of social process.

Many of the cases which call for economic advice involve adversarial proceedings where the money stakes are high. Can the economist being paid several thousand dollars a day be expected to maintain a scientific, scholarly, nonadversarial posture? Paradoxically, the answer is yes, because of the great distance between economic abstraction and institutional fact. The potential for qualification and the selection of different *ad hoc* models is sufficiently large and the difference in the perception of what is relevant and critical may be so great that it is not difficult to find economists of stature willing to testify on either side.

DISCOURSE

Student to professor of finance: Sir, there is a 20-dollar bill on the ground.
Professor to student: Don't be foolish; if it were really there, someone would have already picked it up.

One of the crowning achievements of economic theory has been the gradual development of general equilibrium theory and the understanding of the conditions under which a decentralized competitive-bidding system might lead to the emergence of an efficient price system.

In the popular free-enterprise mythology the freedom of markets and the impersonal discipline and justice of the price system take on a virtue associated with freedom and justice for the individual in general, as though the major purpose of government laws were to thwart the free play of the market. Yet rather than being an artifact of nature, the free-exchange market is clearly a product of society and its laws. The success of the functioning of possibly the most efficient market known, the New York Stock Exchange, has been in part due to a

careful formalization of the rules of the game by its board of governors and by the Securities and Exchange Commission (SEC).

The central paradox which has led to the overemphasis by both the mythology and many professionals in finance is the concept of competition embedded in the key implicit assumption made. The paradox is that what is meant by competition is *no competition at all.* The perfect competition of the efficient market occurs when each individual can behave as though he were faced with a one-person maximization problem in the face of an impersonal, anonymous market mechanism. The individual is not in a position to influence any outcome but his own. Technically, this result requires that each individual be "small" with respect to the market. A natural way to model this condition is to consider a continuum of traders, with any individual trader having a measure of zero (Dubey and Shapley, 1977; Dubey and Shubik, 1978b). This model may serve to approximate the economic reality on impact of a small trader selling a few hundred shares of a heavily traded issue. But it does not fit groups filing 13Ds.

The theory of competitive markets has proved to be of great worth in providing insight and guidance concerning the overall functioning of mass markets, but it offers no intellectual basis for our understanding of the different markets for the paper, the real assets, and the control of a corporation, which may exist.

In the past several decades the understanding of the theory of competitive markets and its implications for finance have been marked by several important developments in economics and finance. Several of the more salient developments are noted and examined here. They include (1) the theory of general equilibrium proposed by Walras (1954) and mathematically formalized by Arrow and Debreu (1954), Debreu (1959); and McKenzie (1959); (2) the treatment of trade in shares when there are complete markets proposed by Arrow and Debreu (1954); (3) the spanning of incomplete markets proposed by Arrow (1964); (4) the irrelevance of the debt-equity structure of the corporation under the assumptions noted by Modigliani and Miller (1958); (5) the portfolio theory of Markowitz (1959); the capital asset-pricing model originally proposed by Sharpe (1964) and Lintner (1965); (6) the strong, semistrong, and weak forms of the efficient-market hypothesis; and (7) the recent concern with the economics and game theory of nonsymmetric information and agency problems.

The work referred to here represents a significant step forward in our understanding of the properties of a competitive price system in equilibrium. They tell us little about disequilibrium or dynamics; and in markets where the host of highly specialized assumptions needed for these insights to be valid do not hold, it is an open question as to how useful these insights are. Futhermore, if they are unsatisfactory, what can we use as an alternative?

General Equilibrium and the Underlying Assumptions

The central result of general equilibrium theory is that under certain "reasonable assumptions" at least one set of prices will exist which will clear all markets efficiently. The economist's concept of efficiency is a weak one; it merely implies that no individual's welfare can be improved without decreasing the welfare of another. It is important to note that although virtues such as "fair, just, equitable" are associated with the competitive price system, much of the "justice" has already been assumed implicitly in the acceptance of individual property rights. Furthermore, since there can easily be several different price systems which are all efficient and can have highly different distributions of resources, the fairness of the distribution has considerable leeway in interpretation.

We now turn to the assumptions required to guarantee the existence of a competitive equilibrium.[3] We will try to avoid technical detail but nevertheless convey the economic substance of the conditions. The set of all consumers is such that any

individual consumer has a set of preferences which can be represented by a utility function.[4] It is hard to see or measure a utility function or, for that matter, to describe the preference ordering of an individual, but these are part and parcel of the credo of the model of the rational economic agent. Most reasonable economists, lawyers, judges, and bank robbers will take the utilitarian-agent model as a good first approximation when dealing with economic affairs.

Each consumer is supposed to be of an economic size which is insignificant with respect to influencing the market. At this point the theory of efficient price splits into its centralized socialist version and its decentralized competitive version. The socialist version nicely illustrated in Debreu's (1959) proof will work for any number of individuals as long as we make the assumption that they must act as price takers. If the central agency announces that all prices and all agents are required to take them as given, then if the agency picks prices which clear all markets, they will be efficient. The key element here is that even though some agents might be large, they are not permitted to use their power to influence price.

The competitive, efficient price system can be established mathematically by two somewhat different devices. We may assume that there is a continuum of economic agents and that each individual is of measure zero—in other words, so insignificantly small that his strategic influence is zero (Dubey and Shapley, 1977). Alternatively, we may model the economy as a strategic market game[5] with a finite number of agents and study how the power of each is attenuated as the number of competitors is increased.[6] Given a model of this kind, we have proved that certain noncooperative equilibria[7] approach the competitive equilibria (Shubik, 1973; Shapley and Shubik, 1977; Dubey and Shubik, 1978a), but they are, in general, inefficient for finite numbers reflecting the oligopolistic powers of the agents. Furthermore, the behavior of the prices depends explicitly on the price formation mechanism employed. The best candidate for efficiency with few numbers is a version of the double-auction market (Dubey and Shubik, 1980; Shubik, 1981; Dubey, 1982).

Attempts to formulate the competitive economy as a full process or strategic-game market demonstrate that, for finite number of players, institutions matter and efficiency is, at best, a function of careful institutional design. Furthermore, for many plausible mechanisms efficiency will only be approximately achieved with a finite number of players (Shubik, 1979).

Another assumption made is that firms are run by selfless, profit-maximizing managers for the benefit of nonvoting stockholders in an economy with complete markets (the full impact of the complete-market assumption is discussed later when we consider exogenous uncertainty).

The economist's definitions of profit is a far cry from that of the accountant's or the tax collector's. In a world with complex tax laws, tax-loss carryforwards, quickie refunds, interest deductibility, and differences between merger tax consequences and acquisition consequences, to paraphrase Mr. Dooley, "What appears to be a stone wall to the layman is frequently a triumphal arch to the Mergers and Acquisition Department."

The main proofs of general equilibrium theory in general assume no transactions costs. The introduction of even fairly elementary transactions costs sends up the mathematical complexity considerably (see Foley, 1970; Hahn, 1971; Rogawski and Shubik, 1986). If one is using general equilibrium theory to calculate the broad sweep of approximate prices in some parts of international trade (Scarf, 1973; Scarf and Shoven, 1984) or to give a general discourse on aggregate price movements, it is not unreasonable to argue *ad hoc* that for the purpose at hand transactions costs can be ignored. But when a proxy fight or tender offer can, as in the Revlon takeover contest, cost $100 million, then in this less-than-the-best-of-all-possible worlds only a select few are going to be in a position to indulge. The small stockholders can coattail or exit; and the bank trust, pension,

and mutual fund officers will behave according to the complex of fiduciary and legal restrictions on them. This is not a model of perfect competition.

The general equilibrium model is formulated in such a way that not only are resources of worth never unemployed or misemployed, errors never occur and bankruptcy and insolvency are not logically required. These conditions do not hold when the same economic structure is modeled as a strategic process.

Summing up, in the left-hand column of Table 2.1 the conditions required for the existence of a general equilibrium, efficient price system are noted. How good an approximation these assumptions are to trading on the stock exchange and to trading in control blocks and mergers and acquisitions is noted in the next two columns.

Trade in Goods with Complete Markets and Uncertainty

Arrow and Debreu postulated an ingenious way to extend the results on the efficient price system to situations involving both time and uncertainty. Suppose trade is in M commodities and for T time periods. Furthermore, suppose that during any period the economy can randomly be in any one of K states. We may invest a host of time-dated contingent goods such as "wheat in 1991, if the sun shines." We may regard the economy as having MKT goods. If we permit trading between all pairs of time-dated contingent goods we require

$$\frac{MKT(MKT-1)}{2} \simeq \frac{(MKT)^2}{2} \text{ markets}$$

The use of money cuts down the number of markets to $(MKT-1)$, but even this number is enormous in comparison to what exists. Any attempt to model trade with uncertainty through time as a playable game immediately reveals the difficulties encountered in trust, accounting, clearing, and documenting ownership claims in futures markets. But without complete markets, unless one takes considerable care in the specifications of weaker, alternative assumptions, the efficient-market property may be lost (e.g., as soon as we consider trade using money, then the meaning of enough money or credit to provide sufficient liquidity for trade must be made clear).

In essence, the Arrow-Debreu technique for handling time and uncertainty was an ingenious way to extend the mathematical domain of some results which provided further insight into efficient-market-price, static equilibrium. No insights, however, were provided for either competition or the dynamics of price formation. Techni-

Table 2.1.

Assumptions for Existence of Competitive Equilibrium	Plausibility of the Assumptions	
	Stock Exchange	Mergers and Acquisitions
Many traders	Often for thickly traded shares	Generally the reverse
No transactions costs	Rough approximation	Generally the reverse
Complete markets	Possibly yes	Generally the reverse
Regular preferences	Credo	Credo
No unemployment	Often ok to ignore	Often the reverse
Profit-maximizing managers	Often ok to ignore	Usually the reverse
No voting	Often ok to ignore	Usually the reverse
No taxes	Often ok to ignore	Often important and complex
No bankruptcy	Often ok to ignore	Often important and complex
Accounting and legal	Often ok to ignore	Often important and complex

cally, uncertainty was eliminated by complete forward contracts, and time was eliminated by transforming a problem essentially posed in extensive form into a problem in strategic[8] or normal form (see von Neumann and Morgenstern, 1944; Shubik, 1982).

A further gain in this mathematical extension is that one does not need to assume that individual preferences can be represented by a utility function.[9]

Trade in Securities with Money

Arrow (1964) extended our understanding of efficient markets by introducing a securities market where when state s (out of K states in total) occurs, there will be associated with each security a money payout. In essence, a security is a lottery ticket. Arrow showed that for M commodities and K states using securities and money, efficient trade could be achieved with $M + K$ rather than MK markets provided all individuals were risk-averse or risk-neutral.

Note that the model of exchange with securities modeled as lottery tickets abstracts from all considerations of voting, control, and managerial discretion. The original Arrow article, which is a monument to elegance and simplicity, avoided details concerning production and fiduciary decision making.

As soon as we add production, fiduciary decision making, control, differential information, or insufficient numbers of securities to cover the generation of all lotteries, the promise of great generality evaporates. Yet in return, it is precisely here that a major opportunity for a reconciliation of law and economic theory appears. The law is process-oriented and institutional; much of microeconomic theory is equilibrium-oriented and noninstitutional. In contrast, much of game theory—in its requirements for the full specification of the rules of the game—when applied to economic problems, forces the development of a *mathematical, institutional* economics. The rules of the game which must be specified if the game is to be playable are, in essence, the *carriers of process.* But the economic institutions of society are the carriers of process; and law, politics, custom, and technology all combine to delimit the rules of the game.

The economic generalist could easily react to a statement such as the one just given with the observation that the development of a science must proceed at a high level of abstraction and we cannot afford the luxury of prematurely swamping ourselves in institutional detail. The argument here, however, is not merely a plea for institutional detail but is a statement that for the questions being asked, general equilibrium theory (see Shubik, 1975) and much of the theory of finance is not abstract enough and works with inadequate models. Institutions are not ephemeral complications invoked by lawyers and students of industrial organizations who are unable to cope with mathematical economics and finance. They are logical necessities in the description of the rules of the game which must account for defining outcomes which are not necessarily in equilibrium as well as those which are.

A fundamentally superior approach to general equilibrium analysis and the predominant use of partial equilibrium analysis in finance is to model in terms of *playable games* and analyze in terms of strategic market games. Both approaches are suggested for the following reasons: A playable game requires complete and consistent rules to delimit the development of process. The valid (and hopefully simplest) complete description of a playable game contains within its rules the elementary mechanisms, institutions, and laws which are logically needed to guide economic activity.[10] An intermix of logic, technology, costs, and playability forces the invention of minimal rules, laws, mechanisms, or institutions. Thus, in essence, in society as a whole there are possibly no more than around ten basically different ways that goods change hands (Shubik, 1970); and if we limit ourselves to economic allocation mechanisms, there are only a few fundamentally different market mechanisms (Shubik, 1979).

A playable game is defined without re-

gard for equilibrium—or for that matter without a formal specification of any solution concept. It is economic theory, finance, or game theory that introduces the concept of what constitutes a solution. The two most popular solutions are the competitive equilibrium and the noncooperative equilibrium.[11] The competitive equilibrium may be regarded as a special limiting case of the noncooperative equilibrium. The latter reflects oligopolistic forces and is extremely sensitive in general to information conditions. There are two basic reasons for using the competitive equilibrium model. The first is that it is mathematically far easier to work with than the noncooperative equilibrium; the second is that the competitive market is claimed to be a reasonably good approximation of economic reality. Unfortunately, for takeovers, mergers, and acquisitions oligopolistic structure is far more plausible than competitive equilibrium.

Trade in Securities with Insufficient Markets

The Arrow model of the securities market produces an efficient market for risk if there are K uncertain states of the economy and K securities (with short sales permitted) which span all possible mixtures of risk. But what does this abstract statement of uncertain outcomes in the economy mean? In good investment banking and in virtually any profession, one of the key skills of the professional is the ability to assess risk—both to qualify and to quantify risk. How many different states of uncertainty need to be recognized to give us a good approximation of the functioning of the politico-economic system. On the order of 10,000 companies must register with the SEC. These account for the preponderant part of stock market transactions. Is the U.S. economy represented adequately by 50, 500, or 50,000 states of uncertainty?

If the number of securities is fewer than the number of independent states, the Arrow result does not hold. Furthermore, if firms producing final goods are introduced, then the proposition that the firm should maximize its value—which in turn would be equivalent to maximizing expected profits—need not be true. Stiglitz (1972) provides a counterexample. He presents a specific example "in which firms act like competitive price takers, but which, when firms maximize their stock market value, does not lead to an optimal allocation." Since the original article of Diamond (1967)—which, in the context of partial equilibrium, one product, and one type of firm, provided a formal model of the stockholder-held firm with production—there has been an explosion of the literature. Leland (1974) developed a "unanimity" theorem showing circumstances under which all stockholders, despite differences in risk attitudes, would agree on the production decisions of the firm. The outputs will not in general maximize the value of the firm. Fama (1972) and Jensen and Long (1972) also showed a unanimity result for stockholders whose valuation of returns is based only on the mean and variance of their portfolios. Ekern and Wilson (1974) consider sufficient conditions for unanimity, presenting an arbitrage argument which also links the results of Merton and Subrahmanyan (1974), permitting the entry of new firms, to the previous unanimity results.

Grossman and Hart (1979) consider an economy which lasts for T periods where the consumers have uncertain future endowments. At the first date all firms choose production plans for the complete future; at each date consumers can trade goods and shares and obtain dividends in proportion to previous holdings. They assume that the managers present the initial stockholders with a production plan that is unanimously approved. They state: "We are making the implicit assumption that, if a firm does not act in this way, the shareholders will take it over and effect a new production plan." They use as a solution concept a variant of a noncooperative equilibrium which in general will not be efficient.

There have been many other writings since, but the purpose here is not to present a critical survey of the stockholder una-

nimity literature. The basic purpose here is to provide enough insight into the prevailing models, their assumptions, and results, to be able to appreciate the gap between economic theory directed toward finance and the actual problems of corporate control. In all of the literature noted previously transactions costs are assumed away; voting is not voting in the usual sense; and even with an imposing array of simplifications, market efficiency in the sense of Pareto optimality is only always achieved with the full spanning of risk insurance. In the literature noted the question "Is the assumption of completely spanned markets a reasonable or an unreasonable approximation to reality, at least for some purposes?" does not seem to be asked.

This literature represents a valuable first step in extending pure microeconomic theory. But the ignoring of transactions costs, control, corporate voting, oligopolistic effects, bankruptcy, and several other items such as taxation makes the value of the specific results of little direct relevance to problems of corporate governance. Questions concerning the long-term need for capital and the rights and responsibilities of potentially short-term owners and long-term managers are seldom formulated in this literature.

Even if we were to assume the existence of enough markets, Dubey and Shubik (1981) have noted that to be able to deduce profit-maximizing behavior by the managements of the firms requires not only competitive firms and stockholders but also explicit rules against self-dealing by management, such as selling at undermarket price to Firm B by the management of Firm A who are small stockholders of A but large stockholders of B.

Finally, returning to the simplest and possibly most hopeful of models—that of Debreu (1959) with firms owned by shareholders who are paid at the end proportionate shares of a well-defined profit—even this model, when described as a game of strategy, requires fussy institutional details and laws which are overlooked in the competitive-equilibrium formulation. In particular, if the shares are voting shares, then for an efficient price system even to exist, minority-stockholder protection rights must be made explicit (Shubik, 1984).[12]

Another landmark in the application of economic theory to finance is the insight of Modigliani and Miller (1958) concerning the valuation of a firm. They observed and established in a competitive, partial equilibrium context that in a world without taxes, transactions costs, or bankruptcy, with competitive firms the value of the firm will not depend on the leverage of the mix between debt and equity financing. In particular, if all parties are rational and well informed and all bets are available via corporate and individual borrowing, the individual can use a homemade leveraging to change the mixture of risk implicit in the firm's leveraging. This view requires also that the individual does not run the risk of bankruptcy.

As an antidote to old wives' tales and to sloppy thinking about institutional arrangements in general, the pristine simplicity of the Modigliani-Miller result represents another step forward in showing the usefulness of the central idea from general equilibrium theory taken over to finance. That is, at equilibrium there is no opportunity for arbitrage in an economy with complete competitive markets or their equivalent.

The writings of Lintner (1962), Smith (1970, 1972), Stiglitz (1972), and Hellwig (1981), among others, indicate the difficulties of trying to extend the Modigliani-Miller results to situations with default. In particular, the main result of Hellwig is that the Modigliani-Miller result is valid only if all portfolios used as collateral by the individual borrowing have the same structure as the firm. This result, as Hellwig notes, not only requires an unreasonable restriction on borrowing but basically indicates that optimality can only be obtained by ruling out a perfect capital market.

Dubey and Shubik (1979) note that even in a world with no exogenous uncertainty, if borrowing and lending are to be accommodated, then a bankruptcy law is re-

quired to police borrowers who would otherwise elect for a strategic bankruptcy. In such a situation, without exogenous uncertainty, it is possible to define and design an optimal bankruptcy law. It is a law that is just harsh enough that at any equilibrium the marginal value to any trader of opting for bankruptcy is at least offset by the penalty. Unfortunately, when we consider a world with exogenous uncertainty and less-than-complete markets, the previously simple way to define an optimal bankruptcy law is no longer meaningful because each individual's final holdings now become state-dependent.

If an extremely high bankruptcy penalty is introduced into a society where there is at least one state in which some borrower may default, all borrowing will be stopped. The bankruptcy laws under uncertainty appear as a public good which defines in some sense (such as by majority vote or by consensus) society's willngness to accept a level of bankruptcy as part of the cost of encouraging risk taking. Thus even though overall efficiency may not be achievable in a society with exogenous uncertainty, less-than-complete markets, and a bankruptcy law which is not fully state-dependent, there is still the possibility that some laws will be better than others (in the sense that a noncooperative equilibrium with one law could be dominated by the equilibrium with another law).

The dominant attitude in the development of microeconomic theory and finance is that often the introduction of an institutionally realistic factor such as bankruptcy or transactions costs so increases the complexity of the mathematics that the models become unmanageable. Sound scientific methodology calls for parsimony and efforts to facilitate analysis. But the cost of such parsimony is a competitive-market theory that has very limited applicability to virtually all problems involving the struggle for control of large corporations and as well as to many other aspects of competition in an economy where oligopoly, taxes, limited liability, insolvency, bankruptcy, indivisibility, fiduciary decision making, incomplete markets, and voting stock are facts of life.

A reasonable reply to a criticism such as this one is to say: "Even supposing that everything you say is true, the current theories of microeconomics and finance are all that we have. What is your better alternative?"

The answer to this quite reasonable challenge must be somewhat unsatisfactory, yet it at least can be honest. For many practical purposes the gap between economic theory and the law is large. The theory itself is not merely an abstraction but is often a gross simplification which in general is static and not designed to portray process. Currently, the theory of finance for many purposes is too simple, insufficiently institutional, and too incomplete to serve as more than a guide and method of reasoning for a skilled professional who must make out an *ad hoc* argument for the case at hand.

Basic economic reasoning can serve to attach weights to factors left out of the simpler models. Thus, for example, in the Delaware evaluation, weighting was attached to stock market value, assets, and earnings. Simplistic theory would argue that they all should be the same in perfect equilibrium.

A professor of finance should bring skilled reasoning and economic insight to the law. He almost always cannot bring directly applicable theory, because it is too simple and based on too many counterfactuals which count.

A different argument for trying to fit the simplistic models of economics and finance to even complex merger and acquisition problems involves the proposition that it does not really matter that the models proposed appear to be overly simple or leave out elements that are held to be important by some as long as empirical evidence shows that they fit the facts. The difficulty with this approach lies in the selection, interpretation, and relevance of the facts which are verified. Two examples of the dangers in the interpretation of facts and their relevance to theory are given.

You cannot beat the market. This can be proved empirically by examining the performance of all individuals invested in the market and observing that on the average they do no better than the average. This

somewhat extreme example is made clearer by considering a poker game. The stock market at one instance of time is a zero-sum game (leaving out the broker's cut). Over even a few days it is no longer zero-sum, since overall wealth could have been created or destroyed by the economy. A poker game, in contrast, is completely zero-sum. The average expected winnings have to be zero. But as anyone who has played poker knows (see Yardley, 1957), not all poker players have been created equal. There are the patsies or steady contributors to the game, and there are the experts. Because much of economic theory and finance is resolutely nonpsychological, an implicit assumption in these theories (and for that matter in much of political science and game theory) is that all agents are psychologically equally endowed with perceptions, intelligence, etc.

The empirical proof that superior poker players or chess players exist is relatively easy to come by since the games and measures of success are tightly defined. The proof that Buffett, Graham, Dodd, Steinberg, the Belzbergs, Basses, Pritzkers, Crowns, Icahn, Pickens, Boesky, and many other recognized players are superior in the stock market is harder, because they are in a game where they may be arbitraging among three or four different markets and competition among the few, not the anonymous market, is almost always relevant.

A second example of the problems in linking empirical results with theory is the study by De Angelo et al. (1984) which demonstrates that when a firm goes private, minority stockholders who were bought out benefited.[13] The question we must ask is, What does this correlation tell us about the virtues of the market, the virtues of takeovers, and the efficiency of process? I suggest one hypothesis which appears to fit these facts. The markets for control and for the trading of small holdings of shares are different. Owing to taxes, indivisibilities, and special organizational and control structures, large differences between the value of a share in the mass secondhand market for shares (known as the stock market) and the per-share value of a control block can come into existence. A large gap available for arbitrage can exist until a deal maker of sufficient size and ability can simultaneously line up the financing (which may be in the billions); work out the legal, accounting, and organizational problems of taking control; and have a takeover plan (including possible buyers already lined up for the "crown jewels") ready to go. This market, by its entrance requirements, has to be oligopolistic. If a stock trading at 10 has assets liquidatable at 25 and is taken over at 15 by a raider who liquidates it, the small stockholder gets a bonus of 50% over previous markets, the raider has taken a 40% liberation fee, and an arbitrage gap has been closed by a control play. Did the stockholders do well? Was this action economically and socially desirable? It depends upon the case. In some instances the raider could be viewed as forcing an incompetent or lazy management to improve the employment of assets; in other instances the divergence could have been the result of a responsible management having long-term plans for committed capital which were out of step with a short-term stock market evaluation.

Portfolio Theory and the Capital Asset-Pricing Model

The seminal work of Markowitz (1959) is possibly one of the most important contributions of operations research and microeconomics to applied finance and to some aspects of macroeconomic theory. It has immediate application to the small, passive investor. It says, "If you are small and do not have a special edge, then there is an optimal way to diversify and hedge yourself against the unknown." Sharpe (1964), Lintner (1965), Treynor, and others developed the capital asset-pricing model for application, and it was accepted to the point that any financial analyst knows his "alphas and betas" as well as he knows his *abc*s.

The key observation of Markowitz was that a single security's contribution to the risk of a portfolio was not the same as the risk of holding the single security alone. In order to develop a theory of how an indi-

vidual with a given amount of money should select an optimal portfolio, we must make the following assumptions. The individual's preferences can be represented by a utility function; market prices are given; and the future performance expected from the stock can be summed up as though the stock were a lottery ticket. In a fundamental way portfolio theory has no contribution to make to security analysis. It tells us how to mix risks only if the risks have been assessed and the correlations between the expected performance of the stocks have been taken into account. Given that our assessment is correct, the concept of an efficient portfolio as one which provides a given expected return with minimum risk provides economic insight and practical assistance.

The steps from Markowitz's theory to actual application are large. The capital asset-pricing models (CAPM) attempted to apply them. It is at this point that a subtle intermix of assumptions and facts concerning divergence of assessments and the functioning and information revelation aspects of competitive markets appear.

The CAPM assumptions are that all investors have the same information and expectations concerning the future; transactions costs and taxes are ignored. In essence, in the original CAPM the efficient portfolio will be the market portfolio or a holding of all securities in proportion to their market value.[14] Empirically, the best immediately available approximation for this portfolio is the Wilshire 5000 index, but probably Standard and Poor's Industrial Average is the most used.

The distance between theory and practice is often great. If we wished to use the Wilshire 5000 list in detail for our market calculations, we would need millions of correlation coefficients. The use of historical data to characterize stock performance is suspect. The empirical problems with the estimation of utility functions are many. Many modifications and emendations to CAPM exist and are already even well summarized in some of the textbooks (e.g., see Sharpe, 1985). The arbitrage price theory (APT) (see Ross, 1976; Roll and Ross, 1980) considers the identification of major economic factors influencing stock valuation and postulates an equilibrium relationship.

These theories represent an important step forward in linking the economic theory of the efficient, mass, competitive-exchange market to our observations and understanding of the mass market for highly traded issues. They offer practical wisdom to the small trader who wishes to benefit from the virtually total alienation of ownership of paper from management and control of real economic assets and institutions. The game the CAPM model protrays is the ultimate abstraction of trading paper for paper with little need to be concerned with economic causality. The stocks are lottery tickets. The APT is somewhat more concerned with the linking of trade to economic factors; but even so, these approaches focus on arbitrage of paper on paper in a single set of markets, the stock markets. When companies are merged, bought, sold, liquidated, reorganized, taken public, or taken private, there are other markets which must be taken into account; and the arbitrage is between markets, with the mass stock market providing only one part of the trading arena.

Efficient Markets and the Spread of Information

Is expertise worth anything? Do markets reveal economic information? How fast does individual knowledge become common knowledge? What does economic theory have to say about the value of inside information?

These questions are some of the fundamental questions being asked in the economics of information and in finance. We begin with efficient markets. As was ably exposited by Fama (1970), there are three forms of the efficient-market hypothesis: (1) the weak, (2) the semistrong, and (3) the strong forms of market efficiency. In a weak, efficient market all information contained in previous prices is reflected. In a semistrong market all publicly known information is reflected in price. In the strong version all currently known information is reflected.

An immediate problem occurs when one tries to make sense out of any one of these hypotheses. The general equilibrium model of economic theory, the CAPM model, and the description of an efficient market are all formally specified as static, equilibrium, *nonprocess* models, but they are talked about as though they entail process. One cannot meaningfully discuss information and its flow without specifying process. This is made adequately clear when one attempts to model even the simplest of price formation mechanisms as a strategic market game. Dubey et al. (1982) have done so, and the following results have been obtained: The information efficiency of a market in the sense of it conveying signals to others, in general, can only be true in a truly mass market. If the market is thin on either side, it is easy to construct examples in which an individual purposely conceals his information. Even if we assume many traders,[15] we would not be able to build a logically consistent process model to even define the strong form coherently. The weak form can be proved but immediately has an interesting interpretation. Suppose that in every period a random event takes place which is revealed to a few experts but not to the others; the experts can act in the market and profit from it. But their market action will be reflected in the last price they have helped to form. This process can be repeated indefinitely, with the experts constantly revealing their informational edge but profiting by it on each occasion.

If markets were more than weakly efficient, there would be no use for experts, specialists, news services, analysis groups, or the whole industry devoted to selling information. The presence of experts and specialists in particular should cause us to ponder over what we mean by information and how these individuals fit into our theories of efficiency. The key factors overlooked are perception and interpretation. The mere presence of "contrarian investors" (e.g., see Dreman, 1952) calls attention to the distinction between raw information and its interpretation. Yet information theory and economic information concentrate only on a well-defined special definition of information (see von Neumann and Morgenstern, 1944; Shannon, 1948) where context and perception are irrelevant.

It is my opinion that one of the reasons why most superior financial analysts or specialists can write popular books explaining more or less what they do without necessarily endangering their competitive edge is that most individuals are not capable of seeing the distinctions they see. Of the very few who would get the message, only a few of them would have the drive and perception to do the work to become an expert; and for the few who do, because there may be more deals than expert dealers, they can be welcomed to the partnership.

An example of information retrieval and interpretation is the Getty merger, where a sensitive analyst could and did obtain the Getty family's California court proceedings and estimated from them that a Getty merger was doable.

The key element to information is interpretation, and both organizations and individuals may be slow in or incapable of understanding that the blips on the radar screen really could be an attack on Pearl Harbor, or that Hitler's *Mein Kampf* was to be interpreted seriously, or that the first audit at Penn Square could be the tip of the iceberg.

Leaving aside the questions of interpretation, there are some straight physical and sociological questions as to how fast new information is revealed in a market. For a thickly traded stock on the NYSE, it is here that weak efficiency appears reasonable.

Nonsymmetric Information and Agency Theory

The last items noted are the formal treatments of nonsymmetric information and the recent concern with problems of agency. One of the basic attractions of mass markets with only small agents is that the agent is strategically powerless to use information concerning the moves of others. This is not true if one set of agents knows something about uncertain events. The Arrow-Debreu ingenious device of in-