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The Merger Boom

Proceedings of a Conference
Held in October 1987

Lynn E. Browne
and
Eric S. Rosengren, Editors

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The Merger Boom: An Overview

*Lynn E. Browne and Eric S. Rosengren**

Battles for corporate control have increasingly attracted the public spotlight. This attention reflects not only the growth in the number of acquisitions in the 1980s but also the size of the targets. Firms previously thought too large to be takeover targets have been acquired despite active management opposition.

Any acquisition, and particularly one involving sizable assets, is likely to result in disruptions. Employees may be reassigned or laid off, suppliers may be changed, investment programs may be cut back. The prospect of such changes may encourage those threatened by acquisitions to form a coalition with current management in supporting such defensive strategies as restrictive corporate charter amendments, anti-takeover legislation, and active litigation. These takeover battles and the resulting increase in public interest in takeovers have led policymakers and academics to consider whether current takeover procedures appropriately balance all the competing interests.

In the fall of 1987 the Federal Reserve Bank of Boston brought together financial economists, industrial organization specialists, government officials and representatives of the business and investment communities to examine the reasons for the current merger and acquisition wave, the implications for economic performance, and the appropriate public policy responses. At the conference, The Merger Boom, two views of mergers and acquisitions and two approaches to the study of mergers were represented.

Financial economists, relying on stock market data and portfolio models, generally have a positive view of mergers and acquisitions. The

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increase in acquisitions in the 1980s is seen as part of a necessary restructuring of U.S. corporations leading to greater efficiency and higher productivity. The gains from this restructuring are evidenced in the large increases in the stock prices of acquisition targets when acquisition attempts are announced. New techniques for valuing corporations and new financing mechanisms have contributed to the rise in acquisitions, especially hostile takeovers, by subjecting managers to close scrutiny and by enabling prospective acquirers to attract funds quickly. Restrictions on takeovers would prevent efficiency-enhancing restructuring and should therefore be opposed.

Industrial economists, on the basis of accounting data and models of market structure, are skeptical of the efficiency gains that their finance colleagues claim for acquisitions. Acquirers and investors may expect to realize efficiencies but these expectations are often unrealistic. According to the industrial economists, most acquisitions are unsuccessful in terms of increasing profitability and market share; transition costs associated with the merger tend to reduce hoped-for gains. The industrial organization economists also suggest that management empire-building and attempts to acquire market power, rather than efficiency gains, may motivate many acquisitions. In attempting to explain the recent upsurge in acquisitions, they emphasize the effects of more liberal antitrust enforcement and the reshuffling of assets acquired in the conglomerate merger boom of the 1960s. The breakup of diversified companies formed in past merger booms is also seen as confirmation that mergers are not productive.

The conference brought together representatives of these two disparate viewpoints in the hope of clarifying the nature of their differences and identifying areas of agreement. The major conclusions of the conference were as follows:

- The current merger and acquisition boom has many causes. The pressures of international competition, financial innovations, and more liberal antitrust enforcement, as well as other factors, have all contributed.
- The current acquisition boom differs from past merger booms, both in its causes and in the forms of acquisition. While diversification was an important motive for mergers in the 1960s, the current boom has been characterized by a large number of "bust-up" takeovers, or takeovers of diversified companies with the object of selling the component pieces. The current boom is also unusual in the large size of the acquisition targets and in the prevalence of hostile takeovers, management buyouts, and debt-financed acquisitions.
- Shareholders of target companies gain from acquisition attempts. The increases in share prices are at least as large, if not larger, for targets of hostile takeovers as for acquisitions that have target management's

support. The source of these gains to target shareholders remained an open question. The finance economists attributed the gains to efficiencies resulting from the acquisitions, but conceded that there may be alternative explanations. The industrial organization economists argued that mergers are unproductive and therefore that efficiency gains cannot be the sources of the returns to target shareholders. Gains to target stockholders may reflect inflated prices paid by the acquirer, resulting from unrealistic expectations about potential gains from mergers.

- Restrictions on hostile takeovers are misguided. The finance economists were strongly opposed to corporate antitakeover defenses and state laws restricting hostile takeovers, seeing them as protecting ineffective management and preventing desirable restructuring. Industrial organization economists, while disputing that acquisitions lead to efficiency gains, did not favor takeover restrictions. They were reluctant to protect incumbent management or deny target shareholders the large increases in share prices that takeovers produce.
- More research should be devoted to determining how managerial incentives may be used to resolve conflicts between management and shareholders. Such conflicts are especially acute when a company is a takeover target, as incumbent management is likely to be displaced. Conflicts may also arise from the opportunity to make acquisitions, as compensation packages tied to company size may reward unproductive empire-building.
- The research techniques of the finance and industrial organization fields should be brought together. Reconciling the existence of large gains to target shareholders with the disappointing postmerger performance of merging firms requires the data and research approaches of both fields. Until such reconciliation takes place, finance and industrial organization economists, despite areas of agreement, will continue to view mergers and acquisitions very differently.

This article provides an overview of the seven conference papers and discussants' remarks. Particular emphasis is placed on areas of difference and agreement that recurred throughout the conference. The first three papers examined the reasons for the current merger wave. The fourth and fifth papers addressed the effects of mergers and acquisitions, focusing on whether acquisitions result in efficiency gains. The final two papers considered public policy implications of the recent increase in acquisitions. A brief conclusion follows the overview.

Motivations of the Current Merger Boom

What are the motivations behind the present upsurge in mergers

and acquisitions? The answer depends, in part, on whether the question is asked of someone with a finance or an industrial organization perspective. The first paper, by David Ravenscraft of the University of North Carolina, offered an industrial organization perspective.

Expectations and Merger Waves

Ravenscraft introduced themes that recurred throughout the conference: there are many motivations for mergers and, therefore, many factors responsible for a merger wave; the current merger wave differs from past waves in a number of respects, including the increased use of hostile tender offers and the large size of takeover targets. However, Ravenscraft's central points were, first, that merger waves reflect changing expectations of the gains from mergers and, second, that expectations of efficiency gains from mergers are likely to be disappointed. Although the stock market reacts positively to merger announcements, bidding up the stock prices of target companies, Ravenscraft argued that mergers and acquisitions do not improve the postmerger performance of combining firms. A merger wave begins when some combination of circumstances convinces investors and potential acquirers that acquisitions will be more productive than they were in the past. The wave subsides as it becomes apparent that the expected gains are not materializing.

Most research on earlier merger waves emphasized the importance of business cycle variables such as low interest rates, which reduce acquisition costs, and high stock prices, which may reflect expectations of higher earnings. However, the merger wave of the 1980s continued through two recessions and two expansions, during which interest rates and stock prices varied greatly. Thus, Ravenscraft argued, the current wave cannot be explained by fluctuations in cyclical variables. Instead, he emphasized the effects of less restrictive antitrust enforcement and the deregulation of certain industries.

Not only have antitrust guidelines become less restrictive in recent years, but also the government has challenged borderline cases less frequently. Major regulatory changes have occurred in the banking, transportation, communication, and oil and natural gas industries; as a consequence, firms that were insulated from competition by regulation are now forced to operate more efficiently. While the relaxation of antitrust barriers made possible acquisitions that were previously prohibited, Ravenscraft thinks that the primary significance of antitrust and regulatory changes was to cause managers and investors to revise upwards their expectations of the gains from acquisitions. In other words, a changed environment has persuaded potential acquirers and their financing sources that acquisition opportunities have improved and that the mistakes of the past will not be repeated. The merger wave will

continue until these expectations are disappointed.

Discussion: Need for Restructuring

John Paulus, chief economist of Morgan Stanley & Co., took issue with Ravenscraft's negative assessment of acquisitions, arguing that mergers and acquisitions do indeed result in efficiency gains. While agreeing that mergers have many motivations, Paulus attributes much of the recent increase in acquisition activity to intensified competitive pressures, which have created a need for restructuring. These pressures have arisen in manufacturing because of increased foreign competition and in mining, banking, and various other industries because of deregulation. Competitive pressures have led to changes in internal operations as well as to mergers and acquisitions in the affected industries. In contrast to Ravenscraft, Paulus believes that expectations of efficiency gains from acquisitions will be fulfilled. Paulus cited productivity improvements in the industries subject to restructuring as evidence of the beneficial effects of merger and acquisition activity.

Paulus expects the acquisition boom to continue and to extend to the services industries as the falling dollar redistributes income away from services and increases competitive pressures in this sector. He predicted that leveraged buyouts, or acquisitions relying predominantly on funds raised in the bond market, would figure prominently in future acquisition activity. Leveraged buyouts frequently alter the way a firm is managed. Since most of the firm is financed by debt, management's immediate objective is to maintain a cash flow that can pay the interest and some of the principal. In leveraged buyouts in which senior management is an owner or creditor, management has strong incentives to cut waste and run the firm efficiently.

Discussion: Acquirers' Motivations

Robert Henderson, drawing upon past experience as the chief executive officer of Itek, an acquisition target, agreed with Ravenscraft that the motivations and expectations of the acquiring management are central to understanding mergers. He argued that acquiring management can always find some hoped-for efficiency gain to justify a merger. However, the difficulties of combining corporate cultures, as well as the unforeseen problems, cause most mergers to be less successful than expected. Making a merger work is difficult, even when a good fit appears to exist between the target and the acquirer. The current acquisition boom, particularly the increase in divestitures and bust-up takeovers, may be partly an attempt to correct the mistakes made in the conglomerate merger boom of the 1960s.

Financial Innovations and Mergers

Gregg Jarrell, formerly chief economist of the Securities and Exchange Commission, provided a financial economist's view of the role that financial innovations have played in the recent increase in merger activity. Jarrell attributes the rise in merger and acquisition activity to a combination of economic trends, changes in industry regulation and antitrust enforcement, and financial innovations. Of the financial innovations, Jarrell considers the growing importance of institutional investors to be the most fundamental. Highly sophisticated analysts now control large pools of mobile capital. As a consequence, managers are subjected to more intense scrutiny by the capital markets and funds are transferred rapidly to prospective acquirers who promise more productive management strategies.

Junk bonds, or bonds below investment grade, are another major innovation. In diversified portfolios, junk bonds have historically provided high returns and small losses. These high returns have attracted investors, such as thrift institutions and pension funds, that previously avoided securities below investment grade. For borrowers, junk bonds are attractive because they do not have many covenants and, thus, impose fewer restrictions on the borrower than investment-grade bonds or bank financing. For smaller borrowers, junk bonds may also be the only available source of non-equity capital. Associated in the public eye with hostile takeovers, junk bonds have also become important for friendly acquisitions and financial restructurings. They have contributed to the growth in leveraged buyouts, as the high debt burden of such companies makes financial flexibility vital.

Jarrell also reviewed the relationship between antitakeover regulations and corporate defenses, on the one hand, and financial innovations and takeover offensive tactics, on the other. Restrictions on hostile takeovers are typically justified on the grounds that they protect the shareholders of the target company. However, Jarrell has found no empirical support for the view that target shareholders suffer in a takeover. On the contrary, the target's stock price rises substantially in a takeover attempt. If the restrictions lead to an auction, with several bidders competing to acquire the target, the target price may be higher than otherwise; but if a takeover is thwarted entirely, the share price typically falls back to its original level. Jarrell expects antitakeover laws to grow in popularity. While this will make takeovers more costly and time-consuming, Jarrell also expects that new financial innovations and takeover techniques will be developed to circumvent these barriers.

Discussion: Interest Rates and Stock Prices

The discussion centered on whether the merger wave could survive

an economic downturn. Acquisition specialist Frank Haydu, in contrast to Ravenscraft, argued that macroeconomic conditions, specifically the decline in interest rates and the rise in stock prices, have helped foster the merger wave. Haydu, who has organized many leveraged buyouts, stressed the importance to investors of being able to recycle funds. Investors who take firms private with a leveraged buyout hope to profit by reselling the firm to the public. How many leveraged buyouts would be viable if the firms could not be sold back to the public after they had been turned around? If the economy were to turn down and the stock market were to decline, many highly leveraged acquisitions would have trouble making debt payments and their owners would incur substantial losses if they tried to sell. Jarrell agreed that recent financial innovations have yet to be tested by a recession, but he emphasized that the junk bonds used to finance many leveraged buyouts have considerable flexibility, so troubled firms can restructure their financing rather than enter into bankruptcy.

Changing Valuation Techniques

Batterymarch fund managers Dean LeBaron and Lawrence Speidell demonstrated how new valuation techniques have enabled institutional investors to identify undervalued firms. Their approach, which uses publicly available data, challenges key premises of the financial economists, who typically argue that the stock market prices firms efficiently, so that the stock price reflects the firm's underlying value based on publicly available information.

According to LeBaron and Speidell, stock prices in the 1950s and 1960s were set by individual investors relying on research analysts, while prices in the 1970s were determined by institutional investors looking at accounting ratios for the corporation as a whole. In the 1980s, however, LeBaron and Speidell believe that valuations are beginning to be based on the replacement cost of corporations' underlying assets. A few "corporate raiders" were among the first to observe that the replacement value of a firm's assets may exceed the value placed on the firm as a whole by the stock market; the raiders exploited these discrepancies between replacement and market values, financing takeovers of such companies by selling off the assets. Increasingly, however, current management is noticing differences between replacement and market values and is taking steps to increase the market values and close the gaps. These steps include spinning divisions off as separate companies, repurchasing shares in the company, and revealing more information to investors about undervalued assets. LeBaron and Speidell expect this trend to continue; accordingly, they have developed a technique for identifying firms with low ratios of market to replacement values, anticipating that

these firms will either be restructured by current management or be taken over. In either case, the market value will increase and early investors will profit.

The authors show how their "chop shop" technique can be applied using business segment data. Basically, the market values of diversified companies are compared with the values of single-line-of-business companies corresponding to the conglomerates' subsidiaries. In general, diversified companies seem to have market values below the sums of the market values of their appropriately weighted "parts." By way of explanation, LeBaron and Speidell observe that closed-end funds, that is, mutual funds with a fixed portfolio and limited shares, frequently sell at a discount from the market value of the portfolio. Similarly, firms for which it is difficult to disentangle the values of subsidiaries may be penalized. LeBaron counseled that the manager who wants to fend off takeover attempts should simplify his operations and provide full information on undervalued assets.

Discussion: Feasibility

Joseph Grundfest of the Securities and Exchange Commission doubted the feasibility of evaluating firms by their replacement values. Grundfest believes that valuing firms using information on subsidiaries poses serious methodological difficulties. The accounting problems are daunting. For example, different firms use different approaches in allocating revenues and costs among their various subsidiaries. The industry definitions upon which the line-of-business data are based are broad, so that very different companies will be classified in the same industry. Grundfest also questioned how the replacement value approach captures the value of intangibles, such as brand names, or takes into account unique land holdings. He suggested that the appropriate question was not why the parts are worth more than the sum, but why some corporate structures had proved more successful than others. Grundfest agrees with the view that many of today's bust-up takeovers and divestitures are reactions to past merger mistakes.

In summary, a more competitive environment in deregulated industries, more liberal antitrust enforcement, the pressures of international competition, changes in investor attitudes and valuation approaches, and greater access to takeover financing all played a part in causing the current merger wave. Financial economists emphasized the pressures for restructuring, financial innovations, and improved valuation techniques. Industrial organization specialists stressed changes in antitrust enforcement and deregulation, unrealistic expectations of efficiency gains, and the correction of mistakes from earlier conglomerate mergers.

All agreed that no one factor could adequately explain the merger boom.

Effects of Mergers and Acquisitions

In assessing the effects of mergers and acquisitions, both financial and industrial organization economists agreed that shareholders in target companies enjoy substantial gains, as the stock price of a target typically rises when an acquisition attempt is announced. They differed, however, in their interpretations of the increase in stock prices.

Free Cash Flow

Michael Jensen of Harvard and the University of Rochester provided the perspective of the financial economists. The appreciation of the target's stock price reflects efficiencies arising from the acquisition. Gains to target shareholders are not offset by losses to other parties. Bidder company shareholders do not lose, on balance, and while target company employees sometimes suffer wage cuts and employment losses, Jensen attributes these to the competitive pressures giving rise to takeovers rather than to the takeovers themselves. Efficiency gains may be due to synergies between the target and the acquiring company or to the replacement of inefficient target management.

Resolving conflicts between managers and shareholders over the disposition of free cash flow is one way in which takeovers lead to a more efficient use of corporate resources. Jensen defines free cash flow as cash flow in excess of the funds necessary to undertake projects with positive net present values. Free cash flow develops when a company has limited growth potential. The oil and gas industry provides an extreme example: price increases in the second half of the 1970s created large profits but curtailed consumption, creating excess capacity. An efficient allocation of resources requires that free cash flow be paid out to shareholders. Managers, however, are encouraged to retain this cash and overinvest in internal projects, because compensation and job security are often tied to company size and sales growth. Also, by retaining free cash flow, managers avoid the scrutiny of the external capital markets should a need for investment capital arise.

Companies with free cash flow are attractive takeover targets, as the acquirer can use the target's free cash flow to finance the takeover. The target's debt is increased, based on the expected stream of free cash, and the proceeds are used to pay the takeover premium to the target shareholders. In addition, the resulting increase in leverage requires that the acquiring management operate the firm efficiently and removes managerial control over future free cash. Incumbent management can

achieve the same result by issuing debt in order to buy back stock or by arranging a leveraged buyout.

Companies with free cash flow may also be acquirers as well as acquisition targets. Managers may embark upon acquisition attempts as a means of disposing of free cash flow. While it would be more efficient if the free cash flow were paid out to shareholders, these acquisitions may be less wasteful than investing in unprofitable internal projects.

Jensen expressed concern about the growing number of state laws restricting hostile takeovers. He attributed these restrictions to the lobbying efforts of executives of large companies, who find that size no longer protects them from takeovers. Although hostile takeovers account for a small fraction of all acquisitions, many apparently voluntary acquisitions would not occur without the implicit threat of a takeover. Accordingly, Jensen fears that these restrictions will discourage acquisitions generally and lead to a significant reduction in efficiency.

Discussion: Inconsistencies of Free Cash Flow Model

Edward Frydl of the Federal Reserve Bank of New York questioned the adequacy of the cash flow model as an explanation for mergers. In particular, the free cash flow explanation does not seem consistent with merger waves: declining industries with excess cash existed before 1980 as well as after. Also, the free cash flow model requires that managers behave inconsistently in that they put their own interests ahead of shareholders' in retaining cash flow, but in so doing they attract takeover attempts, which are not in their interest. Frydl expressed concern that competition among commercial banks and investment banks to finance risky leveraged buyouts might adversely affect the integrity of the deposit base. He also warned that ready access to financing could lead acquiring managements to take advantage of inside information to the detriment of shareholders.

Leveraged Buyouts and Management-Shareholder Conflicts

In the ensuing general discussion, several participants voiced concerns about the potential for management-shareholder conflicts in leveraged buyout transactions. Leveraged buyouts frequently are organized by incumbent management, who receive equity in the new organization. If the managers, as owners, can achieve efficiencies that enable them to pay a takeover premium, why were they not already achieving these same efficiencies? A conflict of interest exists, in that the takeover price will be lower if management runs the division or company poorly. Also, managers who are planning a leveraged buyout are unlikely to search for alternative higher bidders. Thus, incumbent management

may gain at the stockholders' expense. One advantage of leveraged buyouts is that, since top management frequently has equity in the new company, the incentive to operate the firm efficiently is very strong; a similar financial incentive could be created in firms in which management does not have an equity stake by tying management compensation to stock price performance.

Disappointing Postmerger Performance

Richard Caves of Harvard University challenged the financial economists' view that mergers and acquisitions result in more efficient performance, in the process clarifying the distinctions between the industrial organization and finance perspectives. Acquisitions are unlikely to have a favorable effect on the economy as a whole unless they are productive for the firms directly involved, and Caves finds little evidence that acquisitions are, in fact, productive for the combining firms. Although target company shareholders clearly gain in acquisitions, bidding company shareholders just break even on average; and since the bidding company is usually much larger than the target, Caves questioned whether shareholders experience significant gains overall.

Mergers have the theoretical potential to bring about efficiencies, for example through the sharing of lumpy multi-use assets or the replacement of inefficient management. However, a review of the industrial organization literature on postmerger performance indicates that acquiring firms do not experience increases in profitability or productivity and that the market shares and profitability of acquired units decline. Studies of British mergers suggest that transition costs wipe out potential gains. Caves, in recent work with David Barton, found a negative relationship between technical efficiency and the extent of corporate diversification. Caves attributes this result to the difficulties of managing disparate lines of business. He sees this as supporting the argument that acquisitions, at least diversifying acquisitions, are unproductive.

Given the conflicting evidence of large gains to target company shareholders, on the one hand, and disappointing postmerger performance, on the other, Caves called for more research into the motivations of acquiring managements. While conflicts between the management and shareholders of target companies have received considerable public attention in proposals to restrict golden parachutes and in the general debate over state antitakeover laws, the conflicts between the management and shareholders of acquiring companies have been, in comparison, ignored. The large gains to target shareholders may mean simply that acquiring managements pay too much. Jensen's theory of free cash flow applies to acquirers as well as targets, implying that cash-rich companies are likely to engage in unproductive acquisitions. Caves suggest-

ed that tax policies could be designed to encourage management to pay out free cash flow to their shareholders. Despite his negative view of mergers, Caves observed in his presentation that he does not favor anti-takeover laws and other measures that would protect incumbent management from displacement.

Discussion: Future Research

In response to Caves's questioning whether the combined appreciation in target and bidder market values is positive, Michael Bradley, a financial economist, cited recent work by Desai, Kim, and Bradley showing a statistically significant positive gain overall. Both the target shareholders' share of the total and the dollar value of the overall gain have increased over time. Bradley urged combining the research approaches of the financial and industrial organization economists to determine the sources of these gains. Does the stock market, in responding to acquisition announcements, accurately distinguish between successful and unsuccessful post-acquisition performance? Bradley cautioned, however, that the postmerger performance of the acquiring firm cannot be the only standard by which an acquisition's success is measured; one must also take into account the gains to target shareholders.

Bradley agreed that bidder motivations are a subject worthy of study but doubted that overoptimism or hubris could be a general explanation for mergers, as shareholders can prevent such unproductive empire-building by enacting charter amendments restricting acquisitions or by changing management compensation practices. Changing management compensation practices would help resolve management-shareholder conflicts in both bidders and targets: if compensation were related to a firm's market value, management would be less inclined to engage in unproductive acquisitions or to oppose takeover offers that carried large premiums over the current stock price.

Implications for Public Policy

The final two papers considered some of the public policy implications of the merger boom. William James Adams of the University of Michigan focused on the implications for competition, a traditional concern of industrial organization economists.

Mergers and Competition

Less restrictive antitrust enforcement was generally seen as one of the more important factors contributing to the merger boom. Adams

took issue with key premises underlying this liberalization. Specifically, he disagrees with the view, associated with Robert Bork, that anti-competitive results arise only from horizontal mergers and then only from mergers in markets with high degrees of concentration. Adams contends that horizontal mergers can lead to increased market power and higher prices even in relatively unconcentrated markets. As evidence, he cited a recent study of the airline industry indicating that increases in market share are associated with higher fares; the effect on fares is most pronounced when market share is low. Adams attributed this result to barriers to new competition not captured by the concentration statistics, for example frequent flyer programs and computerized reservation systems that tie passengers to carriers serving multiple locations. Because of these barriers to entry, mergers in the airline industry could lead to higher prices, even though the resulting market shares would not violate antitrust guidelines. Adams concludes that concentration, alone, is a poor proxy for market power; antitrust policy should take into account the barriers to entry and other sources of market power in the individual markets and industries in which mergers occur.

Vertical and conglomerate mergers should also be subject to closer scrutiny, according to Adams. Although vertical and conglomerate mergers do not result in higher levels of concentration in a market, they may have anti-competitive effects. In particular, when firms compete in a number of different markets, the frequency of contacts and resulting familiarity facilitate collusion and may discourage aggressive competition. A cooperative pricing strategy developed in one market may be applied in other markets where the same firms compete. More generally, information about the behavior of competitors gained from contacts in other markets may enable an oligopolistic firm to predict more accurately how these rivals will react and thus may facilitate cooperative pricing. Vertical and conglomerate mergers may increase the number of points of contact among firms and, therefore, the opportunities for collusion.

Adams believes that an examination of European merger policy, particularly as regards joint ventures and mergers of failing firms, would be very informative. While the case-by-case approach of some European countries has proved cumbersome, lessons from the European experience may assist in "fine-tuning" U.S. antitrust policy.

Discussion: Current Antitrust Environment

In response, Robert Crandall of The Brookings Institution argued that the current economic environment does not support a more restrictive antitrust policy. Neither the merger wave of the 1960s nor the current merger wave has increased concentration. Even in industries in which mergers have reduced the number of U.S. competitors, competi-

tion from overseas producers has prevented U.S. firms from exercising market power. Moreover, the correlation between concentration and profits is far from clear-cut. Crandall conceded that there is some evidence that firms competing in multiple markets are not as aggressive competitors as firms competing in single markets, but the evidence is not sufficient to warrant a change in antitrust policies.

Restricting Hostile Takeovers

The regulatory response to the current merger wave has focused on restricting the small fraction of acquisitions that are hostile tender offers. Lynn Browne and Eric Rosengren of the Federal Reserve Bank of Boston considered whether regulation should treat acquisition attempts that are opposed by target management differently from those that have management's support. Confirming the observations of earlier paper-givers, they found that target company shareholders fare as well in hostile takeovers as in other acquisitions. Indeed, stock prices rise somewhat more in response to the announcement of a hostile tender offer than to the announcement of a merger or an attempt to take the company private. Thus, if the welfare of target company shareholders is the primary concern of regulators, the emphasis on hostile tender offers is misplaced.

Browne and Rosengren also examined the performance of hostile takeover targets along a number of dimensions. One might expect hostile takeover targets to be relatively inefficient in terms of their profitability or capital structures, since acquisitions in which the motivation is the replacement of inefficient management would presumably engender more opposition than acquisitions based on synergies between target and bidder. However, Browne and Rosengren found that targets of hostile takeovers are not very different from targets of friendlier acquisition proposals and probably not very different from companies generally. Thus, if the replacement of ineffective management is the motivation for hostile takeovers, the nature of the management failure is not obvious. Such a result casts doubt on the argument that takeovers promote efficiency by exerting a useful discipline on managers in general. At the same time, the similarity between takeover targets and other firms provides no basis for protecting takeover targets and their managements from changes in control.

Discussion: Changing Managerial Incentives

John Coffee of the Columbia University Law School expanded upon the theme running through both the Browne and Rosengren paper and the conference as a whole—target shareholders gain from acquisitions but the sources of these gains are unclear. Coffee suggested several pos-

sible sources of the gains to shareholders, including transfers from managers, employees, and other "stakeholders" in the target corporation, as well as efficiency gains from restructuring diversified corporations and curtailing managerial empire-building.

Regardless of their source, if shareholders were to share their gains with target management, they could secure management's acquiescence to takeovers. Without such a sharing of takeover gains, Coffee expects state antitakeover laws and corporate defense tactics to prove substantial impediments to takeovers. A number of conference participants objected to Coffee's specific proposal that senior management receive a percentage of the takeover premium paid to shareholders, arguing that this would create perverse incentives. However, they supported the objective of changing management compensation practices so as to reduce conflicts between management and shareholders.

Conclusions

The conference brought together representatives of the finance and industrial organization fields to explore the causes and implications of the current merger boom. Financial economists found substantial benefits in the current increase in acquisition activity, which was seen as part of a major restructuring of U.S. business. Competitive pressures are forcing U.S. corporations to become more efficient. In response to these pressures, firms are changing their internal operations. They are also divesting themselves of divisions that do not fit their current business strategies and they are acquiring firms that will enhance their competitiveness and that they can operate more efficiently than present management. Evidence of the benefits from mergers and acquisitions is found in the large increases in the stock prices of target companies when acquisition proposals are announced. Those holding this view strongly oppose attempts to restrict hostile takeovers.

Most industrial organization economists took a much dimmer view of mergers and acquisitions. Looking at postmerger sales and profit performance they concluded that most mergers are unsuccessful. The increase in mergers and acquisitions, according to this view, reflects excessive optimism and empire-building on the part of acquiring managements, the breaking up of unsuccessful conglomerates formed in previous merger booms, and attempts to take advantage of more liberalized antitrust enforcement. Although some concern was expressed about the negative consequences of mergers for consumer welfare, the industrial organization economists, while skeptical of the benefits from mergers and acquisitions, were reluctant to restrict takeovers.

Even though attitudes towards mergers and acquisitions differed

substantially, there was agreement in several areas. The suggestion that the research methodologies of financial economists be combined with those of industrial organization specialists was favorably received. By comparing the stock market's response to acquisitions, as shown by event studies, with postmerger accounting and market structure results, it may be possible to reconcile the existence of large shareholder gains with disappointing postmerger performance.

Management compensation packages were seen as a fruitful area of study, with changes in management incentives having the potential for resolving management-shareholder conflicts. Such conflicts may arise both in takeover targets and in acquiring firms. It was suggested that tax policy be altered to encourage the adoption of management compensation packages based on stock performance.

The conferees also agreed that the regulatory response to the current merger wave, state laws that limit hostile takeovers but do not affect acquisitions supported by target management, is misguided. Restrictions on hostile takeovers will not eliminate the disruptions to employees and communities or the increases in market power that sometimes result from mergers, while they may preclude acquisitions that would revitalize management and lead to productivity gains. Such restrictions certainly do not achieve their stated purpose of protecting target company shareholders. Both industrial organization and financial economists agreed that the shareholders of target companies benefit in takeover attempts, sometimes more in an unfriendly takeover than in friendly mergers or management buyouts. What the conferees did not resolve is whether mergers and acquisitions benefit the economy as a whole.

The 1980s Merger Wave: An Industrial Organization Perspective

*David J. Ravenscraft**

Why are we in the midst of one of the largest merger waves in United States history? Answering this question is not an easy task. The answer requires a thorough understanding of what motivates mergers, a topic that continues to be hotly debated. In addition, one must identify economic and financial changes that both coincide with the current merger wave and reinforce one or several merger motives. An even more difficult task would be the construction of a general theory of merger waves that applies not only to the current and past U. S. merger waves, but also to concurrent and previous waves in other countries.

Having posed a difficult question, this paper will seek a less than ideal answer.[1] The focus will be on the extent of current knowledge and the identification of topics where further research is needed. The first section evaluates the magnitude of the current merger wave relative to previous waves. The next section describes and interprets 11 major findings from the research on the motivations for mergers. Macroeconomic and microeconomic changes that may provide a catalyst for the current wave are discussed in the third section, followed by the conclusions of this paper.

Is There a 1980s Merger Wave?

The answer to this question should be obvious to even the most casual observer. However, to put the current situation in historical perspective, a time series of merger activity between 1895 and 1986 was collected. Merger activity is measured in three ways: through the con-

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stant 1972 dollar volume of assets acquired in manufacturing and mining, the number of mergers in all industries, and (following Golbe and White 1988) the value of manufacturing and mining mergers relative to GNP. Since the data came from different sources—Nelson (1959) for the period 1898 to 1918, Thorpe (1941) for 1919 to 1950, the Federal Trade Commission's overall merger series for 1951 to 1978 and the *Merger and Acquisition Journal* and W.T. Grimm for 1979 to 1986—the data are summarized through regression analysis controlling for the differing coverage of the various data sets.[2] The three measures of merger activity are regressed on four dummy variables representing each of the four major merger waves in U.S. history. The results are summarized in the table.[3]

In the typical nonwave year, the average number of mergers is 1337. The total asset value of the mining and manufacturing mergers is $3.34 billion (1972 dollars) or about one-third of 1 percent of GNP. With only one exception, the number, value, and relative size of each merger wave are significantly larger than in the typical nonwave year.

In the 1980s, firms are being acquired at a yearly rate of 2,929. The annual average value of these mergers in mining and manufacturing is $18.38 billion, which accounts for 0.77 percent of total GNP. Since mining and manufacturing comprise only about 25 percent of GNP, this translates into almost 3 percent of all mining and manufacturing assets being acquired yearly, or 18 percent over the full 1981–86 period. In terms of constant dollar value of assets, the current wave is almost twice the size of any of the three previous waves. The current wave about equals the record-breaking late 1960s wave in terms of the number of mergers. However, it pales in comparison to the turn of the century wave when measured in relationship to GNP.

Despite such evidence, some economists have argued that mergers do not come in waves. Shughart and Tollison (1984) demonstrate that a random walk or first-order autoregressive model cannot be rejected in favor of a more complex autoregressive model. They argue that their findings "raise doubts about the view that mergers occur in waves" (p. 508). However, their test is weak, because few researchers argue that the pattern of merger waves is systematic enough to follow a consistent

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[1] In fact, according to Breasley and Myers (1984), this question is one of finance's most important unresolved issues.

[2] Dummy variables measuring the differences in the three data sets used between 1951 and 1986 were not included in the regression equations because the coverage of the data sets is similar and because the dummy variables would be highly correlated with the current merger wave dummy. The regression results suggest that the coverage of the Nelson and Thorpe data is less extensive than that of current data sources. The Thorpe data series included only the number of mergers, not the value of assets. The value of assets was estimated by assuming an average acquired firm size of $4 million (1972 dollars).

[3] The regression equations used to create the table are available from the author.

autoregressive model. (For example, see Geroski 1984.) That is, merger waves occur, but they are not periodic, and each cycle has a different amplitude and phase. Golbe and White (1988) develop a more powerful test of the existence of merger waves. They regress the quarterly or annual number of mergers on a time trend variable. The error term from this regression is shown to be autocorrelated. Thus, the number of mergers tends to bunch together into periods of relatively high and low activity.

A Comparison of the Four Largest U.S. Merger Waves

Years	Annual Average Number of Mergers	Annual Average Value of Manufacturing and Mining Assets Acquired	
		Value (Billions of 1972 Dollars)	Percentage of Real GNP
All Nonwave Years	1337	$3.34	0.33
1898–1901	1797	$9.84	6.10
	(1.74)	(4.47)	(11.45)
1926–30	2032	$6.12	1.28
	(2.95)	(2.15)	(2.12)
1965–70	2931	$8.91	0.86
	(7.22)	(4.60)	(1.26)
1981–86	2929	$18.38	0.77
	(7.20)	(12.42)	(1.93)

Note: t-value in parentheses measures the significance of the difference between the wave and nonwave years.

Motivation for Mergers

Having addressed the easiest question first, we turn to a more difficult one—what are the primary motivations for mergers? Knowledge of merger motives is critical to understanding why mergers come in waves. Without such knowledge, researchers seek a relationship between merger activity and changes in economic or financial conditions without an understanding of the underlying phenomena. For similar reasons, the micro foundations of macroeconomics have become important in explaining inflation, unemployment, and trade imbalances.

Much research has addressed the merger motive issue. Although no consensus has arisen on the primary motivations, there does seem to be agreement on a list of potential motives. These include:

(1) Replacement of inefficient management

(2) Synergies such as economies of scale or scope

(3) Sharing of complementary resources
(4) Free cash flow
(5) Monopoly power
(6) Tax savings
(7) Undervalued assets
(8) Hubris
(9) Stock market inefficiencies such as myopic market behavior, fads, or accounting tricks
(10) Empire-building
(11) Pecuniary gains such as the breaking of implicit long-run labor contracts, transfer of wealth from bondholders, or pecuniary economies
(12) Diversification in order to reduce risk, smooth earnings, or perform other forms of portfolio management
(13) Divergent expectations due to economic disturbances
(14) Speculative motives such as asset plays
(15) Retirement of senior management.

This list is similar in many respects to a list presented by Steiner (1975). He stated that the "determination of which motives are decisive in accounting for levels of merger activity . . . is the frontier of our ignorance" (p. 31). In recent years the frontier has been pushed forward to a significant degree. Still, our understanding of the basic determinants of merger motives reflects a large degree of ignorance or at least disagreement.

Depending on one's perceptions, there has been either too much or too little research for a consistent set of motives to be identified: too much research for any single motive to be consistent with all the major findings, too little research to state with confidence the relative importance of each motive and the conditions under which it is likely to apply. To illustrate, this section presents a set of stylized generalizations about merger characteristics and interprets the importance of these findings in understanding merger motives. The generalizations represent a consensus, rather than unanimous agreement of recent merger work.[4] Some important dissenting views will be noted.

Finding 1: Target company shareholders earn a significant and substantial above-market return from a merger announcement.

Jensen and Ruback (1983) estimate that for tender offers in the 1970s, target company shareholders received a 16 to 30 percent abnormal return around the time of the tender offer announcement. Jarrell, Brickley and Netter (1987) found that these returns have increased substan-

[4] This section focuses on research published after 1980. For reviews of the pre-1980s evidence see Scherer (1980), Jensen and Ruback (1983), Steiner (1975), and Mueller (1980).

tially in the 1980s to an average of about 53 percent. Returns to target company shareholders from negotiated mergers and acquisitions, that is, those not involving tender offers, are lower than the returns to tender offers, but they are still significantly above the average market return.

Finding 1 is often cited in support of the inefficient management and synergies motives for mergers. This conclusion is drawn not from direct evidence of a link between target premiums and inefficiently managed companies or synergistic mergers, but rather from a process of elimination of other merger motives. (For example, see Jarrell, Brickley and Netter 1987.) Given that many of the 15 motives listed above are consistent with Finding 1, an elimination process is not the most persuasive approach. A more direct approach would be to regress the abnormal returns on a set of independent variables measuring various bidder and target characteristics including proxies for inefficient management and synergies. (Several recent illustrations of this technique include: Hevert and Harris 1986; Wakeman and Stewart 1987; and You, Caves, Henry and Smith 1986.)

Finding 2: Earnings of bidder company shareholders are much more erratic.

Jarrell and Poulsen (1987) show that the short-term gain to bidders in tender offers dropped from a statistically significant 5 percent in the 1960s to an insignificant minus 1 percent in the 1980s. Jarrell, Brickley and Netter (1987) review a number of papers that attribute this decline to regulations that have disadvantaged the bidder. However, these studies do not explain the negative return to bidders in the 1980s. Why target company shareholders receive all or most of the short-term gain from mergers continues to be a puzzle.

Combining Findings 1 and 2, studies show that there is typically a net gain to shareholders around the merger announcement. The conclusion drawn is that the merger is value-enhancing. There are at least two problems with this conclusion: First, it hinges on the assumption that the stock market is efficient, an assumption that is not universally accepted, particularly as it applies to mergers. (For example, see Shleifer 1986; Margotta 1986; Summers 1986; Shiller 1984; and DeBont and Thaler 1985.) Second, several researchers have found negative returns to the bidders over several years after a successful merger bid. The size and statistical significance of this negative finding depends on the methodology employed. Still, under some specifications the postmerger negative returns swamp the merger announcement gains. (See Magenheim and Mueller 1987.) Thus, in the long run, the net return to bidder and target shareholders may be negative.

Franks, Harris and Mayer (1988) provide additional insight into Finding 2. They demonstrate that bidder returns are different for cash

and equity offers. All equity acquisitions displayed significantly negative returns to bidders in both the announcement month and over a two-year postmerger period. All cash offers received a 2 percent significant positive return to bidders during the merger announcement, with no subsequent abnormal return. Franks, Harris and Mayer attribute the cash/stock differences to asymmetric information. Bidders offer stock when they think their stock is overvalued. They use cash when they are concerned that competitors will learn about their plans for improving the target company. However, Franks and his coauthors acknowledge that their findings are consistent with other theories, including a "free cash flow" theory of takeovers (Jensen 1986).

Finding 3: Target companies are "undervalued" by the market.

Hasbrouck (1985) and Bartley and Boardman (1986) find that target companies have relatively low values of Tobin's q (market value/replacement cost), suggesting that target shares are often selling at a value below their replacement cost.[5] In addition, several studies have found that targets tend to experience negative abnormal returns prior to the leaking of any information about the merger. (For example, see Asquith 1983.) Both results suggest that targets are firms with below-normal stock price performance. The cause of the below-normal performance is crucial. Are these low values due to mistakes by the market or by the target's management? If the latter, are the acquiring company managers able to correct the mistakes?

The misvalued asset hypothesis is not necessarily inconsistent with the notion of an efficient stock market. The bidder may have discovered new (or possibly inside) information revealing that the target's stock is undervalued by the market. This informational hypothesis has been rejected by Bradley, Desai and Kim (1983), and by Jarrell (1985), among others. Their papers show that the share price of targets of unsuccessful tender offers, not subsequently acquired by other firms, return to the pre-offer level one to five years after the first price-raising bid. Thus, no information was released confirming that the firm was undervalued. There are a number of problems with this conclusion. One, a recent study has found contradictory results (Margotta and Marston 1987). Two, these studies suffer from a serious selectivity bias. In the Bradley, Desai and Kim study, only 26 out of 371 targets were not acquired once they were "put into play." To make inferences about 93 percent of the sample based on the 7 percent that went through a very selective screen is hazardous. The target and bidder motivations for these 7 percent may

[5] Studies using the less accurate ratio of market to book value have found more equivocal results.

be quite different from those of the 93 percent. For example, it is possible that the 7 percent were carefully evaluated by the market and, unlike the 93 percent, found not to be undervalued. Clearly, in some cases the initial bidders will be wrong.

A potentially important refinement of Finding 3 has been uncovered by Morck, Shleifer and Vishny (1987). Their work suggests that only hostile targets suffer below-average Tobin's q values. In friendly acquisitions, the targets' q values are indistinguishable from those of non-acquired companies. Thus, the motivations for hostile and friendly acquisitions may be different. When a firm is mismanaged or undervalued, the target firm is much more likely to resist, leaving the bidder with little choice but to make a hostile tender offer.

Finding 4: Historically, the target's profitability has not been below normal prior to the acquisition.

Several studies have found no significant difference between profitability of target and nontarget firms (Mueller 1980; Harris and others 1982; and Bartley and Boardman 1986). Ravenscraft and Scherer (1987) demonstrate that the profitability of the target depends on three factors: accounting method, size, and merger type. To avoid asset re-evaluations that would depress postmerger accounting earnings, companies tend to use pooling-of-interest accounting for high-profit companies and purchase accounting for low-profit targets. On average, the targets of pooling-of-interest acquisitions earned a rate of return on assets of 10.91 percentage points above their 2-digit industry peers, while purchase accounting targets' earnings were not significantly different from other firms in their industry. For both types of acquisitions, Ravenscraft and Scherer found an inverse relationship between size and profitability. The largest targets earn normal profits; average-size and small targets tend to display superior premerger performance.

Ravenscraft and Scherer show that tender offers may represent an exception to Finding 4. The typical target of a tender offer earns normal profits relative to the average for all manufacturing, but below normal relative to its 2-digit industry. This result corroborates the difference between hostile and friendly acquisitions observed by Morck, Shleifer and Vishny (1987). Without this refinement, Findings 3 and 4 imply a contradiction between stock market and accounting evaluations of the firms. The contradiction disappears when allowances are made for differences in the type of merger, hostile or friendly.

The word "historically" is used in Finding 4 because the evidence discussed above applies to pre-1980 targets. The only study of target profitability using 1980s data that I am aware of is Herman and Lowenstein (1987). They analyzed 56 hostile takeovers occurring between 1975

and 1983. Targets of bids between 1975 and 1978 displayed below normal profit performance, which is consistent with the Ravenscraft and Scherer finding for a slightly earlier period. However, the targets of 1981–83 bids earned a weighted average return on capital of 25 percent. In support of this result, the authors cite the 1984 *Mergerstat Review* published by W. T. Grimm & Co., which states: "Many of the merger participants in the last decade were large, well-managed concerns acquiring financially healthy and well-managed companies enjoying strong market positions. The acquired companies in most cases, ranked first or second within their industries" (p. 7). Applying this quotation to friendly acquisitions is consistent with most previous research. Applying it to hostile takeovers implies a dramatic change in the companies targeted in these acquisitions. Clearly, this issue warrants further research.

Finding 5: Historically, target companies have been in rapidly growing industries.

Ravenscraft and Scherer found that, during the period 1950–75, bidders sought targets in industries that were growing significantly more rapidly than their own industries and the economywide average. Furthermore, an industry's growth rate was a statistically significant determinant of the number of mergers in an industry. These results are consistent with most previous research for this time period.

Studies of individual firms' growth rates find less consistent results, in part because these studies often use control groups from the same broad industry classifications, thus eliminating the industry growth effect. Palepu's (1985) analysis of 163 firms acquired between 1971 and 1979 suggests target firms are low-growth companies. Wansley, Roenfeldt and Cooley (1983) discover high growth rates among 44 companies acquired between 1975 and 1976. Mueller (1980) and Harris, Stewart, Guilkey and Carleton (1982) find that targets have average growth rates during the 1960s and 1970s. As with Finding 4, the only 1980s evidence comes from Herman and Lowenstein (1987), who discover that targets of hostile takeovers have been growing at twice the rate of their acquirers. Thus, no general conclusion about growth rates of firms can be drawn from the existing research.

Finding 6: Targets tend to be relatively conservative in their financing.

Studies have consistently shown that targets have lower debt to equity ratios, higher net current liquidity, and/or higher coverage of fixed charges than the bidding firm or nonacquired companies. (See Palepu 1985; Wansley, Roenfeldt and Cooley 1983; Bartley and Boardman 1986; and Mueller 1980.) Which of the various financial measures are important seems to depend on the current state of the economy. Harris

and others (1982) demonstrate that during a recession (1974–75), lack of indebtedness is desired, whereas during a recovery (1976–77), liquidity is more important. A rare exception to this finding is the sample used by Herman and Lowenstein (1987) covering the 1975–78 period.

Finding 6 is generally consistent with a number of motivations for mergers. Some additional evidence, however, suggests that the motivation is not a wealth-enhancing one. Measuring wealth as the total above-market return to target and bidder shareholders at the time of the merger announcement, You and others (1986) and Wakeman and Stewart (1987) found no significant positive correlation between the wealth created from the merger and the absolute differences between the two firms' liquidity or indebtedness. In fact, Wakeman and Stewart found that differences in indebtedness significantly lowered total wealth.

Finding 7: Tax savings are not a primary motivation in most mergers.

This conclusion has been reached in a review article by Breen (1987) and in a series of articles by Auerbach and Reishus. (For example, see Auerbach and Reishus 1988.) In general, most tax breaks gained through mergers can be obtained through other means. Tax motivations may affect the structure and timing of the mergers, and the total premium paid for the target, but in only a minority of cases are mergers the only or even the best means of achieving certain tax breaks.

Finding 8: The stock ownership of senior management significantly affects the merger motivation.

This fairly reasonable statement has been confirmed in two recent studies. You and others (1986) demonstrate that the total shareholder wealth created from a merger is positively related to the percentage of the bidding company's shares owned by top management. Thus, value-enhancing motives are less likely to explain mergers made by companies with low share ownership by top management. Morck, Shleifer and Vishny (1987) discover that the stock ownership of the target firm also plays an important role in mergers. Friendly mergers are motivated by the desire of aging top management with significant ownership shares to sell out or diversify their holdings while minimizing taxation. Surprisingly, ownership of a large share of the target's stock by top management does not appear to deter hostile acquisitions.

Finding 9: Merger diversification patterns are consistent with the existence of synergies.

Companies do not diversify in a random manner. They generally seek targets that are related in some way to their current strategies or strengths. Stewart, Harris and Carleton (1984) find strong support for the notion that bidders seek targets in industries with similar advertising

and R&D intensities. Ravenscraft and Scherer (1987) confirm this "like attracting like" hypothesis for advertising and R&D and extend it to other selling expenses and capital intensity. The only variable considered that did not conform to the "like attracting like" hypothesis was growth. Bidders in low and high growth industries sought targets in high growth industries with equal vigor.

Of course, not all mergers are motivated by these potential synergies. Stewart, Harris and Carleton further analyze acquisitions in which the bidding firm was in an industry having a low advertising intensity. These acquisitions were correlated with financial characteristics of the acquired firm, such as its liquidity and its price-earnings ratio, which were not important to bidders in industries with high advertising intensity. They conclude that some mergers are motivated by synergies and others by financial considerations. One such financial consideration, also consistent with Finding 9, is reducing risk or smoothing earnings. Marshall, Yawitz and Greenberg (1984) find a negative correlation in the cash flows of the bidder and target in conglomerate acquisitions.

As with Finding 6, there is some question if these seemingly synergistic mergers actually achieve their objective. For 133 large mergers occurring between 1975 and 1984, You and others (1986) found no relationship between total merger-announcement stock returns and synergies, even though 60 percent of the firms in their sample had characteristics suggesting the potential for synergies.[6] For basically the same time period, this insignificant relationship between shareholder wealth and synergies is confirmed by Wakeman and Stewart (1987) and Lubatkin (1987), but not by Singh and Montgomery (1987).

Finding 10: On average, mergers, acquisitions and tender offers do not lead to improved postmerger performance.

A number of authors have found evidence supporting this finding. One of the most comprehensive analyses is Ravenscraft and Scherer (1987). This study investigates over 5,000 mergers occurring between 1950 and 1975. It provides explicit controls for the accounting differences, including merger accounting, depreciation and inventory evaluation methods. Because line of business data were employed, the postmerger performance of both large and small acquisitions could be traced and compared to nonacquired control groups in the same 4-digit industry. With only two exceptions—tender offers and mergers of equals—significant declines in postmerger profitability were observed for all types of mergers. For acquisitions involving tender offers, the postmerger decline in profits was statistically insignificant if the premi-

[6] They did find that synergies affected the allocation of wealth from targets to bidders.

um paid for the targets was ignored. If these premiums were included, the postmerger decline in profits from tender offers was substantial. The merger of two relatively equal-sized firms was the only group to show a positive postmerger profit gain, but the significance of this gain depended on the methodology employed by the study.

Analyses of other merger waves also support Finding 10. In reviewing studies primarily from the first two merger waves, Hogarty (1970) concluded: "A host of researchers, working at different points of time and utilizing different analytic techniques and data, have but one major difference: whether mergers have a neutral or negative impact on profitability" (p. 389).

The initial results from the current merger wave are not much more encouraging. Herman and Lowenstein (1987) found that hostile takeovers of the mid-1970s improved performance of the combined firm, but hostile acquisitions in the 1980s led to sharp declines in performance. Patience and Sortwell (1984) evaluated the diversification programs of 58 firms during the period 1973 to 1982. Their results suggest that only 10 percent were clear successes, while 48 percent could be classified as failures.

Finding 10 is clearly inconsistent with value-enhancing motivations for mergers. However, like Finding 2, the results are not uncontroversial. First, the validity of the results depends on unbiased accounting numbers, a condition that has been questioned by a number of authors. (See the debate carried out in the *American Economic Review* including Fisher and McGowan 1983; Long and Ravenscraft 1984; Benston 1985; and Scherer and others 1987.) Second, the reasons for the postmerger profit decline are not fully understood. Case studies of 15 failed mergers by Scherer (Ravenscraft and Scherer 1987, Ch. 5) suggest five possible explanations: unanticipated difficulties in integrating the two companies; inadequate incentives for target senior management who become line managers after the merger; mistakes caused by the lack of experience of the conglomerate company's senior management in the target company's industry, particularly when problems arose; problems latent in the target company, some of which were not fully understood by the acquiring managers; and finally, plain bad luck. However, this is a topic that requires further research.

Finding 11: Mergers are not a homogeneous phenomenon.

The truth of this statement should be apparent from the previous discussion. The motivations and effects of mergers can change with the type of merger, such as hostile or friendly, and over time, for example, at different stages of the business cycle. It is this finding, more than any other, which makes the analysis of motives, determinants and effects of mergers a difficult task. Even individual mergers are often motivated by

several distinct objectives. The challenge is to identify key merger characteristics that help isolate individual motives. Only then can research assess the relative importance of each of the many potential motivations for mergers. On this score we are still on the frontiers of ignorance.

Nevertheless, three generalizations are possible. One, the selection of targets by bidders follows identifiable patterns suggesting that mergers are intended to serve clear objectives, many of which are wealth-enhancing. Two, the stock market at the time of the merger announcement has been consistently enthusiastic about the potential gains from mergers, although the exact sources of the gains are not well understood. Three, the postmerger accounting results, and to some extent the longer-term postmerger stock market results, indicate that these expectations have often gone unfulfilled. For example, Ravenscraft and Scherer find evidence for a synergy motive in friendly acquisitions and an inefficient management motive in tender offers. But the postmerger results suggest that these synergies are not realized, and the new managers are not more efficient. These ex post results suggest that hubris or managerial empire-building motives play an important role.

Forces Underlying the Current Merger Wave

The previous section suggests two important observations about the current merger wave. One, since there are numerous merger motives, it is not plausible that any one event would touch off and sustain a merger wave. It must be a combination of events, occurring more or less simultaneously, each increasing the attractiveness, or lowering the cost, of a particular type of merger. Two, since mergers have a history of unfulfilled expectations, the current merger wave must be distinguishable from the previous waves in order to convince managers and investors that their current set of expectations are more realistic. Otherwise, one must assume managers and investors are irrational or that their memories are short.

Characteristics of Current Mergers

The current merger wave does, in fact, have many distinguishing characteristics.[7] Three-fourths of all current mergers employ cash as the primary means of payment, whereas three-fourths of mergers in the 1960s primarily employed securities. Tender offers, which occurred infrequently in the 1960s, comprise almost one-quarter of all mergers and

[7] Statistics cited in this paragraph are from W. T. Grimm & Co., *Mergerstat Review* and *Merger and Acquisition Almanac*.

acquisitions of publicly traded target companies in the 1980s.[8] Similarly, leveraged buyouts grew from being almost nonexistent in the 1960s to approximately 15 percent of the total value of acquisitions made between 1983 and 1986. For the same period, 38 percent of all merger and acquisition announcements were divestitures, partially reflecting the emergence of bust-up takeovers. This represents an increase over the 1965–69 average of 11.3 percent, but a decline from the 1975 record of 53.8 percent. Also, current mergers are, on average, almost two and one-half times larger (in constant dollar terms) than mergers occurring during the late 1960s. Finally, while the exact percentages are not known, there appear to be more horizontal acquisitions in the current merger wave than in the previous one. However, the number of conglomerate mergers is still large, particularly in view of their prior lack of success.

Underlying these differences are a host of more fundamental changes in the economy. On the macroeconomic front, the past decade has exhibited wide swings in inflation, interest rates, and stock prices, and a steady increase in imports. Furthermore, the impact of these developments varies dramatically between industries. The tax code has undergone significant revisions in 1981 and 1986, both of which had important merger-related provisions. Government interference in business activity has been reduced through both deregulation and a relaxing of antitrust enforcement. Merger activity has also been influenced by the development of a number of financial innovations, such as junk bonds and bridge loans.[9]

Macroeconomic Factors

Almost all of the research on merger waves focuses on macroeconomic factors. Recent studies include: Beckenstein (1979); Melicher, Ledolter and D'Antonio (1983); Geroski (1984); Becketti (1986); and Golbe and White (1988). Consistently, these authors find that low interest rates and high stock prices are the two main determinants of the number of mergers per quarter or year. These variables reflect both supply and demand factors. On the one hand, they are the major components of a firm's cost of capital. On the other hand, they are key predictors of future increases in output. Thus, merger activity increases with a decline in acquisition cost and with an anticipated expansion in demand. Becketti (1986) adds an important element to this formula. In the short run, when capacity utilization is low, new growth in GNP intensifies merger

[8] However, tender offers comprise only 6 percent of all public and private merger and acquisition announcements.

[9] The impact of these financial innovations is discussed in another paper in this volume.

activity because firms can meet the increased demand through external acquisitions. As capacity constraints arise, new demands can only be met through internal growth.

The ability of macroeconomic changes to explain the current merger wave is limited by several factors. First, this wave began at least by 1981, and has roots back into the mid to late 1970s. Nominal interest rates were increasing in the late seventies and reached an all-time high in 1981. Stock prices, as measured by the Dow Jones Industrial Average, did not exceed their 1976 level until 1983. Second, to the extent that the recent declines in interest rates and increases in stock values influenced recent mergers, the same factors occurred in the 1960s merger wave. Thus, these factors cannot explain the differences in the two merger waves. Third, correlation does not establish causation, particularly in time series analyses. Geroski (1984) argues that although merger activity and stock booms often occur in tandem, there is little evidence of causation between the two events.

Since the mid-1970s, total imports measured in constant dollars have more than doubled. The impact of this change, particularly for those industries hardest hit, has been substantial. Increasingly, mergers between domestic competitors are seen as a solution to the problem of imports. The extent to which imports are a driving force behind current mergers is unknown. The role of mergers in solving the import challenge is even less certain. European experience in using mergers to defend against imports is not encouraging (Mueller 1980). In industries where imports have captured a substantial share, horizontal mergers can make retrenchment more orderly. However, if the import penetration is only temporary, perhaps due to the previously high value of the dollar, the final result may be increased monopoly power.

Tax Code Changes

The 1980s saw two major revisions in the tax code, the Economic Recovery Tax Act of 1981 and the Tax Reform Act of 1986. Both contain provisions important to mergers. The 1981 act had a generally favorable effect on mergers by lowering the capital gains rate and accelerating the depreciation of stepped-up assets. Although the 1981 tax act does coincide with a sharp jump in merger activity, Auerbach and Rieshus (1988) and Breen (1987) provide evidence that this concurrence was largely coincidental. The 1986 act eliminated many of the tax inducements to mergers by equalizing capital gains and personal income tax rates and restricting the advantages of step-ups and tax loss carryovers. Although it is too early to assess the full impact of the 1986 act, recent statistics on merger activity illustrate the important role taxes play on the margin. Merger activity, according to W. T. Grimm, skyrocketed to a near record

number of merger announcements (1809) in the last half of 1986, largely in a rush to take advantage of the more liberal provision of the 1981 tax act. As a result, the number of mergers in the first half of 1987 dropped sharply to 927. However, the total value of deals rose from $77.1 billion in the first half of 1986 to $91.3 billion in the first half of 1987. Apparently, the tax law changes had a greater impact on smaller mergers.

Easing of Antitrust Enforcement

Without a doubt, antitrust enforcement has eased substantially over the past 10 years, with direct implications for merger activity. In part, the less restrictive antitrust laws are illustrated by the Justice Department's revision of its 1968 merger guidelines in 1982. The 1968 and 1982 guidelines are somewhat difficult to compare, because the former employed the four-firm concentration ratio (CR4), whereas the latter uses the Herfindahl-Hirschman (H) index. Nevertheless, the 1982 guidelines clearly raised the market share cut-offs. For example, in highly concentrated markets, those with a CR4 of 75 percent or an H-index of 1800, the 1968 guidelines indicated government opposition to mergers between firms in which both the acquired and acquiring had more than 4 percent of the market. The 1982 guidelines raised this level to 5 percent.

However, the market share numbers dramatically understate the true enforcement change, for a number of reasons. First, there is some evidence that the antitrust agencies were bringing a number of cases at market share thresholds below the 1968 guideline levels. Rogowsky (1984) estimated that these below-guideline cases represented almost 20 percent of the pre-1980 government merger cases. Even more surprising, the proportion of these cases was almost the same in the early and late 1970s, despite the fact that the courts, starting in 1974, were becoming increasingly less restrictive. (See *United States* v. *General Dynamics Corp.*, 415 U.S. 486 (1974).) Conversely, antitrust experts both inside and outside the government suggest that the current merger policy is allowing mergers at almost twice the 1982 guideline levels. Second, the 1982 guidelines attempted to add rigor to the way markets are defined. Before the 1980s, many of the cases employed questionably narrow definitions of the relevant market. Thus, the actual number of cases brought at concentration levels below the 1968 guidelines would have been even higher, had the more rigorous 1982 standards been employed in defining the market. (See Rogowsky 1984.) Third, the 1982 guidelines take a less structured approach to merger enforcement. Whereas the 1968 guidelines relied primarily on concentration numbers, the 1982 guidelines and their 1984 revision cite a number of other factors that will be considered. These include entry conditions, merger efficiencies, failing firm defenses and general market characteristics and conduct. Finally,

the government has switched to a "fix it first" policy. Prior to 1980, the government tended to oppose the entire merger if any part of the merger violated the guidelines. Currently, the antitrust agencies tend to give approval to the merger if the parties are willing to divest any overlap that is likely to create monopoly power.[10]

The exact impact of these changes is difficult to assess. Work by Fox (1982) and Kauper (1984) gives some indication. Fox analyzed all Supreme Court merger cases decided between 1962 and 1975. Out of 20 cases, she estimated that only six would have violated the 1982 guidelines. Kauper analyzed all litigated mergers for which the relevant market share data were available. Out of 94 cases, at least 29 were below the 1982 cut-offs. However, the relevant question is the opposite. How many of the current mergers would have violated the 1968 guidelines? Unfortunately, this question has not yet been addressed, in part because the relevant information is contained in the Hart-Scott-Rodino filings which are not publicly available. Our ignorance on this question is even more fundamental. None of the merger data sources report the number, or value, of horizontal versus conglomerate mergers. The relative importance of horizontal mergers in highly concentrated markets would at least give an upper bound estimate of the potential role of antitrust in the current merger wave.

Deregulation

The reduction in government regulation has been no less dramatic than the relaxation of antitrust enforcement. The last three Presidents have made deregulation a key goal. Most of the deregulatory action has been aimed at the general regulatory framework—increasing the oversight of new regulations, submitting new and old regulations to cost-benefit tests, and cutting the budget of regulatory agencies. How these general changes affect merger activity is uncertain. However, just prior to the start of the current merger wave, a number of key deregulatory laws and rulings aimed at specific industries were instituted. The impact of these regulatory changes is more obvious.

The industry-specific deregulation movement began in 1978 with the Airline Deregulation Act, which initiated the elimination of airline regulations and the Civil Aeronautics Board over a period of several years. Also in 1978, the Natural Gas Policy Act phased out the controls on new gas prices by 1985. The end of controls on domestic oil prices began in 1979 with an edict from President Carter. Deregulation of the

[10] Merger policy towards vertical and conglomerate mergers has also changed dramatically. However, as Fisher and Sciacca (1984) point out, these changes began as early as 1975. Even prior to 1975, the number of vertical and conglomerate cases was small. Therefore, these changes were less important than those affecting horizontal mergers.

transportation industry continued in 1980 with the passage of the Motor Carrier and the Household Goods Transportation Acts, partially deregulating trucking and totally deregulating the household goods transportation industry. Also in 1980, Congress passed the Staggers Rail Act, which narrowed the Interstate Commerce Commission's authority to control the rates and exit of railroads. Bus transportation deregulation followed in 1982 with the Bus Regulatory Reform Act. The broadcasting industry was partially deregulated through a series of Federal Communications Commission rulings. The cable TV industry was deregulated in 1980, when the FCC eliminated most of its cable TV regulations and in 1984, with the Cable Communication Policy Act. The FCC eliminated its antitrafficking rule in 1983, which had required that a TV or radio station be held for three years. In 1985, the FCC extended the number of stations any one company could own from seven to twelve. Partial deregulation of the banking industry began with the Depository Institutions Deregulation and Monetary Control Act of 1980 and was extended with the Garn-St Germain Act of 1982. These acts increased competition in banking by phasing out interest-rate ceilings and removing restrictions on new services, in particular, money market funds. Finally, regulation in the communications industry has been changed substantially with the Record Carrier Competition Act of 1981 and the 1983 divestiture of AT&T.

All of these industries—banking, broadcasting, communications, transportation, and oil and gas—have experienced a substantial amount of merger activity in the 1980s. According to W.T. Grimm's figures, these five industries accounted for 37 percent of all merger activity by value of assets and 22 percent of the number of mergers, between 1981 and 1986. Thus, deregulation has the potential to be a major determinant of the current merger wave. However, the actual impact of deregulation is clearly much less than these numbers suggest. Each of these industries has experienced other changes that are also likely to explain the increase in merger activity. In fact, many of the regulatory changes were in response to these other events. For example, the rise in world oil prices during the 1970s increased the misallocation of resources caused by controlling domestic oil. Inflation, together with increased competition from unregulated nonbanks, pressured Congress to lift some of the constraints on banks so they could compete. If oil and banking were eliminated from the regulatory change list, the remaining three industries would only account for 8 percent of the merger activity by value and 6 percent by number of mergers.

Summary

In sum, a number of microeconomic and macroeconomic changes may have provided the catalyst for the current merger wave. However,

this section has expressed skepticism that any one event alone precipitated the current wave. Of the factors considered, antitrust and regulatory changes are the most important. Nevertheless, it would be surprising if, taken together, these two changes explain more than 20 percent of current merger activity. The key to understanding this merger wave probably lies in something less tangible—a change in expectations. The disappointing performance of the late 1960s merger wave discouraged merger activity in the 1970s. Hostile tender offers, leveraged buyouts, bust-up takeovers, horizontal combinations and mega-mergers, together with the increased usage of cash and junk bonds, have served to convince managers and investors that the old rules do not apply. Until these new expectations are changed through a number of disappointing mergers, the current wave is likely to continue.

Conclusions

While the evidence on the existence of a 1980s merger wave is clear, the cause of the merger wave is not. This paper has provided some important pieces to the merger wave puzzle, but a more complete picture will have to await further research.

This research faces several hurdles. One, prior studies of merger waves do not provide much guidance for understanding the current wave. These studies have focused primarily on macroeconomic causes of merger waves. This wave has straddled two dramatically different periods in the business cycle. To understand the current wave, macroeconomic factors must be incorporated into a change-in-regime analysis. For example, the current wave may have started as a search for bargains in a depressed stock market and then changed into a more traditional wave riding the current stock market boom. Two, the underpinnings of any merger wave theory depend on the motivations for mergers. Although significant research has been devoted to this topic, the list of potential motives is still large and the conditions under which they apply are not well understood. Three, even highly aggregated statistics, such as W. T. Grimm's, show that current merger activity is not evenly distributed across industries. Thus, analyses of industry-specific merger effects are critical. Most data sources employed in merger research use only a single industry code to classify highly diversified firms and often this industry code is at a very aggregated level. As a result, most researchers have concentrated on firm effects. Further research needs to focus on the development of more detailed industry-specific merger data.

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Discussion

*John D. Paulus and Stephen R. Waite**

As David Ravenscraft indicates in his study, the merger wave of the 1980s, fourth in the past one hundred years, has many causes. At the risk of oversimplification, we shall discuss two factors that seem especially significant, namely, heightened competition and the junk bond market. Increased competition—resulting from the effects of a strong dollar on U.S. manufacturing's competitive position as well as from deregulation—has forced companies to restructure their organizations in order to become more efficient and cost-effective. The maturing junk bond market has been important in maintaining the momentum of the merger boom, especially since 1985. More and more, these securities are used in leveraged buyouts, which represent an increasingly large portion of total merger and acquisition transactions. This is not surprising, given the effectiveness of leveraged buyouts in achieving cost efficiencies, a primary motive for restructuring.

Yet, as a lower dollar improves the manufacturing sector's competitiveness globally and as deregulation abates, will the merger frenzy continue? There are good reasons to believe that it will. Productivity problems in the service-producing industries, and the anticipated revenue shortfall in this sector as a lower dollar curbs household purchasing power, suggest that the pace of restructuring will pick up in the services segment of economy. Furthermore, leveraged buyout transactions could become the dominant vehicle in this restructuring process, given the need to attain cost efficiencies in service industries. Adding to the popularity of leveraged buyouts will be junk bonds, as this maturing market assures that financing will be available. Thus, the merger boom could be with us for the next several years.

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Forces Behind the Restructuring Boom

After dominating the world economy for 25 years following World War II, the industrial might of the United States began to ebb in the 1970s. Advances in worker productivity in manufacturing lessened relative to the gains of earlier years, and the sizable advantage that the United States had enjoyed compared with other countries was eroded somewhat by faster growth abroad in output per hour, as shown in table 1.

Table 1
Average Annual Growth in Manufacturing Productivity and Unit Labor Costs, Selected Countries, 1973 to 1980
Percent

	Productivity Growth	Unit Labor Cost Growth	
		Local Currency Basis	U.S. Dollar Basis
United States	1.2	8.5	8.5
Japan	5.7	5.8	8.6
Germany	3.7	5.4	11.2
United Kingdom	.1	18.5	17.6
Canada	1.2	10.4	8.0
France	4.5	11.0	11.8
Italy	3.7	16.1	9.9

Source: U.S. Bureau of Labor Statistics.

As a result, from 1973 to 1980 unit labor costs in manufacturing, measured in local currency terms, grew somewhat faster in the United States than in Japan and Germany, today's giant surplus nations. Nevertheless, the competitive position of the United States was temporarily shielded in the 1970s by the falling dollar. When translated into U.S. currency (giving a more important measure for gauging competitive balances in global markets) Japanese unit labor costs grew in line with those of the United States, while Germany's grew at a rate 30 percent higher. Indeed, despite the appreciable slowdown of worker productivity in manufacturing and the rapid increase in unit labor costs, the United States was able to achieve essential balance on foreign trade during the 1970s. But with the surge of the U.S. dollar in the 1980s, the protective shield disappeared. Benefiting from currencies cheaper than the dollar, foreign competition intensified sharply, and American companies, struggling to survive, sought more efficient asset configurations through corporate restructuring.

At the same time, the regulatory environment in the United States changed dramatically. The antibusiness sentiment of the 1960s and the first half of the 1970s, favoring heavy regulation, gave way to a more constructive vision of the role of the corporation in American society. The result was a significant reduction by the late 1970s in regulatory

restraints on trade and commerce and an attendant increase of competitive forces in both the service and the manufacturing sectors. Many American corporations reacted to these pressures by seeking combinations with other, healthier companies.

Competition: The Dollar

Table 2 shows the destructive effect of the soaring dollar on American manufacturers, whose goods comprise 85 percent of all U.S. exports—the same percentage that manufactured imports are of total U.S. imports.[1] In local currency terms (column 1), unit labor cost increases in the United States from 1980 to 1985 were not out of line with those of other major industrial powers. But once the impact of the rising dollar on foreign costs is accounted for (column 2), the United States fared much worse. Excluding Canada, a dollar-bloc nation, from the comparison, the U.S. cost disadvantage (that is, the excess of increases in U.S.

Table 2
International Competitiveness and the U.S. Trade Balance, 1980 to 1985

	Average Annual Growth in Unit Labor Costs		
	(1) Local Currency Basis (Percent)	(2) U.S. Dollar Basis (Percent)	(3) Change in Bilateral Merchandise Trade Balance ($ Billions)
United States	2.1	2.1	. . .
Japan	−1.1	−2.2	−33.1
Germany	1.8	−7.6	−10.4
United Kingdom	3.3	−8.1	−6.4
Canada	5.4	2.2	−13.7
France	7.4	−7.6	−5.1
Italy	12.6	−4.1	−6.1

Source: U.S. Bureau of Labor Statistics and U.S. Bureau of the Census.

unit labor costs over those of other nations, measured in dollars) ranged from 4.3 percentage points per year for Japan to 10.2 percentage points per year for the United Kingdom. The change in the bilateral merchandise trade balance (column 3) with each of the six nations in the table totaled some $75 billion and accounted for almost 80 percent of the $96 billion deterioration in the U.S. trade account from 1980 to 1985.

Coincident with this foreign intrusion into U.S. markets, the manu-

[1] Thus, U.S. manufacturers vie with foreign companies for 85 percent of all U.S. exports and 85 percent of all import-competing goods.

facturing sector underwent substantial restructuring. As shown by the restructuring intensity measures in table 3, restructuring in manufacturing (1.86) was almost twice as intensive as in the economy overall.[2] This stands in sharp contrast to the intensity of restructuring in the rest of the economy, which was far less susceptible to foreign competitive pressure. Indeed, the two largest service-producing industries, wholesale and retail trade, which have been essentially invulnerable to competition from abroad, had restructuring intensity measures of just 0.1 and 0.4, respectively. (That is, they were 90 percent and 60 percent less intensively restructured than the economy as a whole.)

Table 3
Restructuring Intensity and Productivity Performance in the United States in the 1980s

	(1) Share of Export Trade (Percent)	(2) Share of GNP (Percent)	(3) Value of Mergers and Acquisitions (Percent)	(4) Restructuring Intensity Measure (3) ÷ (2)	(5) Improvement in Productivity[a]
Manufacturing	85	22	41	1.86	2.1
Rest of Economy	15	78	59	.78	.6

[a] Improvement in productivity is measured as the percentage point difference between average annual productivity increases from 1981 to 1986 and from 1973 to 1980.

Interestingly, if restructuring was undertaken in order to achieve cost efficiencies, the manufacturing sector seems to have succeeded. Productivity increases in manufacturing averaged 3.7 percent per year between 1981 and 1986, up from 1.6 percent per year from 1973 to 1980 for a 2.1 percentage point gain. In the rest of the economy, productivity grew 0.8 percent annually in the latter period, only slightly faster than output per hour from 1973 to 1980.

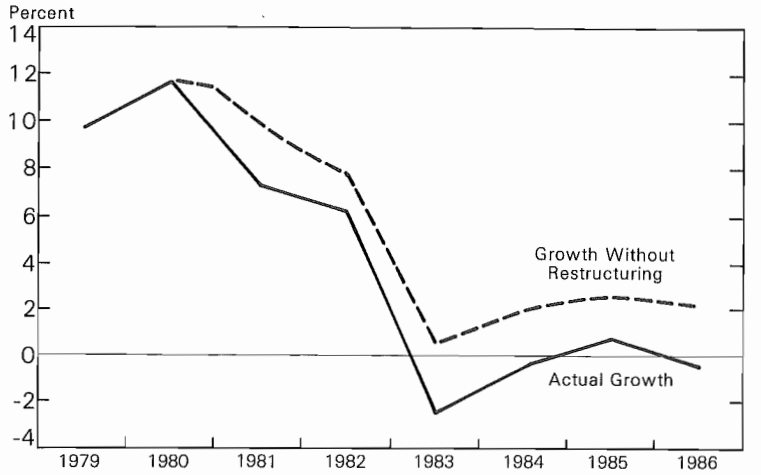
In addition to enhancing productivity, restructuring in manufacturing has in many cases depressed wage increases. Based on a standard wage model, it appears that wage gains were held down about 1 percentage point per year from 1983 to 1986.[3] The results of these developments are shown in figure 1. When the 1.5 percentage point enhancement to productivity growth is combined with the Morgan Stanley estimate of the induced slower wage gains from the labor market model, the impact of restructuring on unit labor cost growth in U.S.

[2] The restructuring intensity measure is computed as the share of the total dollar value of mergers and acquisitions in a sector divided by the share of GNP accounted for by that sector. For manufacturing, the restructuring intensity measure would be calculated as 41 percent divided by 22 percent, yielding 1.86. For the economy overall, the restructuring intensity measure is equal to unity, or 1.

[3] For a more complete discussion of the standard wage model, see Paulus and Gay (1987).

Figure 1

Estimated Effects of Restructuring on Unit Labor Cost Growth in U.S. Manufacturing in the 1980s



Note: The estimated effects of restructuring on unit labor cost growth reflect the difference between actual and predicted growth, the latter based on a simulation of a standard model of wage growth and the deviation of productivity growth in the 1980s from the 1973 to 1980 trend rate.

Source: Morgan Stanley & Co. Incorporated and U.S. Department of Labor.

manufacturing is dramatic.[4] These cost efficiencies are not surprising, given the unprecedented competitive pressures from abroad that the manufacturing sector experienced during the 1981 to 1986 period.

Competition: Deregulation

In the late 1970s, the Carter administration initiated what became under President Reagan a comprehensive program of industry deregulation. Starting with air transportation in 1978, other industries underwent substantial deregulation in the 1980s—most notably, banking, trucking and railroads, communications, and energy. The increased competition faced by companies previously protected by regulations

[4] The 1.5 percentage point enhancement to productivity growth equals the 2.1 percentage point productivity increase occurring in the 1981 to 1986 period minus the 0.6 percentage point gain in nonmanufacturing. It can be assumed that a 0.6 percentage point increase would have occurred in manufacturing if no restructuring had taken place.

against entry into their markets by "outsiders" induced restructuring in many of these industries and improved cost efficiencies.

Shown in the top panel of table 4 are three deregulated service-producing industries that had been highly regulated: railroads, airlines, and banks. In all three, productivity increased significantly from 1980 to 1985, compared with the trend established between 1973 and 1980. Moreover, the restructuring intensity measures for railroads and banking are well above average, indicating intensive restructuring. For air transportation, an industry with a restructuring intensity measure of less than one for the 1980 to 1985 period, the measures for 1985 and 1986 were 2.0 and 1.9, respectively. In contrast, mass transit and electric utilities, two industries that have remained highly regulated, exhibited declining productivity trends and below-average restructuring intensity ratios.

Table 4
Deregulation and Restructuring in Selected U.S. Service-Producing Industries

Industry	Restructuring Intensity Measure 1980–85	Percentage Point Change in Rate of Productivity Growth (1980–85 versus 1973–80)
Deregulated:		
Railroad Transportation	3.1	+7.1
Air Transportation	.6	+1.9
Commercial Banking	2.1	+3.0
Not Deregulated:		
Mass Transit	.2	−1.3[a]
Electric Utilities	.9	−1.6

[a] Productivity change 1980 to 1984 only.

While it is impossible to prove empirically that increased competition must lead to lower costs, common sense and economic theory both reach this conclusion. Cost reductions can be achieved through internal restructuring, such as that undertaken by Ford, General Motors, AT&T, and IBM in recent years, or through the actual buying and selling of companies or divisions of companies. We believe that the evidence supports the view that heightened competitive pressures—caused by the rising dollar in manufacturing and by deregulation in service-producing industries—have played an important role in encouraging merger and acquisition activity.

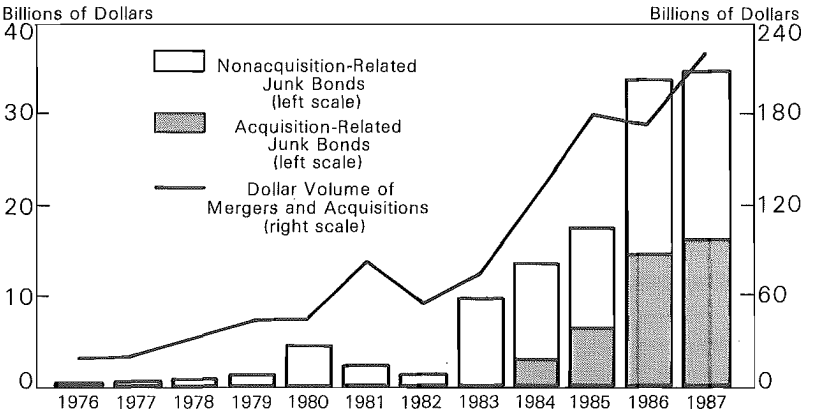
Junk Bonds and the Merger Wave

Junk bonds have come to play an increasingly important role in takeovers and in sustaining the momentum of the merger wave. As

shown in figure 2, since 1985 between 30 and 40 percent of these high-yield instruments have been used to finance acquisition-related transactions. In 1986, the last year for which complete data are available, the $14 billion in junk bonds issued for takeovers represented about 8 percent of total merger activity, almost double the percentages for 1984 and 1985.[5]

Figure 2

Junk Bonds and Merger and Acquisition Activity



Note: For 1987, data reflect the first nine months of the year expressed at an annual rate.
Source: Morgan Stanley & Co. Incorporated and W.T. Grimm & Co.

But this is only a part of the junk story. With the recent emergence of leveraged buyouts, junk financing could begin to play a much more prominent role in financing mergers and acquisitions. According to rough Morgan Stanley estimates, a disproportionate share of acquisition-related junk financing is devoted to leveraged buyouts. Our figures indicate that as much as 25 to 30 percent of this activity is financed by these high-yield bonds, which, as mentioned previously, are responsible for just 8 percent of total merger and acquisition financing.

Moreover, as shown in figure 3, leveraged buyouts have recently begun to represent an increasingly large share of total merger and acquisition transactions. For the first nine months of 1987, leveraged buyouts accounted for 18 percent of the total dollar volume of announced acquisition-related deals, about the same as in 1986 and up slightly from the 15 percent share witnessed over the 1983 to 1985 period.

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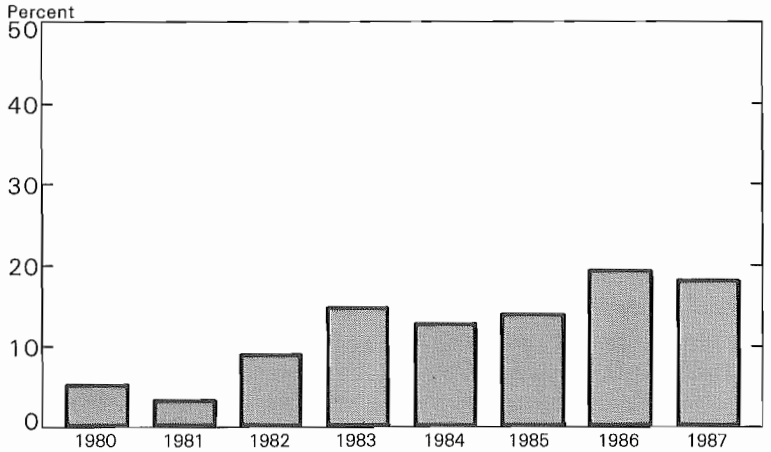
[5] The common perception is that junk bonds have been issued predominantly (or even exclusively) in connection with merger activity. However, the statistics prove otherwise.

Figure 3
Leveraged Buyouts as a Percentage of Total Merger and Acquisition Activity



Note: Data are based on announced deals and exclude terminated transactions; data for 1987 are through September 30 only.
Source: Morgan Stanley & Co. Incorporated.

And it is likely that the popularity of these transactions will continue, given their ability to achieve efficiencies for corporations such as those involving cost and the allocation of resources. Since many of the senior managers are owners of and creditors to the business entity—receiving portions of the equity and debt used to finance the transaction—they have a significant stake in the company and thus have an incentive to run the firm in a cost-effective manner.[6] Efficiencies are achieved since managers have less inducement to invest any free cash generated by the firm in unprofitable business ventures yielding below-market rates of return. More likely, free cash that cannot be invested profitably in the business will be paid out to shareholders and creditors, thus enhancing the value of the firm.[7]

Will the Wave Continue?

As a lower dollar improves the U.S. manufacturing sector's global competitiveness and as deregulation abates, will the merger frenzy con-

[6] This is called "strip" financing, whereby a portion of the equity and tranches of debt are taken by each owner. Much leveraged buyout financing is done on this basis.
[7] For a discussion of the agency costs of free cash flow, see Jensen (1987).

tinue? There are good reasons to believe that it will.[8] Since 1981, manufacturing and mining, contributing over 25 percent of GNP, accounted for almost 60 percent of the dollar value of merger and acquisition transactions.[9] In contrast, while some service-producing industries have seen considerable merger activity, there is a large portion of the service sector that has not. For example, in business services and wholesale and retail trade, which together account for over 30 percent of U.S. employment—a share far larger than that of manufacturing and mining—restructuring has been notably absent, comprising, in general, fewer than 10 percent of the acquisition-related transactions.

Given the poor productivity performance in these sectors, it is something of a puzzle that more restructuring has not been undertaken. As noted previously, the restructuring intensity measures in wholesale and retail trade for 1980 to 1985 were 0.1 and 0.4, respectively, while the restructuring intensity measure for business services was 0.3. The greater attention now being paid to productivity problems in service-producing industries seems to imply, however, that the pace of restructuring may soon pick up in this sector.[10]

Moreover, a sizable further decline in the U.S. dollar, which we expect will occur, would reinforce these pressures. The reason for this is that a sharply lower U.S. currency would redistribute real purchasing power away from households (as a result of rapidly rising import prices) and toward businesses producing tradable goods (Paulus 1987). This siphoning of purchasing power from the household sector in turn should adversely affect service sector revenues in the years ahead. The combination of a widely acknowledged productivity problem and a revenue shortfall in the service-producing industries could prove to be a potent force for stimulating a substantial increase in restructuring in this sector of the economy.

In the restructuring process, leveraged buyout transactions could become the dominant vehicle. The reason for this is that the internal rate of return on investments available to service sector firms in the process of downsizing will be very low, and if internal rates of return fall relatively more than cash flow, which seems likely, a large volume of free cash flow will be generated. The way to ensure that this flow is paid to owners and not invested internally at a below-market rate of return will

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[8] A bill in Congress, which involves eliminating the deduction for interest expenses exceeding $5 million a year on debt from a takeover or leveraged buyout, could have an adverse effect on merger and acquisition activity.

[9] Many of the acquisition-related transactions in mining, which includes oil, can apparently be explained by the free cash flow theory. In the case of oil, cash flow increased, and marginal returns on investments in petroleum fell in response to the surge in oil prices and the resultant decline in demand. See Jensen (1987).

[10] For a discussion of productivity in the service-producing industries, see Roach (1987 a,b).

be to use a leveraged buyout structure. Moreover, the maturing junk bond market, assuring that financing will be available for viable leveraged buyouts, should reinforce the popularity of these transactions.

The previous three merger and acquisition waves lasted four, five, and six years, running from 1898 to 1901, 1926 to 1930, and 1965 to 1970 (Ravenscraft 1987). The current boom is generally dated from 1981 and thus is now ending its seventh year. With cost efficiencies still to be achieved in a large portion of the service sector, and with leveraged buyouts and junk bond financing providing viable means to obtain these results, there are good reasons for believing that this merger wave could roll into the 1990s.

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Discussion

*Robert P. Henderson**

I would like to offer you the insights of one who has been through a takeover. I went through it as Chairman and CEO of Itek when it was acquired in 1983 by Litton, in what at the time was described as a "friendly takeover." (The only thing that I will never know is whether the takeover would have gotten "unfriendly," had I not been friendly and willing to *be* friendly.) With that kind of background, I started thinking on a much more "macro" basis about the motivations behind this particular acquisition of a major corporation by another large corporation. And one of my conclusions is that, broadly, there is probably a different set of motivations behind each and every merger as it comes down the pike. However, I think it would be worthwhile to step back for a second from some of the economic thinking about mergers and look at the CEO himself, and think about the motivations of CEOs in the period, say, from 1975 to the present.

If you look at CEOs in the late 1970s, they came out of graduate business schools; they were very competitive; they were very ambitious; they wanted to beat out their peers; and they looked at how they could do it. One of the points that Paulus made is the appropriate one: you had high interest rates, and you had a pretty low value of equity. And so you looked around. You were being measured on a quarter-to-quarter basis, and it was a lot easier to make a mark by going out and acquiring companies than it was by investing in large R&D projects that would not pay off for five, six, or ten years—or might *never* pay off. So it seems to me that the ego of the CEO is a critical factor, and that the motivations behind a lot of acquisitions really lie in the lap of the CEO during the strategic planning process. If he says, "I want to find a reason to acquire

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that firm," then it is amazing, the synergisms that will be discovered. I submit that you can find a synergistic reason for nearly anything if you really dig at it: in geography, or products, or markets, or people, or finance. There is a synergistic reason for almost anything.

I examined the Itek and Litton situation in light of the motivations that David Ravenscraft outlined in his paper, and it was an interesting exercise. The first motivation, "Did the target company shareholders earn a significant and substantial return?" worked out pretty well for the Itek shareholders. It was a cash deal, and they paid us $48 a share. The stock was selling for $30 a share, and the book value was $19 a share. Now, Litton subsequently sued Shearson Lehman for $30 million, saying that they paid too much for Itek. So I am convinced that my shareholders are reasonably happy on that basis.

The second finding—that the earnings of the bidding company's shareholders are much more erratic—is very hard for me to track in the current period, because at the time Litton acquired Itek, its own stock was selling someplace in the 60s. It went down a little bit, and then in the feeding frenzy that's gone on in the past couple of years, Litton stock has gone a lot higher. And the reason, ironically, is that Litton has itself been identified as a takeover candidate. So I can't put any "yes" or "no" on that one.

The third observation was that target companies are generally undervalued by the market. Well, I don't think that was the case with Itek. And you can base this on inefficient management if you like, but we had had a loss year, so our stock was selling at about 2,000 times losses at the time Litton came after us. You might ask, "Why did they come after you?" The reason clearly had to do with (and this gets a little bit away from going through the Ravenscraft findings) the synergism involved in the acquisition. Litton sat back and said, "We want to build our defense electronics business. Where can we find capability in the defense electronics area?" Itek was the leading producer in the world of radar warning devices for tactical airplanes. We also had a weak graphics business, and we had an optical systems business that made cameras for the satellites—three self-standing businesses in very different areas. The optical systems business was highly classified, one that Litton could not have known about because we could not tell them anything about it. So the whole acquisition was made on the basis of 35 or 40 percent of the company.

Now the synergism in this case, if you track it through, is very interesting. As I said before, I believe you can identify synergism any way you want. You can rationalize an acquisition based on any number of different reasons. But generally, the fit is forced, and after a short period of time, it becomes clear that it is probably not going to work out very well. In Litton's case, it did *not* work out very well because of one of

the other points that has been made here: the tendency on the part of an acquiring company to walk into the target company with "superior" knowledge of how things should be done. That can result in the replacement of management, as it did in the case of the defense electronics part of Itek. It can also evidence itself with another layer of bureaucracy coming in. A lot of different things can happen. The real reason that you do not generally have successes in the long term is that the management of the acquiring company does not do a good job of it. You have two corporate cultures and you really have to work to put them together successfully. In most cases the patience to do this is not there because the short-term results are a disappointment.

Now, this is different from leveraged buyouts because there you are going to have a terrific result for one major reason: self-interest. Usually management has a high level of stock ownership. Itek had very little debt. There certainly were not any tax savings involved. In fact, the greatest concern was whether Litton could find a way to write up the assets in order to reduce the goodwill. There was a large amount of goodwill. There was also very low stock ownership on the part of management in Itek. The level should have been a lot higher, as I think back on it now. So, there really wasn't any motivation. Here was a company that was losing money, selling for "infinity times earnings" with a book value per share of about $20, and Litton paid $48 a share to take it over. Now, I am the CEO of that target company. Whether I own any stock or not, I have a lot of trouble going to my Board and saying, "I don't think we ought to take this deal." You might ask why we did not search for a white knight. In my analysis, there wasn't any white knight that was going to pay more than a couple of dollars more per share for Itek, and the search really was not worthwhile in terms of what it might do to the company.

If I look at all of the findings from Ravencraft's paper, I come down with the conclusion that five of them are in concert with Litton's reasons for the acquisition of Itek and four of them probably did not have any effect on Litton's thinking. And I think that's what you'd find if you went through almost any takeover or acquisition—a great mix of reasons why companies are acquired, and no two sets of reasons the same. But if you look at some of the catalysts—I was particularly intrigued by what Paulus said on that. However, I am going to take a little different tack, because I believe that one of the major reasons that we are seeing so many restructurings right now, and so many leveraged buyouts, is that so many mistakes were made when companies went through the so-called "conglomerate stage." Acquisitions were put together for the sake of enlarging companies from a size and earnings standpoint, and very little thought went into whether or not there was real synergism. In many of the large industrial organizations that went through the "con-

glomeration" stage in the 1960s and early 1970s, the same CEOs are now saying, "Gee, those businesses are not right, and we are going to restructure, and we are going to take a hundred-million-dollar write-off." Ironically, the market reacts very positively to that. And I can understand why it does. But the fact is that much of the reasoning is the result of the mistakes that were made in the first place.

Secondly, I believe that another factor must also be considered as a catalyst, especially in terms of leveraged buyouts (and, incidentally, as one of the reasons that a high level of merger and acquisition activity will continue). If 40 percent of future deals are of the leveraged buyout type, where management is going to own a big share of the equity, then over some period of time—shorter, probably not longer—there will be a desire to liquify that position. And liquifying that position means one of two things: going to the public market, or, if we do not have a hot stock market, the alternative of selling out. And so we are going to see the rise in the level of stock ownership on the part of management as a catalyst for the future growth of merger waves. If you put stock ownership in the hands of management, it is incredible what happens to the company itself. Management begin running it for cash; they begin taking inefficiencies out; they do things it would have taken five or six years to get around to, otherwise.

One additional point: In the mid-1970s many of the trustees of fiduciary organizations—the big endowments, pension funds, activities like that—made a fundamental change in thinking as to where they would be willing to invest their money. And this change has been the engine that permitted a lot of the restructuring activity to happen. My goodness, 10 years ago, if those funds were not 80 percent in fixed income, their trustees had trouble sleeping at night. Today, you find even university endowment funds ready to put a hundred million dollars into real-estate-type deals, into high-risk investments that would not have been made some time ago. That change in thinking has caused the terrific surge in these big pools of money that permit restructuring to take place.

Financial Innovation and Corporate Mergers

*Gregg A. Jarrell**

Merger and acquisition activity is the statistical reflection of the various ways to reshuffle "business assets" among competing management teams. In perfect long-run equilibrium, each asset, alone or combined with other assets, will be owned and controlled by the team that places the highest value on it. So, in response to the question, "What causes today's merger boom?" we should look to recent economic shocks in the market for corporate control. A moderately informed observer can point to several legal, economic, and regulatory shocks that might imply wholesale reshuffling of corporate assets among competing management teams. Innovations in the financial markets, the subject of this paper, have played an important and high-profile role in the story of recent merger activity.

The considerable media fascination with such financial innovations as junk bonds, poison pills, and lock-ups is due to their being convenient targets of attack in the political arena, where a flat-earth type debate rages on the proper regulatory policy for these transactions. The degree of media attention, therefore, is not a reliable indicator of the object's true economic importance. Two-tier tender offers, for example, have become so closely associated with evil intent that the Delaware state courts have created a nearly separate body of state law to throttle them, despite the lack of any empirical evidence that they cause the harm that the courts claim they do. In this convoluted political debate, it often happens that innovations having little direct effect on the pace of takeover activity become invaluable rhetorical excuses for regulatory and judicial actions, which themselves have significant direct effects on this economic activity.

My purpose here is to examine the connection between financial

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innovations and merger and takeover activity. In so doing, I will be forced to assess the relative impacts of several innovations through two distinctly different avenues of influence—political and economic. To set the stage somewhat, I will first review the major changes in the merger and acquisition market over the last decade or so, describing briefly the increased scope of activity and its probable causes. This discussion will be uncomfortably speculative and suggestive. No one has yet systematically examined this important question of causation, perhaps because these events are too recent.

From this background, I will next try to identify the financial innovations that are of any real or claimed consequence. Using whatever published data and other resources are available, I will offer some judgments about the economic and political effects of these innovations. I will treat the economic and the "regulatory and political" effects separately.

The conclusion will emphasize the very strong difference between the economic and the political importance of many innovations. I argue that in many respects the regulation of tender offers seems to be repeating the history of antitrust policy, where strong economic myths, together with compelling political forces, dictated the building of an effective policy restricting acquisitions. Although both policies make little economic sense, they have powerful effects on tomorrow's financial innovations, spurring efforts to evade the costly effects of regulation and deterring other innovations that otherwise would be profitable to pursue. Just as the suffocating antitrust restrictions of the 1960s helped spur the economically inefficient trend towards corporate conglomeration, today's restrictions on secretly acquiring footholds in prospective target firms will help spur the invention of new devices that enable entrepreneurs to earn returns on their investments in public information. I will end with some guesses and cautious predictions about the factors that will guide future innovations and the changes in the political and regulatory structure we might expect.

The Rise in Merger and Acquisition Activity Since 1980

Corporate takeovers and mergers have become very big business in the 1980s. A few figures are enough to make this point vivid. The Office of the Chief Economist of the Securities and Exchange Commission estimates that shareholders of target firms in successful tender offers from 1981 through 1986 received payments in excess of $54 billion over the value of their holdings before the tender offers. Including mergers and leveraged buyouts, W. T. Grimm & Co. estimates total premiums over the same period to be $118.4 billion. If we assume that most corporate

restructurings are motivated by the same factors driving mergers and tender offers, then we should add another roughly $100 billion in premiums to shareholders since 1980. It is no wonder that today's most popular subject among top managers of public firms is creating shareholder value.

Legal and Regulatory Changes in the Market for Control

There are several broad explanations for this record activity in mergers and acquisitions. The same trends explain why the bulk of this activity has been concentrated on large publicly traded firms, and how this has shaped much of the political response to the modern merger boom. I begin by considering the major regulatory and judicial changes that have helped to spur mergers, takeovers, and restructurings since 1980.

Pro-Merger Antitrust Policy

The "Chicago school" of antitrust regulators was ushered in as part of the Reagan administration's general plan to deregulate American businesses. By all appearances, antitrust policy has changed dramatically since their arrival in 1980. Horizontal mergers, completely taboo before 1980, have become common, even between huge public firms. Vertical mergers, involving firms in different industries, have rarely faced serious antitrust challenge, quite unlike the frequent challenges based on exotic economic theories during the 1960s and 1970s. It is too early to tell whether this new mergers-for-efficiency doctrine will long rule, but one factor suggests that these changes are durable, if not permanent. That factor is the increasing reliance on international competition—a global marketplace viewpoint—to protect the consumer public from monopolistic behavior.

Whatever the true reasons for the policy shift, it is clear that the firms most affected are the large, publicly traded ones whose sheer size made them takeover-proof under the old antimerger antitrust policy. The data show a marked increase in the size of the target firms in the 1980s compared with the 1970s. The average market value for targets of tender offers made in the 1980s is $327.4 million, which is over four times the average size of targets from the 1970s. Moreover, in recent times the hostile targets are double the size, on average, of the friendly targets of tender offers, a disparity absent in the pre-1980 cases.

Under the old antitrust rules, the acquirers were principally large conglomerate firms. The 1980s bidder is more commonly a medium-sized competitor in the same or a related industry, or some partnership aiming to take the target private and sell the major pieces to the target's

competitors. Ironically, it is by this very process that the conglomerates of yesterday are being dismantled through "bust-up" restructurings, many to defend against takeover attempts.

Industrial Deregulation

Another goal of the Reagan revolution was industrial deregulation. This new competition has further heightened the upward trend in merger activity, especially horizontal mergers that involve competing firms. For this reason, industrial deregulation's effects have been greatly enhanced by the simultaneous relaxation of antitrust restrictions on horizontal combinations. Deregulation has been a significant shock in several major industries over the last decade, including oil and gas, airlines, broadcasting, trucking, railroads, intercity bus lines, telecommunications, securities, and banking.

Although seldom complete, deregulation has in all cases forced on market participants a sudden new reliance on market competition. This generally has resulted in technological and managerial innovations to cope with the more competitive conditions. In view of the wrenching changes accompanying deregulation, it is no surprise that merger and acquisition activity usually increases significantly, at least for the first few years after the onset of deregulation. Some recent data show that industries deregulated since 1980 have accounted for a disproportionate fraction (over half) of the merger and acquisition activity over this period.

Court Decisions on State Antitakeover Laws

The 1982 U.S. Supreme Court decision in *Edgar v. Mite* effectively struck down the dozens of state antitakeover laws that had been enacted since the mid-1970s. In striking down the Illinois Act, the Court held that the law violated the commerce clause as well as the supremacy clause. The commerce clause was violated because state antitakeover laws regulate many nationwide transactions, thus seriously interfering with interstate commerce. The supremacy clause was violated because state laws effectively infringe on federal prerogatives as set forth in the Williams Act. In their 1982 ruling, the majority embraced a sweeping free-market philosophy towards the market for corporate control. Justice White wrote that the Illinois law distorted the "reallocation of economic resources to the highest-valued use, a process which can improve efficiency and competition."

In a startling reversal, however, the Supreme Court on April 21, 1987 dealt a stunning blow to "corporate raiders" by upholding the new Indiana statute blocking hostile takeovers. This ruling has already incited a rush to copy Indiana's strictures and has given courage to those

defending the even tougher New York and New Jersey laws from constitutional challenge.

Nonetheless, the impotence of state securities regulators during most of the 1980–87 period is an important reason why takeovers have been so active. State regulators apparently have powerful political incentives to protect hometown corporations from hostile takeover attempts, even if national economic welfare is best served by a passive policy. Probably, this is because the employees, managements, and local economic interests that can benefit from protection have a visible and vocal presence within the state, whereas in most cases the great majority of shareholders of these large national firms reside out of state.

Although the recent Wall Street scandals threaten the trend, the courts since 1980 have retreated from their activist role in protecting the independence of hostile takeover targets. In previous decades, courts were quick to grant injunctions and restraining orders against hostile bids. Now, most courts rely on the federal regulation embodied in the Williams Act, with its emphasis on adequate disclosure and "cooling-off" periods for target shareholders, and seldom impose further restrictions on the process.

This changed attitude has been brought about in part by the embarrassment caused when past court actions blocking premium bids imposed huge capital losses on shareholders. These experiences have made judges skeptical of the motives of the incumbent management who argued that target shareholders were being victimized by the "raid" on the firm. The prevailing judicial attitude is to promote effective auctions for target firms that have been put "in play" by a premium bid, without undue favoritism towards any competing bidder. Incumbent target managers often have been forced to compete openly with the hostile raider using recapitalizations and going-private transactions. This has increased the odds that the typical target will be restructured, while reducing the odds that the original hostile bidder will oversee the restructuring.

Financial Innovations Affecting Merger Activity

The past two decades have brought profound changes in the financial markets, ranging from the deregulation of the securities industry and the growing institutionalization of equity ownership to the invention of various weapons of war such as poison pills and two-tier tender offers. This section catalogs the most important or often-mentioned of these innovations. The reader should be forewarned that I apply the term "innovation" quite liberally, lumping together trends and modified financial instruments under the same general heading. My rule is, if it's

new and it affects merger and acquisition activity, then it's eligible for at least passing mention on this list.

The Rise of Institutional Investors

The most fundamental change in the securities markets over the past two decades has been the growing fraction of equity ownership and trading that is accounted for by institutional investors. This proportion has increased from about 5 percent in the early 1960s to between two-thirds and three-quarters today. Many factors have coincided to cause this. The pension fund laws of the 1970s, deregulation of fixed commission rates in 1975, and the rising demand by small investors for portfolio investment opportunities have all contributed to this trend. There appears to be nothing ahead that would reverse the increasing professionalism of the stockholder population.

Perhaps the most important consequence of this institutionalization is that it increases the mobility of capital, especially to the control-oriented investor seeking large accumulations over short time periods. But, it does more. It sharpens the capital market's pencil for valuations, increasing the monitoring of the productivity of managerial strategies while it provides predatory pools of capital to facilitate the arbitrage process of aligning current market value with maximum "break-up" value. Both forces help bring about a more competitive market for corporate control.

Increased Skill in Valuing Corporate Assets

As the market has increased for sophisticated analysis of hypothetical valuations of bundles of corporate assets, the degree of specialization and overall quality of valuation analysis have also increased. The development of mathematical approaches for valuing options and futures and the remarkable advances in computer technology used in the valuation business have had profound effects on the way professionals in this field conduct their work. Together with the increased disclosure requirements for public corporations and the growth in the number of security analysts, these developments tend to improve the informational efficiency of the capital markets, making them more amenable to control-oriented security transactions where valuation accuracy is so important.

High-Yield Bonds

So-called "junk bonds," which are non-investment-grade corporate bonds, have been among the most controversial recent innovations. The spotlight has been directed at several recent hostile takeover attempts of

large targets that were financed by junk bonds, which are mostly sold to wealthy investors and have recently been available to investors through mutual funds. In truth, junk bonds have had a far greater impact among the thousands of medium-sized and small firms that issue junk bonds to raise capital for new business investments than they have had on the financing of takeovers. These smaller issuers use junk bonds because they cannot at the time obtain investment-grade ratings, and because junk bonds can have advantages over bank borrowings, the other major source of non-equity capital to those firms.

The innovation behind the junk bond of the 1980s, as distinct from the "fallen angel" junk bonds that were investment-grade when originally issued, is the improved technical analysis of the issuing firm's prospects for repaying the debt in the event of business problems. Also, unlike investment-grade bonds, junk bonds do not have many covenants, which are various restrictions designed to protect bondholders in times of financial distress. The junk bond is designed for use in highly leveraged and risky circumstances, with more flexibility to facilitate recapitalizations and workouts and without rigid covenants that would run too great a risk of bankruptcy if used in these situations.

The explosive growth in junk-bond issues by scores of medium-size firms has undoubtedly created large savings in financing costs to issuers. During the 1980s, junk bonds have become a major vehicle for raising corporate capital and they should continue to be so for some time. Their notorious reputation was made beginning in 1985, when junk bonds first were used to finance hostile takeovers. Although junk bonds accounted for under 15 percent of total financings for successful tender offers in 1985, their visibility was enhanced because the targets were large and well-known. Also, junk bonds were associated with failed takeover attempts early on, which did not help their image. But, in the past two years junk bond financing has become a major source of financing for all kinds of tender offers—hostile, friendly, management buyouts, and financial restructurings. They are used on both offense and defense, and by both raider and management bidder.

Equally important, substitute financing vehicles, such as merchant-bank type arrangements by highly capitalized securities firms and more traditional bank financing, have also become more competitive in serving the bidder in search of the large target. The wide availability of these excellent substitutes for junk bonds in the takeover market suggests that taxing the junk-bond bidder will not have a large effect on the pace of takeover activity. Nor would such a tax necessarily tilt the scales towards the target in takeover contests.

Leveraged Buyouts

Although leveraged buyouts and other types of going-private transactions have been around for many years, their numbers have grown dramatically during the 1980s, and volume has increased disproportionately because of the unprecedented size of the targets. Like other control transactions, leveraged buyouts provide large premiums to shareholders. They also virtually guarantee a capital structure loaded with debt, and make interest servicing and debt reduction the focus of the business, at least in the near term.

Unlike most takeovers or mergers, leveraged buyouts do not have directly observable measures of the post-transaction profitability of the target. The bidder is not a public firm, so there is no stock-price response to the news of the bid. Also, because the target becomes a private firm upon execution of the leveraged buyout, there is generally no way to measure the change in the value of the target after it is taken private. An important exception (almost too important, indeed, to be useful!) is the case when the target later goes public, providing a clear indication of how very well leveraged buyouts can work out, when they work out. Still, the main evidence that they create large increases in value is the persistent willingness of managers and investors to invest so heavily in this form of reorganization.

Some excellent academic work on leveraged buyouts has shed hazy light on the intriguing question, "Where do the gains come from?" Tax savings provide an important, but not dominant, part of the answer. There do not appear to be any mystical "financing" gains, as is implied by the theory that "debt is simply cheaper than equity." And it is difficult to believe that the behavioral value of endowing managers with enormous, highly leveraged equity positions can account for a significant part of the 30 percent average premium over market value typically paid in leveraged buyouts.

Rather, the value created by leveraged buyouts has probably resulted from fundamental changes in the operating strategies of the firms. Generally wholesale reallocations of corporate assets occur, changes that mainly result from managements viewing their firms in the way that a takeover investor would. The financial innovations behind leveraged buyouts are the improved precision of the valuations that determine debt capacity and the new debt instruments that provide the financing. According to the free cash flow theory advanced by Jensen, the use of high leverage is itself a major innovation that could be the key to understanding the process of value creation. Jensen's theory is that high leverage is necessary to ensure that managers in these industries do not over-invest, and that burdensome interest payments accomplish this efficiently. Using a premium stock buy-back financed with debt, the firm

essentially makes immediately available to shareholders the present capitalized value of creating this "guarantee."

This theory fits especially well the facts of the recent leveraged buyout and merger activity in several mature industries that happen to generate vast amounts of cash because of past investments, such as oil and gas, broadcasting, tobacco, forest products, and food. The paring away of underperforming business units that so often accompanies these leveraged restructurings can often be interpreted simply as admissions by top managers that past strategies for using the cash, such as mergers for diversification, have not been productive. As such, they lend further credence to management's pledge to pay out future free cash flow to shareholders.

Innovative Use of the Tax Code

Several important new financial techniques have been developed to facilitate the payment of corporate income directly to shareholders. They commonly benefit shareholders by partially avoiding the "double taxation" of corporate income, at the expense of largely making the cash flow unavailable for corporate reinvestment. The royalty trust has been widely used in the natural resources industry. The master limited partnership, pioneered by T. Boone Pickens, Jr., is another organizational innovation tailored for minimum tax burden on shareholders; it operates to best advantage in the declining industries with few opportunities for reinvestment.

Summary

This completes the list of the major factors that have caused both the increased pace of merger and takeover activity since 1980 and the increased concentration on large targets. The principal legal and regulatory changes are the Reagan administration's relaxation of antitrust policy and industrial deregulation. Also noteworthy are the U.S. Supreme Court's rejection in 1982 of state antitakeover laws and, more recently, the increased focus by the courts on protecting target shareholders from incumbent managers as well as from the bidder.

Turning to the financial innovations contributing to the merger frenzy, the most important has been the rebirth of the mutual fund. Dormant since the Great Depression, the mutual fund and its close cousins have returned to dominate the equities markets. The ascendancy of the professional investor and specialized, high-powered investment research have transformed the market for corporate control, making this market operate with greater efficiency and swifter execution. The widespread use of leveraged buyouts provides a dramatic example of the

innovations in the management of the firm's capital structure, and the high-yield bond an example of the many innovations in the financing of huge control-oriented transactions. Also evident in the 1980s are the tax-driven innovations, such as the royalty trust and the master limited partnership, that reduce taxes for shareholders receiving direct payouts of corporate income.

Together, these forces can probably account for much of the recent increase in merger, takeover, and leveraged buyout activity. Although the experts could easily expand this list of notable innovations, and we will turn to these additions next, I will argue that they are of less fundamental importance for understanding the pace and character of merger and acquisition activity in the 1980s than are the factors discussed above. The innovations described below are recorded more properly as endogenous responses to the more powerful forces spurring hostile takeovers and restructuring of large firms. They are mostly innovative tactics that have been influential in a limited number of takeover battles, but they have no significant long-term effect on the balance of power between outside bidders and targets.

Some will object to this claim when it is applied to particular big-name tactics such as poison pills. But, the attention here is on the counterfactual question: what would have been the ultimate change in outcome and "total welfare" if the tactical innovation had not been invented? It turns out that this is a tough test for these seemingly important innovations in offensive and defensive tactics.

Innovations in Takeover Tools and Tactics

Although not all fall neatly under a single heading, I will nonetheless assign each "innovation" to the category of "offensive tactics" or of "defensive tactics."

Offensive Tactics

Two-tier tender offers. One of the most talked-about offensive tactics is the innovative use of the two-tier tender offer. This kind of offer provides a large premium for a controlling fraction of tendered stock (apportioned pro rata to tendering shareholders) and a smaller premium (usually offered later in a second-stage merger) for the remaining stock, often using securities of the bidder or junk bonds as consideration.

The two-tier tender offer is widely believed to be an effective offensive weapon in hostile takeovers, for its ability to stampede shareholders into tendering for the front-end premium simply to avoid the much lower back-end premium. It is argued that the two-tier offer thereby

allows bidders to pay less for targets than they would using uniform-premium offers.

The rise to popularity of two-tier offers, however, can be largely accounted for by two other factors. One, they are more commonly used by medium-size bidders for large targets, in order to reduce the financial risk of the offer by putting an upper limit on the number of shares that can receive the high front-end premium. Second, the Securities and Exchange Commission quite inadvertently encouraged the use of pro-rated offers in 1979 when it increased the minimum-offer period for tender offers to 20 business days, while leaving at 10 calendar days the minimum period for the pro-rata pool for partial and two-tier offers. This discrepancy created a tactical advantage to bidders making pro-rata instead of any-or-all offers, because the former gave shareholders only 10 days to respond. The Commission increased the minimum period for holding open pro-rata pools to 20 business days in 1984, and the surge in two-tier offers that began in 1980 has subsided significantly.

Because they have been used most frequently in hostile contests for large targets, and usually by relatively small bidders, two-tier offers have received disproportionate attention from the media. More important, the courts have accorded special meaning to the hostile two-tier threat, linking it to the highly leveraged bust-up takeovers that can have especially large effects on the welfare of local communities, employees, and other non-stockholder "constituencies" of the corporation. The Delaware Supreme Court has created a safe harbor for management's unilateral use of defensive tactics having tremendous potential for shareholder harm, such as exclusionary self-tender offers and poison pills, in order to counter the special threat to shareholders allegedly posed by two-tier offers. An empirical study of all tender offers made during 1981–85 finds that two-tier tender offers do not result in lower blended premiums than any-or-all offers and thus do not coerce shareholders into accepting inferior offers (Office of the Chief Economist 1985a).

Sweeping-the-street takeovers. In a handful of recent cases, the winning bidders purchased their controlling blocks in the open market, usually dealing with very few sellers. Jeffries and other firms have recently become specialty middlemen in forming a control block for private "auction" to the competing parties in hostile contests. These cases are controversial because the winning bidders effectively gained great advantage by sidestepping the burdensome Securities and Exchange Commission regulations under the Williams Act, enraging the losing bidders and tweaking some noses at the Commission. Although at least one target has escaped takeover using the open market purchase (Carter Hawley Hale in 1984), street-sweeping has been more to the advantage of outside bidders. So far, however, street-sweeping has not become a common practice. It is bold and potentially effective, but it brings in-

tense inspection by the regulators and related legal risks.

Defensive Tactics

The list of defensive innovations is long, including unilateral management actions, shareholder charter amendments, and state regulations. Led by the notorious poison pill, these innovations reflect extraordinary imagination by inventor-advisers and great courage by their pioneering users. Their initiations have almost always incited furious legal challenges and have provided exciting grist for the media.

Although classified as defensive tactics, most of these tactics are used in practice to generate auctions as often as they are to preserve the independence of the target. Whether this result reflects the innovation itself or the court-laid rules governing their use, it is clear that promoting auction bidding is the only widely accepted rationale for employing most of these new defensive tools.

Poison pills. "Poison pill" describes a family of shareholder rights agreements that, when triggered by an event such as a tender offer for control or the accumulation of a specified percentage of target stock by a hostile acquirer, provide target shareholders with rights to purchase additional shares or to sell shares to the target at very attractive prices. These rights, when triggered, impose significant economic penalties on a hostile acquirer.

Since its introduction in late 1982, the poison pill has become the most popular and controversial device used to defend against hostile takeover attempts. These devices are effective deterrents because of two striking features. First, poison pills can be cheaply and quickly redeemed by target management if a hostile acquirer has not pulled the trigger, which encourages the potential acquirer to negotiate directly with the target's board. Second, if not redeemed, the poison pill makes hostile acquisitions prohibitively expensive in most cases. Moreover, the 1985 ruling by the Delaware Supreme Court in *Moran v. Household International* allows managements to unilaterally adopt poison pills without requiring voting approval by shareholders.

Invented by Marty Lipton, the famous New York takeover lawyer, the original "flip-in" pill operates by preventing the second-stage merger that generally follows a tender offer for control. It does this by allowing target shares to be converted into shares of the acquirers' stock on very favorable terms in the second-stage merger, which prospect gives shareholders incentives not to tender in the first place.

This ingenious invention actually builds on a long-standing provision of convertible securities which provides for the possibility that the security into which another security is convertible might be swallowed up in a future merger. This provision, therefore, simply allows the ac-

quirer's shares to become that security. The poison pill uses this basic provision to fashion a prohibitive takeover defense, because of the attractiveness of the terms of conversion.

Although most experts felt the original flip-in pill was invincible, Sir James Goldsmith purchased a controlling position in Crown Zellerbach in 1984 using open market purchases and avoided that pill's lethal financial poison by eschewing the second-stage merger. This end run by Goldsmith led to the inventions of the flip-over pill and the discriminating pill, which are triggered by hostile share accumulation and/or by "acts of control" by outside investors, and which automatically provide the benefits to passive target shareholders when triggered rather than in a second-stage merger.

Hostile acquirers in turn have resorted to "imaginary" tender offers, heavily publicized informal offers made in a letter to the target management. These non-offer offers do not trigger the poison pill, but they create potential liability for target managements that ignore or reject this immediate prospect for premiums to shareholders without offering satisfactory alternatives for creating shareholder value.

Dual-class recapitalizations. These plans restructure the equity of a firm into two classes having different voting rights. Although not a recent invention, dual-class recapitalizations have become much more common and controversial in today's active takeover market. The New York Stock Exchange has recently proposed to abandon its long-standing rule of one share, one vote, to accommodate corporate management's growing demand for dual-class structures and to counter the trend of firms to list over-the-counter to meet this demand.

In addition to the recent surge of interest in existing plans, there have been some innovative wrinkles in new dual-class plans, most notably the length-of-time method first used by American Family Corporation. This method involves a change in voting rights of the same common stock based on the length of time the shares are held. All current outstanding common stock becomes "long-term" on the recapitalization, with each holder entitled to 10 votes per share. But, any share traded or sold after the effective date of the recapitalization becomes a "short-term" share and has only one vote, rising to 10 votes only after it has been held continuously for a substantial period of time (generally, four years). This idea of linking voting power to length of time owned has been borrowed by the drafters of the New York and New Jersey antitakeover laws, which disallow hostile acquirers who do not receive prior approval from target management from doing a second-stage merger or from engaging in a list of controlling actions for at least five years after obtaining control.

Fair-price charter amendments. The fair-price amendment is an innovation that uses the common supermajority voting provision, long familiar

in corporate democracy, to fashion a specific deterrence to two-tier takeover attempts. Invented in the late 1970s, the fair-price amendment has surged to popularity with 487 firms voting in such amendments between 1983 and 1985. Here is how they work.

Most state corporation laws set the minimum approval required for mergers and other important control transactions at either one-half or two-thirds of the voting shares. Supermajority amendments require the approval by holders of at least two-thirds and sometimes as much as nine-tenths of the voting power of the outstanding common stock. These provisions can apply either to mergers and other business combinations or to changes in the firm's board of directors or to both. Pure supermajority provisions are very rare today, having been replaced by similar provisions that are triggered at the discretion of the board of directors. The board has discretion to waive the supermajority provisions allowing friendly mergers to proceed unimpeded.

The fair price amendment is simply a supermajority provision that applies only to nonuniform, two-tier takeover bids that are opposed by the target's board of directors. Uniform offers that are considered "fair" circumvent the supermajority requirement, even if target management opposes them. Fairness of the offer is determined in several ways. The most common fair price is defined as the highest price paid by the bidder for any of the shares it has acquired in the target firm during a specified period of time.

State antitakeover laws. The new state antitakeover laws of recent years have been crafted to meet the defensive needs of hometown corporations (not necessarily their owners) within the legal constraints established by the 1982 U.S. Supreme Court decision in *Edgar v. Mite.* As already mentioned, the provisions of the new laws borrow ideas from poison pills, charter amendments, and dual-class recapitalizations. The Indiana statute that was upheld by the U.S. Supreme Court in April 1987 requires in essence a proxy contest by stripping voting power from a hostile stock accumulator unless he calls for, pays for, and wins a shareholder vote (one that excludes shares of the acquirer and the management). The Supreme Court was convinced that these measures did not unduly interfere with principles governing federal regulations of nationwide takeovers, with the necessary delay of the control transactions imposed by the voting requirement being the most obvious inconsistency. (Securities and Exchange Commission regulations set the minimum offer period at 20 business days.)

Although the Indiana law is burdensome to hostile acquirers, it pales in comparison with the New York and New Jersey laws. These disallow second-stage mergers, changes in business and financial strategies, major asset sales, or changes in business locations for five years after crossing various stockholding thresholds unless the acquirer has

received permission from the target's board of directors. These bold laws lean heavily on the dubious concept that long-term holders are entitled to better treatment than short-term holders. A revealing exception is made by these laws for, naturally, management-backed takeover bids. The U.S. Supreme Court will have a difficult time fitting these provisions into the federal regulatory scheme. If it does, then these super-delay state laws will fundamentally alter the tactical balance of power in takeover battles for years to come.

Lock-ups, no-shop clauses, and break-up fees. These contractual devices have become very common in today's numerous auction-style takeovers. They all are intended to facilitate bidding or to provide an advantage or special incentive to a particular bidder. A lock-up is an option granted to a favored white-knight bidder to purchase a prized asset of the target at a favorable price in the event that an unsolicited third-party bid defeats the white knight's bid. The lock-up induces a friendly bid by discouraging competition from unwanted outsiders.

Similarly, the break-up fee is a direct payment to a favored bidder (usually a management buyout offer) in the event that the bidder's offer fails and it is not the bidder's fault. The no-shop clause is a weak prohibition on target management from seeking competitive offers, and is usually sought by a leveraged buyout group before they incur expenses putting together an offer.

The courts keep a close eye on the use of these provisions, trying to ensure that target managers do not violate their fiduciary obligations to shareholders. Because of this critical judicial oversight these clauses generally are not as airtight as their names imply.

Financial Innovations and the Political Debate

According to the view of the Chicago school, regulatory policies are determined by competing self-interest groups. This approach is fruitfully applied to the case of tender-offer regulation. Financial innovations, and the popular theories used to understand them, have a reciprocal relation to takeover regulation. Innovations and new theories can directly influence policy, as regulators cope with these market shocks to "political equilibrium." The reverse is also true; specific regulations have an equally strong effect on financial innovations, as takeover strategists cope with these regulatory shocks to "market equilibrium."

Financial Innovations and the Mythology of Takeovers

Several popular theories have been prominent in the 20-year debate about the proper regulation of takeovers. The "corporate piracy" myth

provided the rhetorical foundation for the 1968 Williams Act, the 1970 amendments, and the panoply of tender-offer rules promulgated by the Securities and Exchange Commission during the 1970s. This myth was that the short, speedy, first-come first-served offers prevalent during the 1960s were the work of corporate raiders, who financed the premium offer for control by looting the assets of the non-tendering minority shareholders. Although this theory had virtually no empirical support, it was embraced by the large and enthusiastic political coalition then clamoring for comprehensive regulation of tender offers. The basic "disclosure and delay" provisions of the Williams Act were intended to eliminate corporate piracy and their shareholder-stampeding tactics by mandating detailed bidder disclosures and providing sufficient time for shareholders to decide whether or not to tender into any particular offer.

This disclosure-and-delay regulatory approach has been the major cause of the rise of the auction-style takeover contest. Such a policy makes it difficult for those who first discover profitable takeover opportunities to fully realize the economic rewards to their information. Although several innovations have preserved some incentives to search for these opportunities, the reigning "auction" policy works by making takeover information a public good once discovered, thereby promoting competitive bidding from white knights (free-riders) and alternative corporate restructurings (mimicry).

The response by takeover entrepreneurs has been to develop other means of capturing some returns to their information despite these public-good regulations. Two avenues have become popular: foothold positions and so-called "greenmail." Rule 13-D of the Williams Act mandates that acquirers of over 5 percent of the stock of a public company disclose their ownership level and intentions within 10 days of crossing the 5-percent threshold. Takeover entrepreneurs have been investing more heavily in large footholds, in some cases going well beyond 5 percent during the 10-day "window" allowed under current Rule 13-D. The success of this tactic has earned it the wrath of takeover opponents. Congressional proposals now circulating for tender-offer reform all contain a provision to narrow the 10-day window to one day, and to reduce the disclosure threshold below the current 5 percent.

Footholds are economically beneficial to hostile bidders because they can provide a profit in the increasingly common event that a white knight or a management-backed restructuring or going-private offer defeats the original bid. Accepting greenmail payments, which are targeted block repurchases where the hostile acquirer sells his foothold position back to the target at a premium and agrees to a standstill provision blocking takeover attempts for several years, are another controversial way that hostile acquirers can maintain incentives for searching for takeover opportunities in today's disclosure-and-delay regulatory

environment.

The auction regulatory policy has been strengthened considerably by the recent changes in the Hart-Scott-Rodino antitrust law. The law requires all prospective purchasers of more than $25 million of a target's equity to disclose their identity and future plans to the antitrust authorities and to the target before crossing this ownership threshold. This is potentially a powerful deterrent to footholds because it would almost eliminate the acquirer's ability to purchase the target stock before its price reacts to the news of the acquisition.

Until recently, this pre-purchase disclosure rule was easily sidestepped by hostile bidders using a shell firm to make the actual stock purchases. This "loophole" was recently closed by the Federal Trade Commission in reaction to the wave of antitakeover sentiment accompanying the Boesky insider-trading scandal. Today, potential acquirers must file except when the bidding entity is a partnership in which no party has majority control—the Pickens Group's current bid for Newmont Mining is the first example of this tactic. Despite Pickens's innovative response, the Commission's tightening of disclosure rules under Hart-Scott-Rodino (done, incidentally, with no antitrust rationale) appears to be a significant deterrent to hostile foothold acquisitions.

Closely related to the "corporate piracy" myth that served as a rhetorical foundation for the Williams Act is the more sophisticated, but equally faulty, myth that takeovers result from inefficient stock-market pricing. This very common theory of takeovers assumes that, because targets are undervalued by the stock market, a savvy bidder can offer a substantial premium for the target that is still comfortably below the target's intrinsic value. According to this theory, it is the duty of target managements to defend vigorously against even high-premium offers in order to protect shareholders' true interests. Remaining independent, it is argued, will offer shareholders over the long run the higher intrinsic value instead of the immediate takeover premium.

Thus a new, less extreme version of the "piracy" theory was developed in the courts and the policy arena, based not on stampeding shareholders with (now illegal) "coercive" offers, but on a fundamental inefficiency in the stock market. Again, virtually no systematic evidence was offered by undervaluation proponents to validate this theory. However, this lack of supporting evidence did not dampen its reception in legislatures, courts, and the public arena. It is impossible to know whether this theory per se was decisive in influencing the development of legal and legislative opinion, or whether it was simply an expedient excuse for bowing to local political pressures. But the undervalued target theory became the prominent rationale for increased state regulation and for pro-target relief by the courts. Strong evidence against undervaluation and in support of an efficient market for corporate control has

been published by several financial economists. This evidence is based on analyses of the stock price performance of targets that defeated completely unwanted takeover bids. The studies show that targets defeating hostile bids lose virtually all of the increase in value associated with the tender offer. Their post-defeat values revert to approximately the level (on a market-adjusted basis) obtaining before the instigation of the hostile bid. The conclusion is that without change of control or fundamental restructuring and changed investment policies, price reversion occurs.

This evidence demonstrates that the market does not, on average, learn anything new or different about target firms' intrinsic values through the tender offer process, despite the tremendous attention lavished on targets and the huge amounts of information traded among market participants during takeover contests. The evidence thus strongly suggests that these target firms were not "languishing," ignored and undervalued, in the market prior to the onset of unwanted takeover activity. If the target companies were indeed undervalued, then the flood of new information about targets' intrinsic values should have brought about fundamental price corrections even in the event of takeover defeats. In over 85 percent of cases studied, however, there were price reversions, not corrections, for targets mounting successful defenses.

The 1980s push for takeover curbs by the powerful business lobby has featured a modern myth based on more serious allegations of capital-market inefficiency. The new "myopic stock market" theory is based on an allegation that market participants, and particularly institutional investors, are concerned almost exclusively with the short-term earnings performance and tend to undervalue corporations engaged in long-term activity. From this viewpoint, any corporation planning for long-term development will become undervalued by the market as its resource commitments to the long term depress its short-term earnings.

Critics of this theory point out that it is blatantly inconsistent with an efficient capital market. Indeed, if the market systematically undervalues long-run planning and investment, it implies harmful economic consequences that go far beyond the costs of inefficient takeovers. Fortunately, no empirical evidence has been found to support this theory. In fact, a study of 324 firms with high research and development expenditures and of all 177 takeover targets between 1981 and 1984 shows evidence that: (1) increased institutional stock holdings are not associated with increased takeovers of firms; (2) increased institutional holdings are not associated with decreases in research and development; (3) firms with high research and development expenditures are not more vulnerable to takeovers; and (4) stock prices respond positively to announcements of increases in research and development expenditures (Office of the Chief Economist, Securities and Exchange Commission, 1985b).

Further evidence opposing the myopia theory is provided by Hall (1987) and by McConnell and Muscarella (1985). Hall studies data on acquisition activity among manufacturing firms from 1977 to 1986. She presents evidence that much acquisition activity has been directed towards firms and industries that are less intensive in R&D activity. She also finds that firms involved in mergers show little difference in their pre- and post-merger R&D performance compared with industry peers. McConnell and Muscarella in a study of 658 capital expenditure announcements show that stock prices respond positively to announcements of increased capital expenditures, on average, except for exploration and development announcements in the oil industry.

Even as this myopic stock market myth continues to receive great attention in the public debate, there has appeared an equally powerful rhetorical argument to limit takeover activity. Rising from the Boesky scandal, this cynical theory is that takeovers are the result of arbitrager manipulation. Although it is vague and imprecise, the general idea is that "arbs" gang up on targets and somehow manufacture a merger in order to reap windfall gains. "Nice work if you can get it" would be the likely response of the knowledgeable observer, because the theory doesn't explain how the arbitragers convince bidders to make billion-dollar offers at huge premiums over market price just to provide windfalls to arbitragers, who, clearly, are among the least likely professions to be the object of such intense loyalty from corporate managers. As a rhetorical weapon, however, even this unlikely story has proved effective at galvanizing grass-roots support for curbs on takeovers.

Financial Innovations and Public Regulation

Innovations are often direct results of public regulation. The surge of "funny-money" takeovers between 1968 and 1970 reflected the exclusion of noncash tender offers from the original 1968 Williams Act. In 1970, these offers were brought under the new Securities and Exchange Commission rules, and the noncash offers became as infrequent as before. The two-tier tender offer, as mentioned earlier, became headline material because the Commission inadvertently disadvantaged any-or-all offers and created a tactical edge for users of two-tier offers. The shell bidder, so frustrating to financial economists doing stock-price studies on returns to bidders, is largely a result of the Hart-Scott-Rodino disclosure rules. The recent adjustments in these rules will certainly make the partnership-bidder innovation by Pickens a common device in future hostile takeover attempts.

Even the ingenious poison pill probably would never have been created if the first-generation state antitakeover laws had been upheld, and not rejected, in 1982 by the U.S. Supreme Court. The same can be

said of the controversial widespread use of dual-class recapitalizations to concentrate voting control without concentrating equity participation. In this field, necessity is indeed the mother of invention.

This guarantees that tomorrow's innovative tactics will be shaped by today's regulatory reforms. As the reforms take shape, we can predict at least in some degree what these future innovations will try to accomplish. At the broadest level, there will be continued efforts to "end-run" the Williams Act by using open-market purchases and by developing new kinds of non-offer offers. The few bold street-sweeping takeovers that we have seen in the past few years manifest both the demand to end-run the rules and the decisive advantage such end runs can provide. Their very effectiveness, however, guarantees that the Securities and Exchange Commission and the Congress will continually react to eliminate end-run tactics as they are invented, because the entire purpose of the regulatory scheme is threatened by effective end-run tactics. The Commission and the Congress are currently developing new rules defining tender offers that bring all large accumulations of stock under the rules, thereby eliminating street-sweeping and other changes of control without public offers. Nevertheless, we can look for the cycle to continue as takeover tacticians innovate to find ways around the rules and as regulators respond to these innovations.

Conclusions

The merger boom of the 1960s and its predecessors were all accompanied by populist concern over growing concentration of economic power. The current merger boom is unique, for it is part of a revolutionary restructuring of many large corporations. The controversy today swirls around hostile takeovers and the widespread changes that appear to be prompted by them. Large public corporations are restructuring, boosting leverage and paying out huge windfalls to stockholders, paring down their businesses to focus on so-called "core" operations, going private, spinning off divisions. There is the old concern about horizontal concentration, but the overwhelming attention has been directed at bust-up transactions, hostile stock purchases, and the offensive and defensive tactics used in hostile raids.

I have listed the major economic trends and financial innovations that have helped fuel this merger and takeover activity. The more lenient antitrust laws, industrial deregulation, and the fall of state antitakeover laws are the major policy changes spurring acquisitions and restructurings. Also, the rise of institutional investors, advances in valuation technologies, the invention of new-issue high-yield bonds and the leveraged buyout lead the list of market changes encouraging mergers.

I also have attempted to unravel some of the complex interactions between financial innovations and public policy. The main message from this discussion is that there is an action-reaction cycle between the two, with innovations spurring new rules and the rules begetting new innovations.

Looking into the future, the most important policy questions are these: 1) What will the Congress do in response to the Wall Street scandals? and 2) How will the courts mediate between managers' fiduciary duty to shareholders and the business judgment rule that shields managers? The answers to these questions will in turn affect tomorrow's financial innovations and the development of new tactics in the takeover business.

The answer to the first question will disappoint defenders of takeovers. The Congress appears likely to lengthen the delays and restrict the ability to accumulate secret foothold positions. This will be a recurring theme in the foreseeable future. After all, the ultimate takeover deterrence is to make completely inappropriable the returns to arbitraging corporate control, to discovering profitable ways to redeploy assets bundled together in public firms, and to improving on the profitability of businesses by replacing incumbent managers with more talented ones.

The political coalition against hostile takeovers has newfound strength in the wake of the Boesky scandal. We can expect it to invest in developing new rules and regulations that make privately discovered information by potential raiders fully public, discouraging this activity in the first place. The federal and state regulations have been evolving steadily towards this ultimate goal, and the proposed new rules largely continue this trend.

There will be incentives also to invent popular economic theories to justify these rules and minimize the political opposition from the voting public. Expect even relatively shaky empirical studies or ad hoc and untested claims of market inefficiency to receive exaggerated attention in the congressional debate, if they tend to support takeover restrictions.

The answer to the second question (How will the courts mediate between managers' fiduciary obligation and the business judgment rule?) helps shed light on the incentives facing the takeover entrepreneurs. The courts have been increasingly reluctant to interfere with the market-determined outcomes of takeover battles. Although they have allowed such pro-management devices as poison pills to be used, they have also set high standards for users to meet their fiduciary obligations. The net result is that the courts have come to support the auction process. This result exacerbates in some cases the public-good problem discussed earlier, but it also means that target managers can only go so far to protect their jobs. Indeed, so long as value maximization is the rule of

the courts, target managers will be under heavy pressure to restructure and mimic the takeover entrepreneur's strategies.

Therefore, we can look for bidders to invest in tactics and devices that enable them to profit from their valuable information. On the other side, the defensive experts will invent ways to help guarantee that hostile bidders are always outbid and to prevent their secret accumulations of stocks. It is likely that poison pills will proliferate and become specialized, that contests will become even more drawn out and litigious, that proxy contests will multiply, that state laws will be the subject of much attention as the courts find new limits, and that the internationalization of takeover contests will become headline material.

We will not, however, see the Business Roundtable elect Boone Pickens to its chairmanship. Nor will we see the Securities and Exchange Commission's Office of the Chief Economist win a service award from Senator Proxmire. And we can, with equal confidence, rule out any chance that the takeover reforms of today and tomorrow will threaten harm to the Wall Street takeover lawyers, investment bankers, or U.S. academic economists who endlessly debate these issues.

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Discussion

*Frank W. Haydu, III**

Gregg Jarrell has done an admirable job of focusing on the different political and economic factors involved in the merger and acquisition boom of the 1980s. While there are few areas we would disagree on (except as to emphasis), I will discuss his paper by examining three separate questions.

First, I will focus on the causes of today's merger boom as seen through the eyes of a non-academic merger and acquisition professional. Next, I will provide my own answer to the question, "What is the major financial innovation of the 1980s?" and finally, I will examine the question, "What will/should the Congress do in response to the Wall Street scandals?"

My hope is that the discussion of these three questions will illuminate and further Gregg Jarrell's conclusion that there is a complex action-reaction cycle occurring between financial innovations and public policy, and that this cycle is likely to continue.

What Are the Causes of Today's Merger Boom?

Entrepreneurs intent on building conglomerates led the merger boom of 1968 to 1971. The typical acquirer perceived increased shareholder values in terms of ever-increasing gross sales or earnings and the accumulation of assets. This view was confirmed by the market value and price-earnings multiples assigned by Wall Street to many conglomerates. The period was characterized by numerous stock and funny-money transactions. Cash was paid only to the most conservative sellers.

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In my opinion, the primary cause of the current merger boom is the upward movement in valuations that has continued uninterrupted since 1982, when interest rates peaked. The number of multiple owners of certain merger and acquisition properties within the past five years is reminiscent of the cyclical real estate marketplace.

This valuation surge and the resultant merger and acquisition boom have been fueled by the following factors:

(1) Easing of the regulatory environment.
(2) Increased availability of debt and equity financing.
(3) Decreasing cost of debt and equity during the past six years, enhanced by the intense competition between financial institutions seeking to participate in the large-transaction marketplace.
(4) Perception that rising valuations might continue, especially in light of recently publicized Japanese stock market multiples.
(5) Creative exit strategies for leveraged buyout players, allowing the recycling of capital and profits into subsequent transactions. The recent Avis leveraged buyout transaction—initiated by WESRAY, followed by initial public offerings in Europe and the United States, followed by an Employee Stock Ownership Plan take-out—illustrates the sophistication and innovation of today's traders. Obviously the bull market has provided the fertile soil for these transactions to mature.
(6) Expanding institutional and public funds' appetite for leveraged buyout participations. The $300 million raised by Merrill Lynch for their new ML—Lee Acquisition Fund allows even the small investor an opportunity to join the game. For Wall Street cynics, the end of our current merger mania must be nearing as we find new ways for the small investor to lose money.
(7) Large corporate restructurings, which provide a supply of new divestiture candidates as they react to their own vulnerability.

The past five years have been characterized by an increasingly positive environment for mergers and acquisitions. How long this action-"positive"-reaction cycle will continue is anyone's guess. I foresee a downward cycle occurring, once interest rates reverse course and the initial public offering market dampens.

What Is the Major Financial Innovation of the 1980s?

Gregg Jarrell has attempted to summarize the various offensive and defensive innovations that have evolved during the 1980s, with considerable success. However, from my own point of view, the rapid access to public capital markets (through initial public offerings) is the major financial innovation. Perhaps my thinking is colored by my own partici-

pation in the Gibson Greeting Card transaction, which was one of the first acquisitions to be taken public after less than 12 months of new ownership. If undercapitalization is one of the two primary reasons for business failure (the other being poor management), then this innovation or new application of an old technique has changed the risk/reward criteria for leveraged buyout players. The completion of the initial public offering provides leveraged buyout promoters with liquidity and profits that can in turn be used for subsequent acquisitions; the higher initial public offering valuation helps foster the continuing positive environment for additional leveraged buyout transactions. It seems to me that an action-reaction cycle is at work even within this one innovation.

What Will/Should the Congress Do in Response to the Wall Street Scandals?

It is difficult to predict the actions of the Congress until the full scope of the scandal is understood. The insider-trading conviction of Ivan Boesky might prove to be only a footnote to the alleged manipulation and misuse of securities laws engaged in by the investment banking community. "Stock-parking" arrangements, the sale of junk bonds, and conflicts of interest will continue to be a focus of investigators. My own view, based on one year with a major investment banking firm and a dozen years as a principal in numerous transactions, is that the securities industry must police itself. Chinese Walls between merger and acquisition departments and arbitrage departments are a joke. Brokers who engage in questionable business practices must be let go, even when they are large producers. Young MBAs with little experience should not be receiving annual salaries of over $200,000 (or $1,000,000). The industry needs to encourage business schools to teach ethics as well as greed.

I agree fully with Gregg Jarrell's assessment of the direction the Congress is likely to follow; however, legislation should also focus on the abuses of management. Greenmail should be banned from the merger and acquisition landscape. Transactions where senior managers end up as owners of divisions need to be more thoroughly investigated. And finally, while the Congress can't legislate ethics, it needs to encourage the securities industry and corporate management to act ethically and carry out their fiduciary obligations to *all* shareholders.

Conclusion

Preparing for this conference has given me a greater insight into the world of mergers and acquisitions that has evolved through the 1980s.

Gregg Jarrell has given us all a better understanding of the action-reaction cycle that results from the interaction of financial innovation and public policy, and he has caused at least one transactionally oriented professional to take stock of the environment he plays in.

Why Are the Parts Worth More than the Sum? "Chop Shop," A Corporate Valuation Model

*Dean LeBaron and Lawrence S. Speidell**

Although the stock market is a reasonably efficient pricing mechanism, there are times when some of the laws of mathematics seem not to apply. Two plus two should equal four, but in the stock market the result is sometimes five, and sometimes three. Dramatic price changes can result, and many changes recently have been related to takeovers, mergers, and restructurings. While critics decry raiders, debt-hungry managements, or short-term-oriented investors, the wave of restructurings is symptomatic of a much broader, deeper, more enduring change in the financial markets.

Three Phases of Financial Markets

We have entered an era of corporate valuation, which is the third phase that the stock market has experienced in the postwar period. The key players in financial markets over the past 40 years have been individuals, institutions, and corporations. Success has depended upon identifying the particular set of players with the greatest influence on prices at each point in time. Table 1 describes three principal periods since World War II: The Age of the Individual Investor, The Age of the Institutional Investor and The Age of Corporate Valuation.

The Age of the Individual Investor

From 1940 until the late 1960s, individual investors were the dominant force in setting stock prices. This was the era of the stock picker, the

*Trustees of Batterymarch Financial Management.

Table 1
Three Ages of Equity Valuation

	Behavior	Tools
I. Age of the Individual Investor		
1950 to 1970	Good News = Good Company = Good Stock Positive Relative Strength Confidence in Forecasting	Company Reports Wall St. Reports Relative Price
II. Age of the Institutional Investor		
1965 to 1985	Value Investing Low P/E, High Yield Dispassionate Compression of Values	Computers Dividend Discount Models Databases Screens
III. Age of Corporate Valuation		
1980 to Present	Contests for Control *Leveraged Buyouts* Stock Buybacks Leverage	Breakup Value *Replacement Cost* Off-Balance-Sheet Items Tax Analysis Control Premium

research analyst, and the "star" portfolio manager. Passions ran high, and investors tended to "fall in love" with stocks. They were impatient with bad news and often obsessed with getting "the latest story." Ultimately, stocks were offered with nothing but projections, because the fundamentals were practically nonexistent. However, at the height of this "go-go" mania in 1968, individuals began a 15-year liquidation of their holdings of common stocks.

The Age of the Institutional Investor

From the late 1960s to the early 1980s, a new force emerged to set stock prices. As institutional portfolios swelled with cash flow from pension funds, institutional investors became the primary factor in the stock market. With them came the computer revolution on Wall Street. Applying quantitative techniques to financial databases, they used dividend discount models and price screens based on academic research to set the prices of stocks to within a few basis points, based on key value measures. These institutions are dispassionate: they do not care about control, they just want cheap stocks that go up. Their activity has made the market more efficient relative to their popular measures of value: price/earnings, price/book, yield, and so forth. Their activity also set the stage for a fresh perspective on value.

The Age of Corporate Valuation

Over the past 20 years, a gap has opened between stock market values and the replacement cost of underlying corporate assets. At first this gap was noticed by only a few individual entrepreneurial businessmen such as T. Boone Pickens, Carl Ichan, and Irv Jacobs. These men earned a reputation as "raiders," yet they were simply setting a business value on companies that was above the stock market price. They gave free-riding shareholders much of the gain. The initial response of corporations to raiders was a surge in antitakeover provisions, but shareholder outcry led to awareness that management entrenchment is not the solution.

Today, corporations themselves, encouraged by their investment bankers, are noticing the discrepancy in values. Their analysis of liquidation value, replacement value, and undedicated cash flow includes off-balance-sheet items (pension assets and liabilities, LIFO reserves, tax losses); tax considerations (the write-up of acquired assets, spinoff of tax shelters, capture of the tax shield from debt leverage); and "soft" assets (the control premium, market share, goodwill, and potential synergy). As a result, corporate behavior is increasingly dominated by financial considerations, where in the past it was often dictated by sales, marketing, production, or tradition. Many successful companies are now led by chief executives with a finance background.

"Chop Shop:" The Analysis of Companies by Business Segment

As a money manager in search of undervalued opportunities, Batterymarch Financial Management has recently been exploring corporate behavior with respect to the business segment data disclosed in footnotes to corporate annual reports. Since 1976, companies have been required by Statement 14 of the Financial Accounting Standards Board to disclose details of the operations of their business segments. This information has been collected by Compustat and is made available on computer tapes.

Over 6,000 companies disclose business segment results, covering over 10,000 divisions. Although most companies have only one or two segments, a few list as many as 10. The distribution is as follows:

Number of Segments:	1	2	3	4	5	6	7	8	9	10
Number of Companies:	4819	818	532	272	106	40	18	9	4	1

Our goal is to value companies by their parts, in the hope of identifying those firms where the whole is selling for less than the sum of values of

the parts, and others where the reverse is true. We began this project with several a priori notions to be tested:

(1) *The market as a whole may be undervalued.* Federal Reserve System statistics through 1985 show that stocks have been selling for 90 percent of replacement cost (figure 1). The postwar range has been from lows of around 50 percent in the late 1940s and again in the 1970s to a high of 105 percent in the mid-1960s. Batterymarch estimates show that the market value of corporate equity is now 71 percent of replacement cost.

(2) *Undervaluation may be proportional to the number of segments in a company.* In the 1960s, conglomerates sold at a premium in the market, but lately synergy among divisions has been discredited and the complexity of such companies has made them of less interest to investors. They may sell at a discount for three reasons:
   (a) There is a high cost to obtaining information about them.
   (b) Managers may be hoarding cash for internal expansion and acquisitions rather than maximizing shareholder returns.
   (c) Just as closed-end mutual funds sell at a discount, diverse companies may be valued at a discount because shareholders lack control over disposition of their assets.

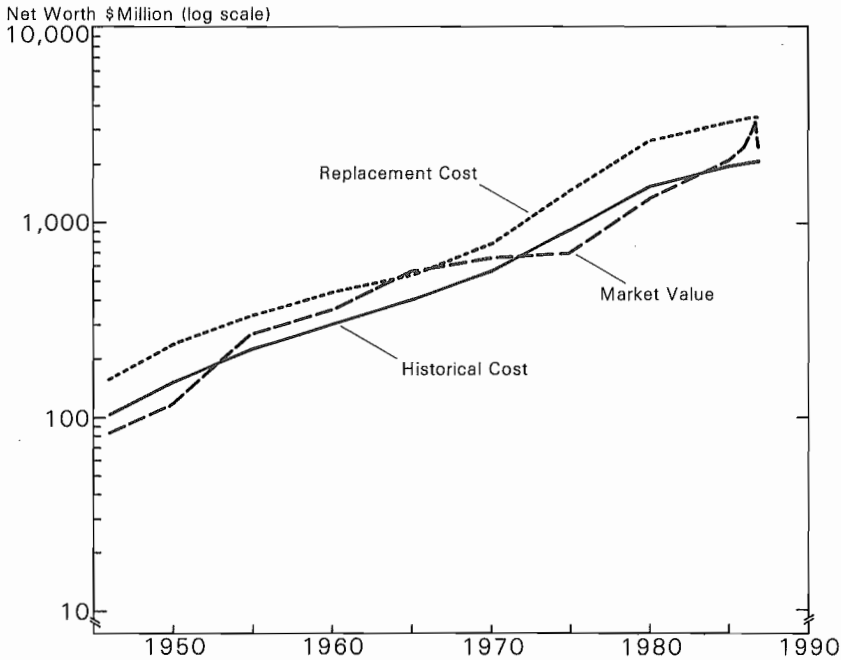
(3) *Stocks with low institutional holdings may be inefficiently priced.* Their prices may be significantly different (either higher or lower) from the prices of the stocks of similar, more popular companies.

(4) *Industries may fall into distinct patterns of valuation.* Different weights may be attached to sales, assets, and income, depending upon the economic sector or industry group.

Compustat has made business segment information available for some time, but we believe that our exploration of these data is innovative. Most users have focused only on company-by-company analysis, while others have used the data for risk measurement (exposures to each industry) rather than for valuation. Although we enjoy the opportunity to be pioneers, we would not achieve our goal of successful investing unless others follow our path, arbitraging some of these price disparities out of the market. We believe that this process is beginning, although today, investment bankers, bankers, and corporations are far ahead of institutional investors in using business segment valuation techniques. While institutions continue to focus on net earnings (after profitable and unprofitable divisions are combined), corporations themselves are increasingly aware of the values of their segments and are restructuring to make those values more evident in stock prices. In this era of corporate valuation in the stock market, institutions will have to adopt corporate techniques if they are to identify the best values.

Figure 1

Net Worth of Nonfinancial Corporations



Source: Board of Governors of the Federal Reserve System, 1946-85; Batterymarch Financial Management estimates, 1986 and 1987.

Methodology

Business segment disclosures include sales, assets, operating income, depreciation, and capital spending for each division as well as similar details for each geographic region. Our work has focused on the first three items of data: sales, assets, and operating income by division. The divisions are grouped by Standard Industrial Classification (SIC), allowing analysis of very narrow industry slices such as the 4-digit SIC 2893–Carbon Black, or broader groupings such as the 2-digit SIC 28–Chemicals and Allied Products (which includes SIC 2893).

Borrowing the terminology of automobile theft rings, our "Chop Shop" analytical technique divides the 6,000 companies into their more than 10,000 divisions, sorts them by SIC code, and calculates a set of ratios for each code. Each of the 600 SIC codes may contain from one to

over 30 companies or divisions of companies. For "pure" companies (with 90 percent of sales within one SIC code) we calculate the total value of capitalization, including debt, compared with total sales, assets, and income. The ratio of capitalization to sales, for example, represents the theoretical value of a dollar of sales in the industry, based on the aggregate of all pure companies in it.

"Chop Shop" requires at least three pure companies within a SIC code in order to value it. For codes with fewer pure companies, valuation ratios are computed on the basis of the next larger SIC category (going from 4-digit 2893, for example, to 3-digit 289 or even to 2-digit 28 if necessary).

Table 2 shows a sample company, Dow Chemical, valued on the basis of its four business segments: Basic Chemicals, Industrial Specialties, Consumer Specialties, and Basic Plastics. The valuation ratio based on sales for Industrial Specialties is 0.61; in other words, a dollar of sales in SIC 2821 is "worth" $0.61, derived by dividing the capitalization of pure companies in the industry by their total sales. Similarly, a dollar of assets in the industry is "worth" $1.07. Given Dow's Industrial Specialties assets of $2,206 million, the division has a theoretical value based on assets of $2,360.4 million.

The theoretical values for the industry and for all Dow divisions are totaled for the sales analysis, the assets analysis, and the operating income analysis. Then, these three company totals are averaged. From this final theoretical value for the company, debt is deducted to produce the theoretical equity value. The ratio of theoretical to actual equity value indicates overvaluation or undervaluation by the market. In the case of Dow, the ratio of theoretical to actual market value is 1.2: thus, the company may be worth 20 percent more than the current stock price. By comparison, a model not relying on business segments, the financial tension valuation model, theoretically values Dow at 1.8, or 80 percent above the current market value.

Within our data base, a ratio of 1.2 is close to the median. Exceptionally undervalued companies may have segment values 50 percent or more above their market prices. The high median value suggests that there is some undervaluation in the market as a whole, which can probably be attributed to underpricing of both multi-industry companies and small companies.

In refining our "Chop Shop" calculations, we have added several constraints to cope with special conditions. If an SIC group has a ratio of market capitalization to operating income greater than 20, we test for depressed return on assets (ROA under 10 percent). Where returns are low we set the industry income ratio to the average for all industries (13.7) to prevent companies with large earnings in a depressed industry from being overvalued. This is also done with industries operating at a

Table 2
Corporate Valuation Model: Dow Chemical Company
Millions of Dollars

Segment Valuation Model

A) Sales Analysis

SIC	Code	Dow Segment Sales	Industry Ratio of Market Capital to Sales	Dow's Theoretical Market Value
2800	Basic Chemicals	5,237.0	2.29	11,992.7
2821	Industrial Specialties	2,765.0	0.61	1,686.6
2834	Consumer Specialties	2,029.0	3.58	7,263.8
3079	Basic Plastics	1,506.0	1.71	2,575.3
	Total	11,537.0		23,518.5

B) Assets Analysis

SIC	Code	Dow Segment Assets	Industry Ratio of Market Capital to Assets	Dow's Theoretical Market Value
2800	Basic Chemicals	4,762.0	2.43	11,571.7
2821	Industrial Specialties	2,206.0	1.07	2,360.4
2834	Consumer Specialties	1,645.0	2.92	4,803.4
3079	Basic Plastics	1,079.0	2.18	2,352.2
	Total	9,629.0		21,087.7

loss. Loss divisions in loss industries are valued with the income component set to zero, while profitable divisions in those industries use the income ratio of 13.7.

Another adjustment is made for unallocated expenses. Companies vary in their definition of operating earnings, and often large expenses are simply not allocated to the divisions. We have defined operating income uniformly as "pretax plus interest expense." Rather than directly allocating other expenses, we assign them a negative value in the income calculation, which is multiplied by a weighted average of all divisions' income ratios. Interest expense is not allocated because this stage of valuation is independent of capital structure.

Additional modifications are undergoing research. Most significant would be to vary the weighting of sales, assets, and income in the final theoretical value for each division. This could be done inversely to the scatter of data, or we could replace ratios with regression equations for each industry. We are experimenting with several regression techniques. If we had unlimited computer power, we could simply regress market values for the 6,000 companies against their component sales, assets, and income (42,000 data points). Our approach, however, has been

Table 2 continued
Corporate Valuation Model: Dow Chemical Company
Millions of Dollars

C) Operating Income Analysis

SIC	Code	Dow Segment Income	Industry Ratio of Market Capital to Income	Dow's Theoretical Market Value
2800	Basic Chemicals	165.0	17.45	2,879.3
2821	Industrial Specialties	186.0	21.49	3,997.1
2834	Consumer Specialties	226.0	19.26	4,352.8
3079	Basic Plastics	60.0	15.06	903.6
	Total	637.0		12,132.8

D) Average Theoretical Value (A+B+C)/3:		18,913.0
	Less: Debt	3,661.0
	Theoretical Equity Value	15,252.0
	Recent Market Value	12,226.4
	Ratio of Theoretical Equity Value to Market Value	1.2
Financial Tension Valuation Model		
	Pretax earnings	1,149.1
	Depreciation	977.0
		2,126.1
	Capitalized at 10 percent	21,260.6
	Plus:	
	Cash	114.0
	Tax Loss	30.6
	Net Pension Asset	208.0
	Other	0.0
	Theoretical Value	21,613.2
	Recent Market Value	12,226.4
	Ratio	1.8

simpler: we have divided the universe into 150 industry groups and done regressions on the pure companies in each of these groups, each designed to have at least eight companies. Unfortunately, several interesting groups were too small to be valued separately. While it would have been nice to run separate solutions for aluminum or homebuilding companies, for example, they were too small and had to be combined with the metals and general building groups, respectively.

Our regressions were done to produce the following general formulas:

Capitalization: a*(sales) + b*(assets) + c*(operating income) + constant.

In the current research mode eight regressions are run for each industry. Separate regressions are run for raw and log data, both with stepwise or block entering of variables and with a sales growth factor or without. Log data are used in an effort to counteract the heteroskedasticity in the data—the increase in variability of market capitalization for larger companies.

To determine the "best" regression for each industry's SIC code, we look for the model that has the narrowest confidence interval for its prediction of market capitalization. For the raw data regressions, this means taking the standard error from the regression and multiplying it by a value from a t-table based on the number of observations and the number of independent variables in the equation. It is also adjusted for the prediction of a point at the mean. For the log regressions, a similar procedure is used, except that once the confidence interval is determined at the log level, the antilogs must be calculated to bring it back to the same units as the raw data. The regression that produces the narrowest confidence interval is the one to be used in the segment analysis. The chosen regression coefficients go into two files. Because some companies do not have a number for growth, they must use the best of the regressions that do not include growth.

Interestingly, growth in sales does not appear to be particularly meaningful in most regressions. We are considering alternatives such as growth in earnings. Also, the stepwise procedure, which enters the independent variables one by one into the regression and tries to find the best combination of some or all, has not proved to add much value.

Results

This segment analysis, called the Corporate Valuation Model, or CVM, takes approximately two and one-half hours to run and produces scores for 2,773 companies in the Batterymarch stock universe of 3,000 stocks. Scores for the remaining companies cannot be produced because of missing data or industry problems. Financial stocks are generally not scored because sales and assets are not good indicators of their value. Banks and brokerage firms, for example, can leverage themselves up and down on spread arbitrage business without affecting corporate value significantly.

For companies scored, the equal-weighted average ratio of theoretical to actual market capitalization is 1.46, the median is 1.13, and the capitalization-weighted average is 1.19. We score 438 of the Standard & Poor's 500 stocks, and here the average scores are: equal-weighted average, 1.19; median, 1.10; capitalization-weighted average, 1.20.

Comparison with Market Characteristics

The ratio of theoretical to actual market capitalization (CVM) is compared with 12 investment characteristics in figure 2. In each panel, CVM data have been divided into deciles, and the equal-weighted average of each is plotted against a characteristic. In one panel, for example, CVM is plotted against the price-earnings ratio. The highest decile of CVM includes 277 stocks with an average CVM ratio of 5 and a price-earnings ratio of around 15. At the other extreme, the lowest decile of CVM has a negative value, indicating that the average theoretical value of the 277 stocks in this decile is negative. Their average price-earnings ratio is over 22. Although the relationship is irregular, the curve shows that stocks with lower price-earnings ratios tend to have higher CVM ratios. A somewhat similar pattern is shown in the panel showing CVM versus Estimated Growth Rate (from Ford Investor Services). Here, higher-growth companies tend to have below-average CVM ratios.

Several panels in figure 2 show patterns of wide variations. These include Yield, Market Capitalization, Institutional Holdings, Deviation (Variability of Earnings) and Quality (Value-Line financial strength rating). In the case of Institutional Holdings, for example, stocks with low percentages held by institutions tend to have either very high or very low CVM ratios. To the extent that extreme ratios of CVM are an indication of lower market efficiency, it appears that stocks with low institutional holdings are inefficiently priced, thus confirming our third initial hypothesis. Inefficient pricing also appears to occur among stocks with low yields, small size, low quality and high earnings deviation. Interestingly, these are all characteristics that produce discomfort among investors, and contrarians would argue that stocks possessing these characteristics may produce above-average total returns. CVM may be particularly useful to contrarians because it distinguishes especially well among stocks that possess contrary characteristics.

Valuation versus Number of Divisions

Figure 3 confirms another of our initial hypotheses. It shows what appears to be a positive relationship between the number of segments in a company and the CVM ratio. The more divisions a company has, the more it is likely to be undervalued.

Industry Characteristics

Business-segment CVM ratios have been developed for roughly 400 of the 600 SIC groups. (Those with few companies are "rolled up" to a broader definition.) In order to generalize about industry characteristics,

Figure 2

Comparison of the Ratio of Theoretical to Market Capitalization (CVM) and Selected Market Characteristics of 2,773 Companies, 1985

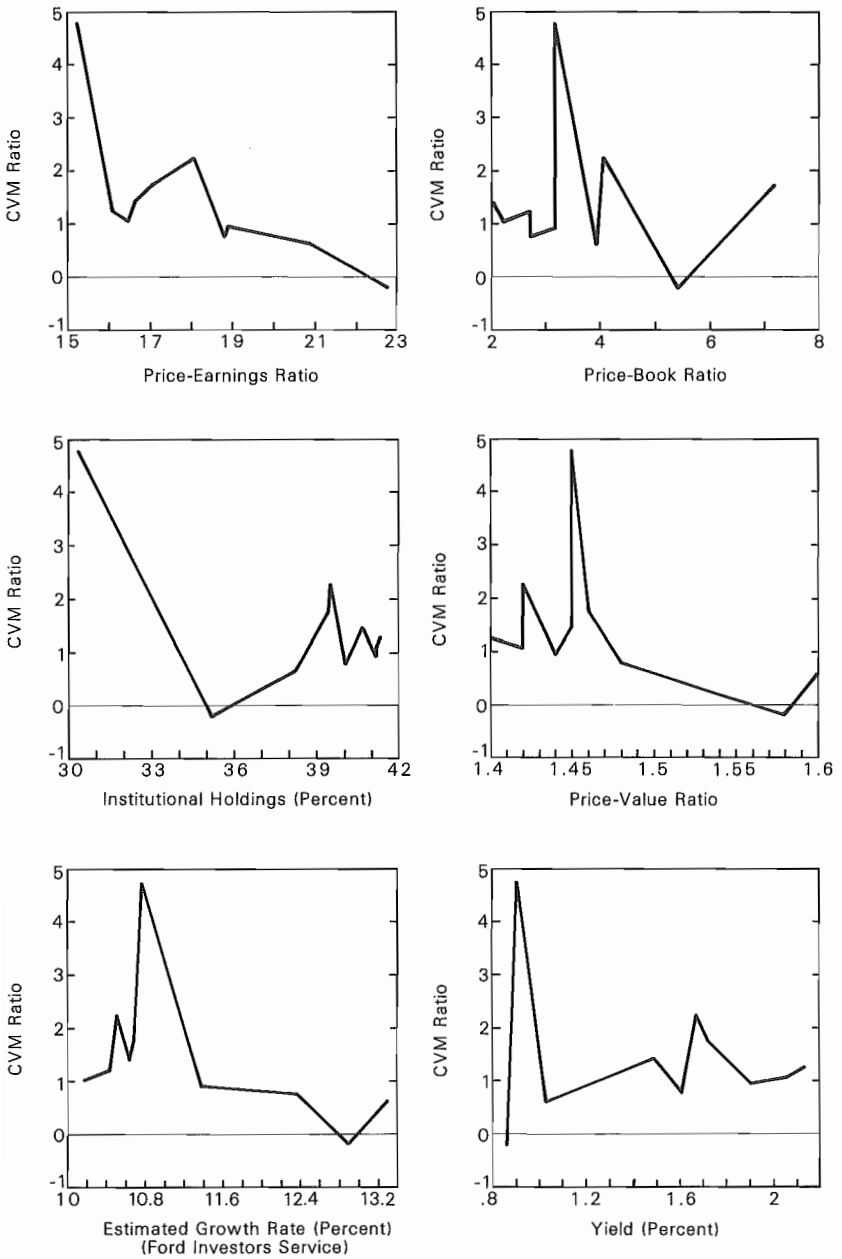
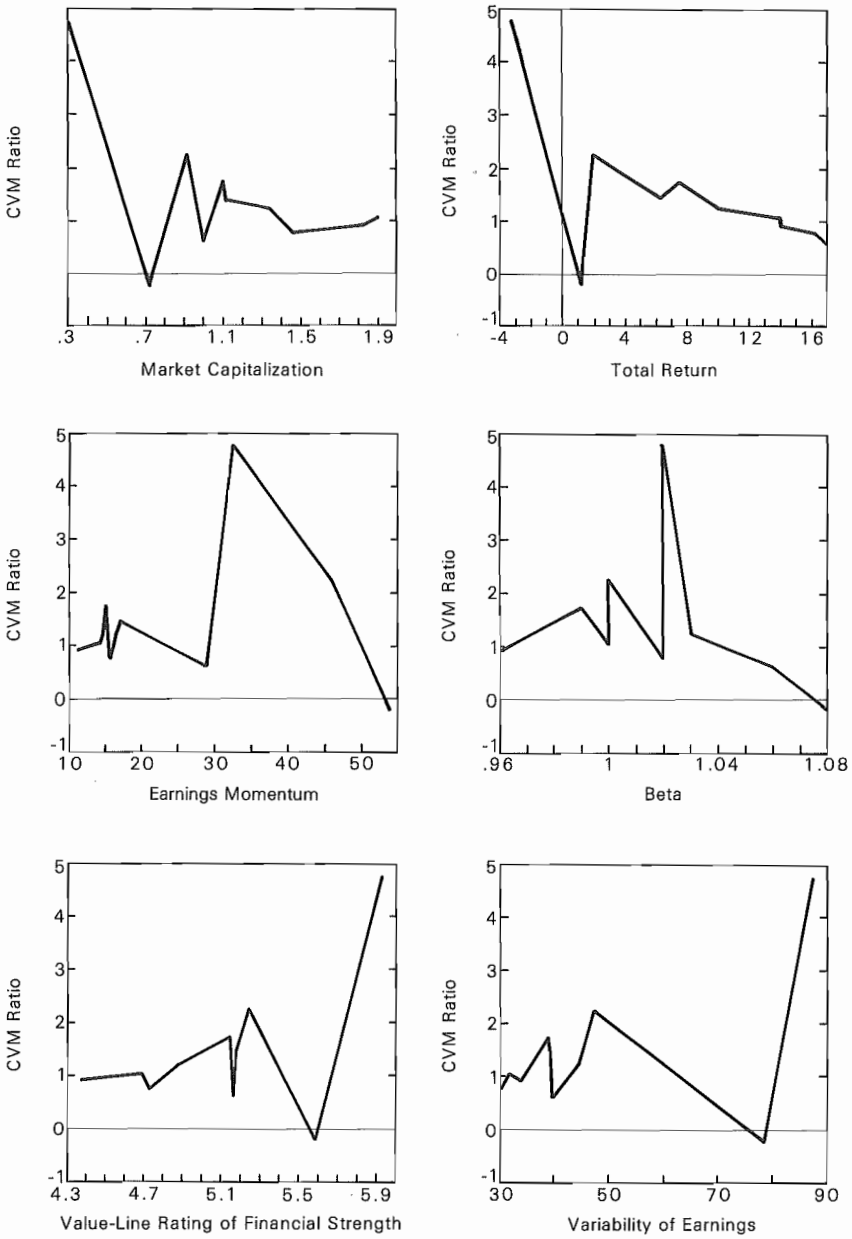


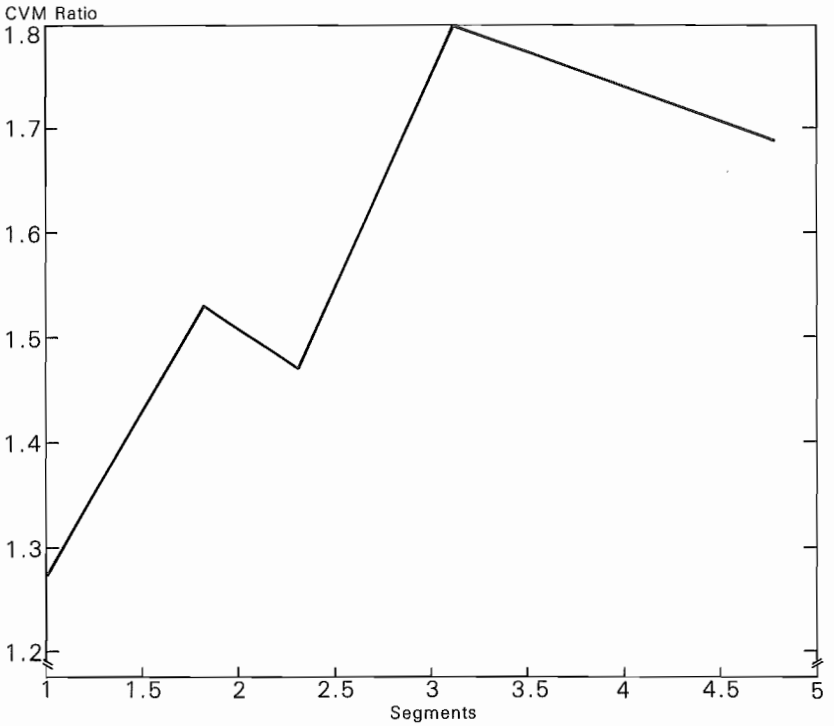
Fig. 2 continued



Source: Batterymarch Financial Management.

Figure 3

Comparison of Number of Business Segments in an Industry and Its CVM Ratio[a]



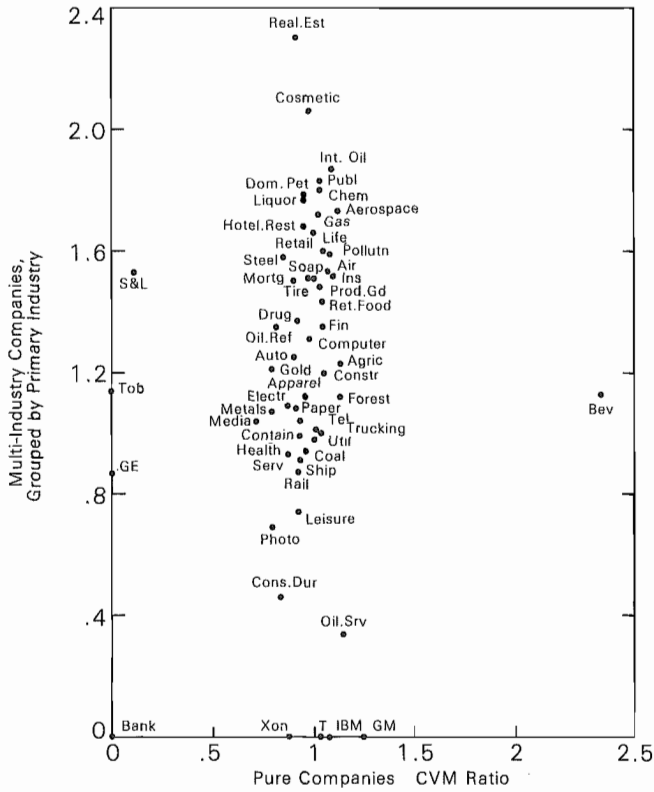
[a]Ratio of a firm's theoretical value (using the corporate valuation model) to its market value.
Source: Batterymarch Financial Management.

however, it was found useful to group the data into 55 industry groups, which are shown in figures 4 and 5.

Figure 4 compares capitalization-weighted (CVM) ratios for "impure" or multi-industry companies, grouped by their primary industry, with ratios for pure companies located in the same industries. Since the ratios are weighted by capitalization, it is natural that the industry averages for pure companies are close to 1. The Y-axis, however, shows that multi-industry companies vary widely in their valuation. Diversified companies in transportation, leisure and consumer durables appear overvalued by the market while those in the cosmetics, hotel, aerospace and computer industries appear to be undervalued. Although generalizations can be misleading, it appears that breakup opportunities are greater in more glamorous industries, because investors "pay up" for

Figure 4

Comparison of Pure and Multi-Industry Companies, by Primary Industry, Weighted by Capitalization



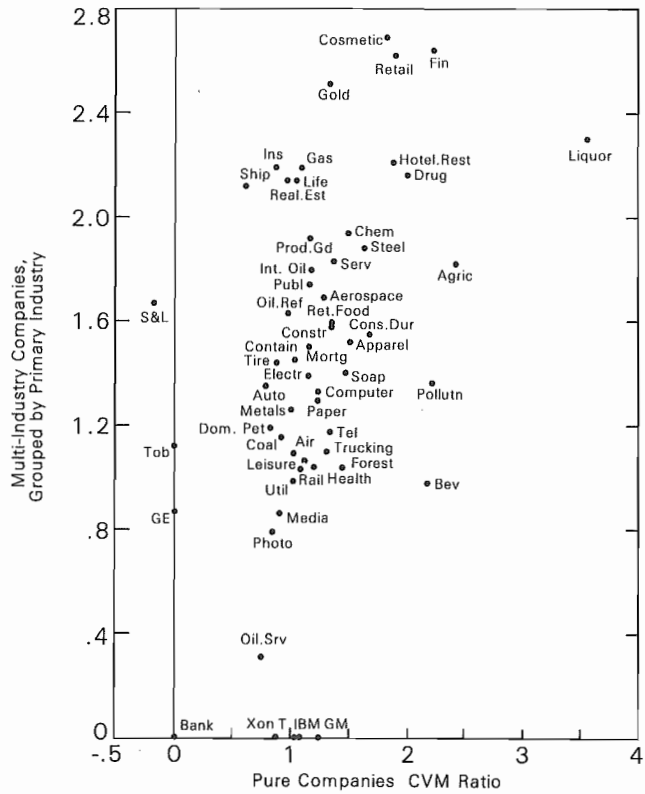
Source: Batterymarch Financial Management.

specialists that occupy a market niche. In less glamorous industries, diversified companies are given more generous valuations.

Figure 5 presents the same comparisons but uses equal weights for all companies to construct the industry average. The effect is to place more importance on smaller companies than in figure 4. The X-axis position of each industry shows a clear difference among pure companies from the vertical centering around 1 in figure 4. In retailing, hotels, drugs and pollution control, for example, small companies tend to have higher capitalization ratios than large ones, whereas the reverse is true in domestic petroleum, oil services, autos and shipping. Again, there may be a pattern related to the "glamor" of the industry, where small

Figure 5

Unweighted Comparison of Pure and Multi-Industry Companies, by Primary Industry



Source: Batterymarch Financial Management.

companies in industries that are unpopular sell at a premium while those in favored industries sell at a discount. In executing a small-stock strategy, it might make sense to avoid industries that are out of favor.

Although results of our regression analysis are still in the research stage, we have some interesting findings. As mentioned earlier, growth in sales does not appear to be a significant factor in most cases. Our regressions would not distinguish between two competing companies with identical sales, assets and income, one of which had experienced a decline in market share while the other had experienced an increase. While this confirms our suspicion that the market undervalues changes in market share, we still believe that our equations could be improved by

including some growth measure. We will be experimenting with income growth data, but their instability will require some smoothing. In addition, the universe will shrink because many companies have changed their reporting format, grouping divisions in different categories over the years.

There are several interesting surprises in the regression coefficients. In roughly half of the cases, the coefficient for sales is negative, suggesting that corporate value shrinks with size. In some of these cases, the explanation is that industry income is negative; but in others, large companies may be dinosaurs, producing commodity products and losing more profitable customers to smaller niche specialists. Industries with a negative coefficient on sales include chemicals, electrical equipment, telephones and cosmetics. In other industries, sales are unimportant, with a coefficient close to zero. These include oil refining, computers and autos. On the other hand, the reverse is true in radio and television broadcasting, where both assets and income have coefficients close to zero and value depends almost entirely on sales.

Of course, coefficients will change over time with industry and economic cycles. The regressions are a cross-sectional snapshot capturing companies that seem out of place at this instant. Expectations may explain much of this, and we have plans to include estimated income, from the Institutional Brokers Estimate System, to supplement current reported income.

Conclusions

Business-segment analysis suggests that there are opportunities to add value by separating multi-industry companies into their parts. In addition, even with our current, relatively crude techniques, there do appear to be significant patterns in the market. Different industries are valued in different ways and our "Chop Shop" analysis may lead us to industry-specific valuation models with implications beyond the analysis of business segments.

The question of why the parts are worth more than the whole for many companies is of particular interest since the reverse was true 20 years ago, when conglomerates were in vogue and synergy was mentioned in nearly every annual report. We suggested earlier some explanations for the current condition, such as the "closed-end fund effect" and the high cost of information. But there are other issues about which we can speculate.

(1) *Cynicism versus naivete.* After the poor performance of corporate profits in recent years, investors may have grown cynical about the talents of high-priced managers. In the 1960s, we believed

we could manage the economy, at both the government and the corporate levels. Now we may have gone too far, but we are all aware of the limited influence of management in the face of overwhelming and often unknown external influences such as the oil crisis and inflation. Even some of the companies cited for great management skill in books like *In Search of Excellence* have shown disappointing subsequent results. It is not that management is ineffective, simply that management is less influential than managers themselves would like. In today's environment, investors prefer situations where the management tasks are made simpler by fewer divisions.

(2) *Inflation and hidden assets.* Many of today's multi-industry companies were formed over 15 years ago. Divisions acquired then have disappeared from close investor scrutiny for a long period while inflation has distorted their asset values. As recent restructurings have shown, much of the merchandise that disappeared into "corporate attics" in the late 1960s is worth far more than book value on the open market today. Despite experiments with inflation accounting (Financial Accounting Standards Board Statement 33), most of our accounting and reporting framework has focused financial analysis on historical costs, leaving investors ill-equipped to anticipate the "hidden assets" of complex companies.

(3) *Agency problems and the control premium.* Some of the current discount of multi-industry companies may reflect the agency problems of managements and shareholders in recent years. Contests for control and increased antitakeover provisions have made investors conscious of the importance of control. The more complex a company is, the more valuable will be control over its restructuring decisions. If investors believe they have lost the ability to affect those decisions, either by influencing or by changing management, then the stock prices will drop.

We see several directions in which the current conditions may lead. We may be witnessing a change in the nature of common stocks that will signal the end of shareholder ownership as we have known it. It could be that corporations are indeed becoming closed-end funds. It could be that common stocks are becoming a form of nonvoting preferred stock, with a dividend tied to earnings. This would bring us closer to other world markets, where the discount for lack of control is 10 times as great as the 3 to 4 percent spread in our market today. The resulting increase in the cost of capital to our economy would be large.

More likely, however, is a continuation of active corporate restructurings with the goal of simplification. We believe the interests of share-

holders and management are coming together, as managers are increasingly aware that a high stock price is their best protection against takeover. This should lead to increased management incentives based on stock price, improved shareholder relations, and more active participation by shareholders in corporate decisions. Spinoffs and sales of divisions will continue. A related development may be partial public ownership of divisions to establish their market value (similar to the program tried by LTV in the early 1970s). In this environment, we hope that the companies identified by our business segment analysis will be market leaders.

Discussion

*Joseph A. Grundfest**

"Chop Shop" is a provocative model based on an insight that can be expressed in three different but closely related forms. "Chop Shop" is, at once: (1) a closed-end fund valuation model; (2) a statement about how a corporate raider might value a potential target; and (3) an implementation of arbitrage pricing theory. Each perspective complements the others. Indeed, by viewing the model from these three different vantage points, it may be possible to develop a richer understanding of the basic trading problem presented by the authors: How do you spot undervalued companies before the rest of the market, and how do you profit from that information?

The Conglomerate as Closed-End Fund

From one perspective, "Chop Shop" views a conglomerate firm as a closed-end investment company holding a portfolio of nontraded securities that represent equity interests in identifiable lines of business. By estimating the open-market value of each of those closely held securities, the model infers the value that the stock market would assign to the conglomerate if, by creating a publicly traded security for each line of business and then spinning that security off to its stockholders, the conglomerate converted itself into the equivalent of an open-end fund.

There is substantial evidence that closed-end funds trade at a discount to net asset value.[1] Further, some conglomerates have recently

*Commissioner, U.S. Securities and Exchange Commission. The views expressed herein are the author's, and do not reflect those of the Commission, other Commissioners, or Commission staff.

begun to spin off subsidiaries in an effort to convert themselves into more open-ended structures in which separate lines of business are independently valued.[2] "Chop Shop," if it works, represents an appraisal technique designed to estimate the increase in value that the market would assign to an open-ended conglomerate as opposed to its closed-ended analogue.

The Conglomerate as Bust-Up Target

The more immediate inspiration for "Chop Shop" arises from takeover bidders who acquire conglomerates for the purpose of subdividing them into separate lines of business that are then sold off. Such transactions effectively transform closed-end conglomerates into more valuable economic structures. The rhetoric associated with these transactions (for example, "bust-up" deals) is most unfortunate because it conjures up the image of a scorched earth policy that leads to massive plant shutdowns and inefficient economic dislocations.

The evidence, however, is quite the opposite. For example, a recent study by Michael E. Porter suggests that a large percentage of conglomerate acquisitions are failures because the acquired operations do not rationally add value to the firm's overall performance (Porter 1987). Significantly, the transactions in Porter's sample are predominantly the result of friendly corporate acquisitions and Porter suggests that economic value can be created by breaking up conglomerate structures that result from these friendly transactions.

Such breakups will permit some subsidiaries to operate as free-standing entities subject to independent capital market discipline instead of the bureaucratic internal budgeting discipline employed in most conglomerate organizations. Alternatively, divisions that are sold off to other firms are typically combined with operations in similar lines of business. These combinations can take advantage of economies of scale and scope unavailable in the conglomerate form. Thus, Porter's research suggests that friendly takeovers may, on occasion, create inefficient conglomerate structures that can be beneficially unraveled through a restructuring that causes a realignment of corporate divisions. The analysis thereby strongly supports "bust-up" transactions that are frequently vilified in the press.

Viewed from this perspective, "Chop Shop" provides an estimate of the increased value that results from the subdivision of a conglomerate into entities that focus on defined lines of business. No doubt, bidders considering conglomerate acquisitions engage in similar analyses. "Chop

[1] See, for example, Brickley and Schallheim (1985); Brauer (1984); and Brauer (1988).
[2] See, for example, Rose (1988).

Shop" can thus be thought of as an effort to estimate the reservation price that a bidder might assign to a conglomerate as a result of the gains that could be earned by restructuring the firm.

"Chop Shop" as an Arbitrage Pricing Theory Model

The arbitrage pricing theory is based on a relatively simple but powerful insight: identical items should sell at identical prices because any price differences can be arbitraged away. This "law of one price" suggests that the return on any one stock can be expressed as a linear combination of various indexes, that is:

$$V_i = a_i + b_{i1}I_1 + b_{i2}I_2 + \ldots + b_{ij}I_j + e_i.$$

In the case of "Chop Shop," the underlying hypothesis is that the law of one price and associated arbitrage should equalize the value of a conglomerate and the value of the conglomerate's component parts. By relating the conglomerate's value, V_i, to a set of indexes that describe the value of the conglomerate's constituent lines of business, I_j, "Chop Shop" seeks to estimate the value that the law of one price would impute to a conglomerate if the market were given an opportunity to engage in the necessary arbitrage.[3]

Synthesis

In "Chop Shop," all three of these views come together as one. The bust-up transaction is modelled as an exercise in open-ending a closed-end fund and is also revealed as an application of the law of one price. The model does not explain the source of the undervaluation, but that is not the model's purpose: the model is designed to be purely predictive and its purpose is to serve as a valuable trading rule for its developers.

The model's ability to predict may, however, be seriously constrained by currently employed estimation techniques and data. The model's current estimation approach, which relies on a linear regression on predetermined indexes with certain fixed weights as explanatory factors, may place unnecessary constraints on the underlying analytic approach. A factor analysis technique that relies on a richer data set and assumes fewer constraints on the variables that are most useful as explanatory factors may lead to better results (Elton and Gruber 1987, pp. 344–48). This approach could incorporate additional variables such as cash flow and other performance measures that are likely to be informa-

[3] See generally, Elton and Gruber (1987) and especially pp. 336–54.

tive in predicting a conglomerate's potential breakup value.

To the extent the model relies solely on publicly available data that can be gleaned from annual reports and SEC filings, the model fails to incorporate some of the information most valuable to a "bust-up" analysis and subjects itself to some serious vagaries in accounting practice. In a bust-up transaction, in which each division is eventually sold to the highest bidder, the best estimate of a division's value may well be its replacement cost. That cost is most commonly estimated through market appraisals that do not rely at all on accounting data as reported in public filings. Indeed, to the extent that accounting data focus on historical cost measures that do not reflect current market values, those data are particularly unsuited to the market valuation task that is critical to the model's mission.

Further, the vagaries of FASB's Statement No. 14, which provides the basis for line of business reporting, have been frequently noted in the literature. In particular, "[q]uestions have been raised regarding the usefulness of the segment approach to forecasting because of potential data contamination. This contamination is perceived to arise because of difficulties in classifying firm activities into segments and the arbitrariness of transfer pricing and joint cost allocation. Because of the problems, it is possible that the use of segment data may lead to invalid forecasts" (Horwitz and Kolodny 1980, p. 27). In many respects, however, this criticism is simply a fact of life with which "Chop Shop" must live because, whatever the drawbacks of publicly reported line-of-business data prepared in accordance with FASB Statement No. 14, those are the only available data upon which the model can operate.

Can "Chop Shop" Become a Profitable Trading Rule?

Suppose that "Chop Shop" evolves into a highly accurate valuation model that estimates the discount the market applies to a conglomerate's shares. The authors suggest that they might, in the spirit of financial "glasnost," make their model available to other investors so that they would be willing to bid the conglomerate's shares to a higher value (LeBaron and Speidell 1987).

If the authors seek to profit from this research they will, however, have to proceed carefully. If they simply disclose the best version of their model, other investors will be able to acquire shares as rapidly as the inventors and few profitable opportunities will be available for them. Accordingly, they cannot place their work in the public domain if they are to profit.

Instead, the authors will have to develop a credible signalling strategy in which they first accumulate positions and then explain to the

market why they believe the companies in which they invest are undervalued. The explanation will have to be sufficiently persuasive that other investors will acquire shares, bid up the company's price, and still perceive an opportunity for profit because they expect yet another increase in share price after their acquisition.

Alternatively, the authors may want to adopt substantially more passive or aggressive strategies. At the passive end of the spectrum, the authors may want to abandon the idea of popularizing their model and simply rely on market forces to recognize the discounts identified by "Chop Shop." Several mutual fund managers attempt to identify future takeover targets by analyzing cash flow estimates and underlying asset values. Instead of popularizing these predictions, these managers invest in promising takeover candidates and then sit on the sidelines while nature takes its course. At the aggressive end of the spectrum, the authors can get into the acquisition business directly. After all, if their model is an accurate predictor of realizable values that are not fully incorporated into market prices, the authors may well be able to maximize the value of their information by directly participating in takeover activity.

This last observation emphasizes a major implementation problem that is not addressed in "Chop Shop" or any other valuation model of its genre: identification of a potential discount is not a sufficient condition for profitable trading. Profits cannot be realized until there is a realistic plan for eliminating the conglomerate's discount and passing those gains through to the corporation's stockholders. Put another way, "Chop Shop" may be able to identify a conglomerate trading at a substantial discount, but if the conglomerate's management holds a majority of the corporation's shares and if management has committed itself to continue in its conglomerate strategy, the simple fact that the conglomerate's shares are trading at a substantial discount does not suggest that the discount is unwarranted or that purchasing the conglomerate's shares would be a profitable acquisition.

Thus, the analysis needs to go a step further and evaluate the probability that an identified discount can be eliminated in the marketplace. Simply identifying the existence of a discount from some valuation that is reasonable, but perhaps difficult or impossible to attain, will not cause the price of a conglomerate's shares to rise to that value.

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The Free Cash Flow Theory of Takeovers: A Financial Perspective on Mergers and Acquisitions and the Economy

*Michael C. Jensen**

Economic analysis and evidence indicate the market for corporate control is benefiting shareholders, society, and the corporate form of organization. The value of transactions in this market ran at a record rate of about $180 billion per year in 1985 and 1986—47 percent above the 1984 record of $122 billion. The number of transactions with purchase prices exceeding one billion dollars was 27 of 3300 deals in 1986 and 36 of 3000 deals in 1985 (Grimm 1986). There were only seven billion-dollar-plus deals in total, prior to 1980. In addition to these takeovers, mergers, and leveraged buyouts, there were numerous corporate restructurings involving divestitures, spinoffs, and large stock repurchases for cash and debt.

The gains to shareholders from these transactions have been huge. The gains to selling-firm shareholders from mergers and acquisition activity in the period 1977–86 total $346 billion (in 1986 dollars).[1] The gains to buying-firm shareholders are harder to estimate, and to my knowledge no one has done so yet, but I estimate that they would add at least another $50 billion to the total. These gains, to put them in perspective, equal 51 percent of the total cash dividends (valued in 1986 dollars) paid to investors by the entire corporate sector in the past decade.[2]

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Corporate control transactions and the restructurings that often accompany them can be wrenching events in the lives of those linked to the involved organizations: the managers, employees, suppliers, customers and residents of surrounding communities. Restructurings usually involve major organizational change (such as shifts in corporate strategy) to meet new competition or market conditions, increased use of debt, and a flurry of recontracting with managers, employees, suppliers and customers. This activity sometimes results in expansion of resources devoted to certain areas and at other times in contractions involving plant closings, layoffs of top-level and middle managers and of staff and production workers, and reduced compensation.

Change due to corporate restructuring requires people and communities associated with the organization to adjust the ways they live, work and do business. It is not surprising, therefore, that this change creates controversy and that those who stand to lose are demanding that something be done to stop the process. At the same time, shareholders in restructured corporations are clear-cut winners; in recent years restructurings have generated average increases in total market value of approximately 50 percent.

Those threatened by the changes argue that corporate restructuring is damaging the U.S. economy, that this activity damages the morale and productivity of organizations and pressures executives to manage for the short term. Further, they hold that the value that restructuring creates does not come from increased efficiency and productivity; rather, the gains come from lower tax payments, broken contracts with managers, employees and others, and mistakes in valuation by inefficient capital markets. Since the benefits are illusory and the costs are real, they argue, takeover activity should be restricted.

The controversy has been accompanied by strong pressure on regulators and legislatures to enact restrictions to curb activity in the market for corporate control. Dozens of congressional bills in the past several years have proposed new restrictions on takeovers, but as of August 1987, none had passed. The Business Roundtable, composed of the chief executive officers of the 200 largest corporations in the country, has pushed hard for restrictive legislation. Within the past several years the legislatures of New York, New Jersey, Maryland, Pennsylvania, Connecticut, Illinois, Kentucky, Michigan, Ohio, Indiana, Minnesota and

[1] Estimated from data in Grimm (1986). Grimm provides total dollar values for all merger and acquisition deals for which there are publicly announced prices amounting to at least $500,000 or 10 percent of the firm and in which at least one of the firms was a U.S. company. Grimm also counts in its numerical totals deals with no publicly announced prices that it believes satisfy these criteria. I have assumed that the deals with no announced prices were on average equal to 20 percent of the size of the announced transactions and carried the same average premium.

[2] Total dividend payments by the corporate sector, unadjusted for inflation, are given in Weston and Copeland (1986, p. 649). I extended these estimates to 1986.

Massachusetts have passed antitakeover laws. The Federal Reserve Board implemented new restrictions in early 1986 on the use of debt in certain takeovers.

In all the controversy over takeover activity, it is often forgotten that only 40 (an all-time record) of the 3,300 takeover transactions in 1986 were hostile tender offers. There were 110 voluntary or negotiated tender offers (unopposed by management) and the remaining 3,100-plus deals were also voluntary transactions agreed to by management. This simple classification, however, is misleading since many of the voluntary transactions would not have occurred absent the threat of hostile takeover. A major reason for the current outcry is that in recent years mere size alone has disappeared as an effective takeover deterrent, and the managers of many of our largest and least efficient corporations now find their jobs threatened by disciplinary forces in the capital markets.

Through dozens of studies, economists have accumulated considerable evidence and knowledge on the effects of the takeover market. Most of the earlier work is well summarized elsewhere (Jensen and Ruback 1983; Jensen 1984; Jarrell, Brickley and Netter 1988). Here, I focus on current aspects of the controversy. In brief, the previous work tells us the following:

- Takeovers benefit shareholders of target companies. Premiums in hostile offers historically exceed 30 percent on average, and in recent times have averaged about 50 percent.
- Acquiring-firm shareholders on average earn about 4 percent in hostile takeovers and roughly zero in mergers, although these returns seem to have declined from past levels.
- Takeovers do not waste credit or resources. Instead, they generate substantial gains: historically, 8 percent of the total value of both companies.
- Actions by managers that eliminate or prevent offers or mergers are most suspect as harmful to shareholders.
- Golden parachutes for top-level managers do not, on average, harm shareholders.
- The activities of takeover specialists (such as Icahn, Posner, Steinberg, and Pickens) benefit shareholders on average.
- Merger and acquisition activity has not increased industrial concentration. Over 1200 divestitures valued at $59.9 billion occurred in 1986, also a record level (Grimm 1986).
- Takeover gains do not come from the creation of monopoly power.

Although measurement problems make it difficult to estimate the returns to bidders as precisely as the returns to targets,[3] it appears the

[3] See Jensen and Ruback (1983, pp. 18ff).

bargaining power of target managers, coupled with competition among potential acquirers, grants a large share of the acquisition benefits to selling shareholders. In addition, federal and state regulation of tender offers appears to have strengthened the hand of target firms; premiums received by target-firm shareholders increased substantially after introduction of such regulation.[4]

Some have argued that the gains to shareholders come from wealth reallocations from other parties and not from real increases in efficiency. Roll (1986) argues the gains to target firm shareholders come from acquiring firm shareholders, but the data are not consistent with this hypothesis. While the evidence on the returns to bidding firms is mixed, it does not indicate they systematically suffer losses; prior to 1980 shareholders of bidding firms earned on average about zero in mergers, which tend to be voluntary, and about 4 percent of their equity value in tender offers, which more often are hostile (Jensen and Ruback 1983). These differences in returns are associated with the form of payment rather than the form of the offer: tender offers tend to be for cash and mergers tend to be for stock (Huang and Walkling 1987).

Some argue that bondholders in acquired firms systematically suffer losses as substantial amounts of debt are added to the capital structure. Asquith and Kim (1982) do not find this, nor do Dennis and McConnell (1986). The Dennis and McConnell study of 90 matched acquiring and acquired firms in mergers in the period 1962–80 shows that the values of bonds, preferred stock and other senior securities, as well as the common stock prices of both firms, increase around the merger announcement. Changes in the value of senior securities are not captured in measures of changes in the value of common stock prices summarized previously. Taking the changes in the value of senior securities into account, Dennis and McConnell find the average change in total dollar value is positive for both bidders and target firms.

Shleiffer and Summers (1987) argue that some of the benefits earned by target and bidding firm shareholders come from the abrogation of explicit and implicit long-term contracts with employees. They point to highly visible recent examples in the airline industry, where mergers have been frequent and wages have been cut in the wake of deregulation. But given deregulation and free entry by low-cost competitors, the cuts in airline industry wages were inevitable and would have been accomplished in bankruptcy proceedings if not in negotiations and takeover-related crises. Medoff and Brown (1988) study this issue using data from Michigan. They find that both employment and wages are higher, not lower, after acquisition than would otherwise be expected; however, their sample consists largely of combinations of small firms.

[4] See Jarrell and Bradley (1980). Nathan and O'Keefe (1986), however, provide evidence that this effect occurred in 1974, several years after the major legislation.

The Market for Corporate Control

The market for corporate control is best viewed as a major component of the managerial labor market. It is the arena in which alternative management teams compete for the rights to manage corporate resources (Jensen and Ruback 1983). Understanding this point is crucial to understanding much of the rhetoric about the effects of hostile takeovers.

Takeovers generally occur because changing technology or market conditions require a major restructuring of corporate assets (although in some cases, takeovers occur because incumbent managers are incompetent). Such changes can require abandonment of major projects, relocation of facilities, changes in managerial assignments, and closure or sale of facilities or divisions. Managers often have trouble abandoning strategies they have spent years devising and implementing, even when those strategies no longer contribute to the organization's survival, and it is easier for new top-level managers with no ties to current employees or communities to make changes. Moreover, normal organizational resistance to change commonly is lower early in the reign of new top-level managers. When the internal processes for change in large corporations are too slow, costly, and clumsy to bring about the required restructuring or change in managers efficiently, the capital markets do so through the market for corporate control. Thus, the capital markets have been responsible for substantial changes in corporate strategy.

Causes of Current Takeover Activity

A variety of political and economic conditions in the 1980s have created a climate where economic efficiency requires a major restructuring of corporate assets. These factors include:

- The relaxation of restrictions on mergers imposed by the antitrust laws.
- The withdrawal of resources from industries that are growing more slowly or that must shrink.
- Deregulation in the markets for financial services, oil and gas, transportation, and broadcasting, bringing about a major restructuring of those industries.
- Improvements in takeover technology, including more and increasingly sophisticated legal and financial advisers, and innovations in financing technology (for example, the strip financing commonly used in leveraged buyouts and the original issuance of high-yield non-investment-grade bonds).

Each of these factors has contributed to the increase in total takeover and reorganization activity. Moreover, the first three factors (anti-

Table 1
Intensity of Takeover Activity, by Industry, 1981–84.

Industry Classification of Seller	Percent of Total Takeover Activity[a]	Percent of Total Corporate Market Value[b]
Oil and Gas	26.3	13.5
Banking and Finance	8.8	6.4
Insurance	5.9	2.9
Food Processing	4.6	4.4
Mining and Minerals	4.4	1.5
Conglomerate	4.4	3.2
Retail Trade	3.6	5.2
Transportation	2.4	2.7
Leisure and Entertainment	2.3	.9
Broadcasting	2.3	.7
Other	39.4	58.5

[a] Value of merger and acquisition transactions in the industry as a percentage of total takeover transactions for which valuation data are publicly reported. Source: W. T. Grimm, *Mergerstat Review* 1984, p. 41.

[b] Industry value as a percentage of the value of all firms, as of 12/31/84. Total value is measured as the sum of the market value of common equity for 4,305 companies, including 1,501 companies on the New York Stock Exchange, 724 companies on the American Stock Exchange, plus 2,080 companies in the over-the-counter market.

Source: *The Media General Financial Weekly*, December 31, 1984, p. 17.

trust relaxation, exit, and deregulation) are generally consistent with data showing the intensity of takeover activity by industry. Table 1 indicates that acquisition activity in the period 1981–84 was highest in the oil and gas industry, followed by banking and finance, insurance, food processing, and mining and minerals. For comparison purposes, the table also presents data on industry value measured as a percentage of the total value of all firms. All but two of the industries, retail trade and transportation, represent a larger fraction of total takeover activity than their representation in the economy as a whole, indicating that the takeover market is concentrated in particular industries, not spread evenly throughout the corporate sector.

Many sectors of the U.S. economy have been experiencing slower growth and, in some cases, even retrenchment. This phenomenon has many causes, including substantially increased foreign competition. The slow growth has meant increased takeover activity because takeovers play an important role in facilitating exit from an industry or activity. Changes in energy markets, for example, have required radical restructuring and retrenchment in that industry, and takeovers have played an important role in accomplishing these changes; oil and gas rank first in takeover activity, with twice their proportionate share of total activity.

Managers who are slow to adjust to the new energy environment and slow to recognize that many old practices and strategies are no longer viable find that takeovers are doing the job for them. In an industry saddled with overcapacity, exit is cheaper to accomplish through merger and the orderly liquidation of marginal assets of the combined firms than by disorderly, expensive bankruptcy. The end of the competitive struggle in such an industry often comes in the bankruptcy courts, with the unnecessary destruction of valuable parts of organizations that could be used productively by others.

Similarly, deregulation of the financial services market is consistent with the number 2 rank of banking and finance and the number 3 rank of insurance in table 1. Deregulation has also been important in the transportation and broadcasting industries. Mining and minerals has been subject to many of the same forces impinging on the energy industry, including the changes in the value of the dollar.

The development of innovative financing vehicles, such as high-yield non-investment-grade bonds (junk bonds), has removed size as a significant impediment to competition in the market for corporate control. Investment grade and high-yield debt issues combined were associated with 9.8 percent of all tender offer financing from January 1981 through September 1986 (Drexel Burnham Lambert, undated). Even though not yet widely used in takeovers, these new financing techniques have had important effects because they permit small firms to obtain resources for acquisition of much larger firms by issuing claims on the value of the venture (that is, the target firm's assets) just as in any other corporate investment activity.

Divestitures

If assets are to move to their most highly valued use, acquirers must be able to sell off assets to those who can use them more productively. Therefore, divestitures are a critical element in the functioning of the corporate control market and it is important to avoid inhibiting them. Indeed, over 1200 divestitures occurred in 1986, a record level (*Mergerstat Review* 1986). This is one reason merger and acquisition activity has not increased industrial concentration.

Divested plants and assets do not disappear; they are reallocated. Sometimes they continue to be used in similar ways in the same industry, and in other cases they are used in very different ways and in different industries. But in both cases they are moving to uses that their new owners believe are more productive.

Finally, the takeover and divestiture market provides a private market constraint against bigness for its own sake. The potential gains available to those who correctly perceive that a firm can be purchased for less

than the value realizable from the sale of its components provide incentives for entrepreneurs to search out these opportunities and to capitalize on them by reorganizing such firms into smaller entities.

The mere possibility of such takeovers also motivates managers to avoid putting together uneconomic conglomerates and to break up existing ones. This is now happening. Recently many firms' defenses against takeovers appear to have led to actions similar to those proposed by the potential acquirers. Examples are the reorganizations occurring in the oil and forest products industries, the sale of "crown jewels," and divestitures brought on by the desire to liquidate large debts incurred to buy back stock or make other payments to stockholders. The basic economic sense of these transactions is often lost in a blur of emotional rhetoric and controversy.

Managerial Myopia versus Market Myopia

It has been argued that, far from pushing managers to undertake needed structural changes, growing institutional equity holdings and the fear of takeover cause managers to behave myopically and therefore to sacrifice long-term benefits to increase short-term profits. The arguments tend to confuse two separate issues: 1) whether managers are shortsighted and make decisions that undervalue future cash flows while overvaluing current cash flows (myopic managers); and 2) whether security markets are shortsighted and undervalue future cash flows while overvaluing near-term cash flows (myopic markets).

There is little formal evidence on the myopic managers issue, but I believe this phenomenon does occur. Sometimes it occurs when managers hold little stock in their companies and are compensated in ways that motivate them to take actions to increase accounting earnings rather than the value of the firm. It also occurs when managers make mistakes because they do not understand the forces that determine stock values.

There is much evidence inconsistent with the myopic markets view and no evidence that indicates it is true:

(1) The mere fact that price-earnings ratios differ widely among securities indicates the market is valuing something other than current earnings. For example, it values growth as well. Indeed, the essence of a growth stock is that it has large investment projects yielding few short-term cash flows but high future earnings and cash flows. The continuing marketability of new issues for start-up companies with little record of current earnings, the Genentechs of the world, is also inconsistent with the notion that the market does not value future earnings.

(2) McConnell and Muscarella (1985) provide evidence that (except in the oil industry) stock prices respond positively to announcements of increased investment expenditures and negatively to reduced expendi-

tures. Their evidence is also inconsistent with the notion that the equity market is myopic, since it indicates that the market values spending current resources on projects that promise returns in the future.

(3) The vast evidence on efficient markets, indicating that current stock prices appropriately incorporate all currently available public information, is also inconsistent with the myopic markets hypothesis. Although the evidence is not literally 100 percent in support of the efficient market hypothesis, no proposition in any of the social sciences is better documented.[5]

(4) Recent versions of the myopic markets hypothesis emphasize increases in the amount of institutional holdings and the pressure funds managers face to generate high quarterly returns. It is argued that these pressures on institutions are a major cause of pressures on corporations to generate high current quarterly earnings. The institutional pressures are said to lead to increased takeovers of firms, because institutions are not loyal shareholders, and to decreased research and development (R&D) expenditures. It is hypothesized that because R&D expenditures reduce current earnings, firms making them are more likely to be taken over, and that reductions in R&D are leading to a fundamental weakening of the corporate sector of the economy.

A study of 324 firms by the Office of the Chief Economist of the SEC (1985a) finds substantial evidence that is inconsistent with this version of the myopic markets argument. The evidence indicates the following:

- Increased institutional stock holdings are not associated with increased takeovers of firms.
- Increased institutional holdings are not associated with decreases in R&D expenditures.
- Firms with high R&D expenditures are not more vulnerable to takeovers.
- Stock prices respond positively to announcements of increases in R&D expenditures.

Moreover, total spending on R&D is increasing concurrent with the wave of merger and acquisition activity. Total spending on R&D in 1984, a year of record acquisition activity, increased by 14 percent according to *Business Week*'s annual survey. This represented "the biggest gain since

[5] For an introduction to the literature and empirical evidence on the theory of efficient markets, see Elton and Gruber (1984), Chapter 15, p. 375ff. and the 167 studies referenced in the bibliography. For some anomalous evidence on market efficiency, see Jensen (1978). For recent criticisms of the efficient market hypothesis see Shiller (1981a, b). Marsh and Merton (1983, 1986) demonstrate that the Shiller tests depend critically on whether, contrary to generally accepted financial theory and evidence, the future levels of dividends follow a stationary stochastic process. Merton (1985) provides a discussion of the current state of the efficient market hypothesis and concludes (p. 40), "In light of the empirical evidence on the nonstationarity issue, a pronouncement at this moment that the rational market theory should be discarded from the economic paradigm can, at best, be described as 'premature'."

R&D spending began a steady climb in the late 1970's." All industries in the survey increased R&D spending with the exception of steel. In addition, R&D spending increased from 2 percent of sales, where it had been for five years, to 2.9 percent. In 1985 and 1986, two more record years for acquisition activity, R&D also set new records. R&D spending increased by 10 percent (to 3.1 percent of sales) in 1985, and in 1986, R&D spending again increased by 10 percent to $51 billion (3.5 percent of sales), in a year when total sales decreased by 1 percent.[6]

Bronwyn Hall (1987), in a detailed study of all U.S. manufacturing firms in the years 1976–85, finds in approximately 600 acquisitions that firms that are acquired do not have higher R&D expenditures (measured by the ratio of R&D to sales) than firms in the same industry that are not acquired. Also, she finds that "firms involved in mergers showed no difference in their pre- and post-merger R&D performance over those not so involved."

I know of no evidence that supports the argument that takeovers reduce R&D expenditures, even though this is a prominent argument among many of those who favor restrictions on takeovers.

Free Cash Flow Theory

More than a dozen separate forces drive takeover activity, including such factors as deregulation, synergies, economies of scale and scope, taxes, managerial incompetence, and increasing globalization of U.S. markets.[7] One major cause of takeover activity, the agency costs associated with conflicts between managers and shareholders over the payout of free cash flow,[8] has received relatively little attention. Yet it has played an important role in acquisitions over the last decade.

Managers are the agents of shareholders, and because both parties are self-interested, there are serious conflicts between them over the choice of the best corporate strategy. Agency costs are the total costs that arise in such cooperative arrangements. They consist of the costs of monitoring managerial behavior (such as the costs of producing audited financial statements and devising and implementing compensation

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[6] The "R&D Scoreboard" is an annual survey, covering companies that account for 95 percent of total private-sector R&D expenditures. The three years referenced here can be found in "R&D Scoreboard: Reagan & Foreign Rivalry Light a Fire Under Spending," *Business Week*, July 8, 1985, p. 86 ff.; "R&D Scoreboard: Now, R&D is Corporate America's Answer to Japan Inc.," *Business Week*, June 23, 1986, p. 134 ff.; and "R&D Scoreboard: Research Spending is Building Up to a Letdown," *Business Week*, June 22, 1987, p. 139 ff. In 1984 the survey covered 820 companies; in 1985, it covered 844 companies; in 1986, it covered 859 companies.

[7] Roll (1988) discusses a number of these forces.

[8] This discussion is based on Jensen (1986).

plans that reward managers for actions that increase investors' wealth) and the inevitable costs that are incurred because the conflicts of interest can never be resolved perfectly. Sometimes these costs can be large, and when they are, takeovers can reduce them.

Free Cash Flow and the Conflict Between Managers and Shareholders

Free cash flow is cash flow in excess of that required to fund all of a firm's projects that have positive net present values when discounted at the relevant cost of capital. Such free cash flow must be paid out to shareholders if the firm is to be efficient and to maximize value for shareholders.

Payment of cash to shareholders reduces the resources under managers' control, thereby reducing managers' power and potentially subjecting them to the monitoring by the capital markets that occurs when a firm must obtain new capital. Financing projects internally avoids this monitoring and the possibility that funds will be unavailable or available only at high explicit prices.

Managers have incentives to expand their firms beyond the size that maximizes shareholder wealth.[9] Growth increases managers' power by increasing the resources under their control. In addition, changes in management compensation are positively related to growth.[10] The tendency of firms to reward middle managers through promotion rather than year-to-year bonuses also creates an organizational bias toward growth to supply the new positions that such promotion-based reward systems require (Baker 1986).

The tendency for managers to overinvest resources is limited by competition in the product and factor markets that tends to drive prices toward minimum average cost in an activity. Managers must therefore motivate their organizations to be more efficient in order to improve the probability of survival. Product and factor market disciplinary forces are often weaker in new activities, however, and in activities that involve

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[9] Gordon Donaldson (1984), in a detailed study of 12 large Fortune 500 firms, concludes that managers of these firms were not driven by maximization of the value of the firm, but rather by the maximization of "corporate wealth." He defines corporate wealth as "*the aggregate purchasing power available to management for strategic purposes during any given planning period.* . . . this wealth consists of the stocks and flows of cash and cash equivalents (primarily credit) that management can use at its discretion to implement decisions involving the control of goods and services" (p. 3, emphasis in original). "In practical terms it is cash, credit, and other corporate purchasing power by which management commands goods and services" (p. 22).

[10] Where growth is measured by increases in sales. See Murphy (1985). This positive relationship between compensation and sales growth does not imply, although it is consistent with, causality.

substantial economic rents or quasi-rents.[11] Activities yielding substantial economic rents or quasi-rents are the types of activities that generate large amounts of free cash flow. In these situations, monitoring by the firm's internal control system and the market for corporate control are more important. Conflicts of interest between shareholders and managers over payout policies are especially severe when the organization generates substantial free cash flow. The problem is how to motivate managers to disgorge the cash rather than invest it below the cost of capital or waste it through organizational inefficiencies.

Myers and Majluf (1984) argue that financial flexibility (unused debt capacity and internally generated funds) is desirable when a firm's managers have better information about the firm than outside investors. Their arguments assume that managers act in the best interest of shareholders. The arguments offered here imply that such flexibility has costs; financial flexibility in the form of free cash flow (including both current free cash in the form of large cash balances, and future free cash flow reflected in unused borrowing power) provides managers with greater discretion over resources that is often not used in the shareholders' interests. Therefore, contrary to Myers and Majluf, the argument here implies that eventually the agency costs of free cash flow cause the value of the firm to decline with increases in financial flexibility.

The theory developed here explains (1) how debt-for-stock exchanges reduce the organizational inefficiencies fostered by substantial free cash flow; (2) how debt can substitute for dividends; (3) why "diversification" programs are more likely to be associated with losses than are expansion programs in the same line of business; (4) why mergers within an industry and liquidation-motivated takeovers will generally create larger gains than cross-industry mergers; (5) why the factors stimulating takeovers in such diverse businesses as broadcasting, tobacco, cable systems and oil are essentially identical; and (6) why bidders and some targets tend to show abnormally good performance prior to takeover.

The Role of Debt in Motivating Organizational Efficiency

The agency costs of debt have been widely discussed (Jensen and Meckling 1976; Smith and Warner 1979), but, with the exception of the work of Grossman and Hart (1980), the benefits of debt in motivating managers and their organizations to be efficient have largely been ignored. Debt creation, *without retention of the proceeds of the issue*, enables

[11] Rents are returns in excess of the opportunity cost of the permanent resources in the activity. Quasi-rents are returns in excess of the opportunity cost of the short-lived resources in the activity.

managers effectively to bond their promise to pay out future cash flows. Thus, debt can be an effective substitute for dividends, something not generally recognized in the corporate finance literature.[12] By issuing debt in exchange for stock, managers bond their promise to pay out future cash flows in a way that simple dividend increases do not. In doing so, they give shareholder-recipients of the debt the right to take the firm into bankruptcy court if they do not keep their promise to make the interest and principal payments.[13] Thus, debt reduces the agency costs of free cash flow by reducing the cash flow available for spending at the discretion of managers. These control effects of debt are a potential determinant of capital structure.

Managers with substantial free cash flow can increase dividends or repurchase stock and thereby pay out current cash that would otherwise be invested in low-return projects or wasted. This payout leaves managers with control over the use of future free cash flows, but they can also promise to pay out future cash flows by announcing a "permanent" increase in the dividend.[14] Because there is no contractual obligation to make the promised dividend payments, such promises are weak. Dividends can be reduced by managers in the future with little effective recourse available to shareholders. The fact that capital markets punish dividend cuts with large stock price reductions (Charest 1978; Aharony and Swary 1980) can be interpreted as an equilibrium market response to the agency costs of free cash flow. Brickley, Coles and Soo Nam (1987) find that firms that regularly pay extra dividends appear to have positive free cash flow. In comparison with a control group they have significantly higher cash plus short-term investments, and earnings plus depreci-

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[12] Literally, principal and interest payments are substitutes for dividends. Dividends and debt are not perfect substitutes, however, because interest is tax-deductible at the corporate level and dividends are not.

[13] Rozeff (1982) and Easterbrook (1984a) argue that regular dividend payments can be effective in reducing agency costs with managers by assuring that managers are forced more frequently to subject themselves and their policies to the discipline of the capital markets when they acquire capital.

[14] Interestingly, Graham and Dodd (1951, Chapters 32, 34 and 36) in their treatise, *Security Analysis*, place great importance on the dividend payout in their famous valuation formula: $V = M(D + .33E)$. (See p. 454.) V is value, M is the earnings multiplier when the dividend payout rate is a "normal two-thirds of earnings," D is the expected dividend, and E is expected earnings. In their formula, dividends are valued at three times the rate of retained earnings, a proposition that has puzzled many students of modern finance (at least of my vintage). The agency cost of free cash flow that leads to overretention and waste of shareholder resources is consistent with the deep suspicion with which Graham and Dodd viewed the lack of payout. Their discussion (chapter 34) reflects a belief in the tenuous nature of the future benefits of such retention. Although they do not couch the issues in terms of the conflict between managers and shareholders, the free cash flow theory explicated here implies that their beliefs, sometimes characterized as a preference for "a bird in the hand is worth two in the bush," were perhaps well-founded.

ation, relative to their total assets. They also have significantly lower debt-to-equity ratios.

The issuance of large amounts of debt to buy back stock sets up organizational incentives to motivate managers to pay out free cash flow. In addition, the exchange of debt for stock helps managers overcome the normal organizational resistance to retrenchment that the payout of free cash flow often requires. The threat of failure to make debt-service payments serves as a strong motivating force to make such organizations more efficient. Stock repurchase for debt or cash also has tax advantages. Interest payments are tax-deductible to the corporation, that part of the repurchase proceeds equal to the seller's tax basis in the stock is not taxed at all, and prior to 1987 tax rates on capital gains were favorable.

Increased leverage also has costs. As leverage increases, the usual agency costs of debt, including bankruptcy costs, rise. One source of these costs is the incentive to take on projects that reduce total firm value but benefit shareholders through a transfer of wealth from bondholders. These costs put a limit on the desirable level of debt. The optimal debt/equity ratio is the point at which firm value is maximized, the point where the marginal costs of debt just offset the marginal benefits.

The debt created in a hostile takeover (or takeover defense) of a firm suffering severe agency costs of free cash flow need not be permanent. Indeed, sometimes "over-leveraging" such a firm is desirable. In these situations, leveraging the firm so highly that it cannot continue to exist in its old form yields benefits by providing motivation for cuts in expansion programs and the sale of divisions that are more valuable outside the firm. The proceeds are used to reduce debt to a more normal or permanent level. This process results in a complete rethinking of the organization's strategy and structure. When it is successful, a much leaner, more efficient, and competitive organization results.

The control hypothesis does not imply that debt issues will always have positive control effects. For example, these effects will not be as important for rapidly growing organizations with large and highly profitable investment projects but no free cash flow. Such organizations will have to go regularly to the financial markets to obtain capital. At these times the markets have an opportunity to evaluate the company, its management, and its proposed projects. Investment bankers and analysts play an important role in this monitoring, and the market's assessment is made evident by the price investors pay for the financial claims.

The control function of debt is more important in organizations that generate large cash flows but have low growth prospects, and it is even more important in organizations that must shrink. In these organizations the pressure to waste cash flows by investing them in uneconomic projects is most serious.

Evidence from Financial Transactions

Free cash flow theory helps explain previously puzzling results on the effects of various financial transactions. Smith (1986, tables 1 to 3) summarizes more than 20 studies of stock price changes at announcements of transactions that change capital structure as well as various other dividend transactions. These results and those of others are presented in table 2.

For firms with positive free cash flow, the theory predicts that stock prices will increase with unexpected increases in payouts to shareholders and decrease with unexpected decreases in payouts. It also predicts that unexpected increases in demand for funds from shareholders via new issues will cause stock prices to fall. The theory also predicts stock prices will increase with increasing tightness of the constraints binding the payout of future cash flow to shareholders and decrease with reductions in the tightness of these constraints. These predictions do not apply to those firms with more profitable projects than cash flow to fund them.

The predictions of free cash flow theory are consistent with all but three of the 32 estimated abnormal stock price changes summarized in table 2, and one of the inconsistencies is explained by another phenomenon. Panel A of table 2 shows that stock prices rise by a statistically significant amount with announcements of the initiation of cash dividend payments, increases in dividends and specially designated dividends, and fall by a statistically significant amount with decreases in dividend payments. (All coefficients in table 2 are significantly different from zero unless noted with an asterisk.)

Panel B shows that security sales and retirements that raise cash or pay out cash and simultaneously provide offsetting changes in the constraints bonding the payout of future cash flow are all associated with returns that are insignificantly different from zero. The insignificant return on retirement of debt fits the theory because the payout of cash is offset by an equal reduction in the present value of promised future cash payouts. If debt sales are not associated with changes in the expected investment program, the insignificant return on announcement of the sale of debt and preferred also fits the theory. The acquisition of new funds with debt or preferred stock is offset exactly by a commitment bonding the future payout of cash flows of equal present value. If the funds acquired through new debt or preferred issues are invested in projects with negative net present values, the abnormal stock price change will be negative. If they are invested in projects with positive net present values, the abnormal stock price change will be positive.

Sales of convertible debt and preferred securities are associated with significantly negative stock price changes (panel C). These security sales

raise cash and provide little effective bonding of future cash flow payments; when the stock into which the debt is convertible is worth more than the face value of the debt, management has incentives to call the convertible securities and force conversion to common.

Panel D shows that, with one exception, security retirements that pay out cash to shareholders increase stock prices. The price decline associated with targeted large block repurchases (often called greenmail) is highly likely to be due to the reduced probability that a takeover premium will be realized. These transactions are often associated with standstill agreements in which the seller of the stock agrees to refrain from acquiring more stock and from making a takeover offer for some period into the future (Mikkelson and Ruback 1985, 1986; Dann and DeAngelo 1983; and Bradley and Wakeman 1983).

Panel E summarizes the effects of security sales and retirements that raise cash and do not bond future cash flow payments. Consistent with the theory, negative abnormal returns are associated with all such changes, although the negative returns associated with the sale of common through a conversion-forcing call are statistically insignificant.

Panel F shows that all exchange offers or designated use security sales that increase the bonding of payout of future cash flows result in significantly positive increases in common stock prices. These include stock repurchases and exchange of debt or preferred for common, debt for preferred, and income bonds for preferred. The two-day gains range from 21.9 percent (debt for common) to 1.6 percent for income bonds and 3.5 percent for preferred.[15]

The theory predicts that transactions with no cash flow and no change in the bonding of payout of future cash flows will be associated with returns that are insignificantly different from zero. Panel G of table 2 shows that the evidence is mixed; the returns associated with exchange offers of debt for debt are significantly positive and those for designated-use security sales are insignificantly different from zero.

All exchanges and designated-use security sales that have no cash effects but reduce the bonding of payout of future cash flows result, on average, in significant decreases in stock prices. These transactions include the exchange of common for debt or preferred or preferred for debt, or the replacement of debt with convertible debt and are summa-

[15] The two-day returns of exchange offers and self tenders can be affected by the offer. However, if there are no real effects or tax effects, and if all shares are tendered to a premium offer, then the stock price will be unaffected by the offer and its price effects are equivalent to those of a cash dividend. Thus, when tax effects are zero and all shares are tendered, the two-day returns are appropriate measures of the real effects of the exchange. In other cases the correct returns to be used in these transactions are those covering the period from the day prior to the offer announcement to the day after the close of the offer (taking account of the cash payout). See, for example, Rosenfeld (1982), whose results for the entire period are also consistent with the theory.

Table 2
Summary of Two-Day Average Abnormal Stock Returns Associated with the Announcement of Various Dividend and Capital Structure Transactions[a]

Type of Transaction	Security Issued	Security Retired	Average Sample Size	Average Abnormal Return (Percent)	Free Cash Flow Theory: Predicted Sign	Free Cash Flow Theory: Agreement with Theory?	Agreement with Tax Theory
A. Dividend changes that change the cash paid to shareholders							
Dividend initiation[1]			160	3.7%	+	yes	no
Dividend increase[2]			281	1.0	+	yes	no
Specially designated dividend[3]			164	2.1	+	yes	no
Dividend decrease[2]			48	−3.6	−	yes	no
B. Security sales (that raise cash) and retirements (that pay out cash) that simultaneously provide offsetting changes in the constraints bonding future payment of cash flows							
Security sale (industrial)[4]	debt	none	248	−0.2*	0	yes	no
Security sale (utility)[5]	debt	none	140	−0.1*	0	yes	no
Security sale (industrial)[6]	preferred	none	28	−0.1*	0	yes	yes
Security sale (utililty)[7]	preferred	none	251	−0.1*	0	yes	yes
Call[8]	none	debt	133	−0.1*	0	yes	no
C. Security sales that raise cash and bond future cash flow payments only minimally							
Security sale (industrial)[4]	conv. debt	none	74	−2.1	−	yes	no
Security sale (industrial)[7]	conv. preferred	none	54	−1.4	−	yes	no
Security sale (utililty)[7]	conv. preferred	none	9	−1.6	−	yes	no
D. Security retirements that pay out cash to shareholders							
Self tender offer[9]	none	common	147	15.2	+	yes	yes
Open market purchase[10]	none	common	182	3.3	+	yes	yes
Targeted small holdings[11]	none	common	15	1.1	+	yes	yes
Targeted large block repurchase[12]	none	common	68	−4.8	+	no[b]	no[b]

E. Security sales or calls that raise cash and do not bond future cash flow payments							
Security sale (industrial)[13]	common	none	215	−3.0	−	yes	yes
Security sale (utility)[14]	common	none	405	−0.6	−	yes	yes
Conversion-forcing call[15]	common	conv. preferred	57	−0.4*	−	no	yes
Conversion-forcing call[15]	common	conv. debt	113	−2.1	−	yes	yes
F. Exchange offers, or designated use security sales that increase the bonding of payout of future cash flows							
Designated use security sale[16]	debt	common	45	21.9	+	yes	yes
Exchange offer[17]	debt	common	52	14.0	+	yes	yes
Exchange offer[17]	preferred	common	10	8.3	+	yes	no
Exchange offer[17]	debt	preferred	24	3.5	+	yes	yes
Exchange offer[18]	income bonds	preferred	18	1.6	+	yes	yes
G. Transaction with no change in bonding of payout of future cash flows							
Exchange offer[19]	debt	debt	36	0.6	0	no	no
Designated use security sale[20]	debt	debt	96	0.2*	0	yes	yes
H. Exchange offers, or designated use security sales that decrease the bonding of payout of future cash flows							
Security sale[20]	conv. debt	debt	15	−2.4	−	yes	yes
Exchange offer[17]	common	preferred	23	−2.6	−	yes	no
Exchange offer[17]	preferred	debt	9	−7.7	−	yes	yes
Security sale[20]	common	debt	12	−4.2	−	yes	yes
Exchange offer[21]	common	debt	81	−1.1	−	yes	yes

[a]Returns are weighted averages, by sample size, of the returns reported by the respective studies. All returns are significantly different from zero unless noted otherwise by *

[b]Explained by the fact that these transactions are frequently associated with the termination of an actual or expected control bid. The price decline appears to reflect the loss of an expected control premium.

Source: [1]Asquith and Mullins 1983. [2]Charest 1978; Aharony and Swary 1980. [3]From Brickley 1983. [4]Dann and Mikkelson 1984; Eckbo 1986; Mikkelson and Partch 1986. [5]Eckbo 1986. [6]Linn and Pinegar 1985; Mikkelson and Partch 1986. [7]Linn and Pinegar 1985. [8]Vu 1986. [9]Dann 1981; Masulis 1980; Vermaelen 1981; Rosenfeld 1982. [10]Dann 1980; Vermaelen 1981. [11]Bradley and Wakeman 1983. [12]Calculated by Smith 1986, table 4, from Dann and DeAngelo 1983; Bradley and Wakeman 1983. [13]Asquith and Mullins 1986; Kolodny and Suhler 1985; Masulis and Korwar 1986; Mikkelson and Partch 1986. [14]Asquith and Mullins 1986; Masulis and Korwar 1986; Pettway and Radcliffe 1985 [15]Mikkelson 1981. [16]Offers with more than 50% debt. Masulis 1980. [17]Masulis 1983. These returns include announcement days of both the original offer and, for about 40 percent of the sample, a second announcement of specific terms of the exchange. [18]McConnell and Schlarbaum 1981. [19]Dietrich 1984. [20]Eckbo 1986; Mikkelson and Partch 1986. [21]Rogers and Owers 1985; Peavy and Scott 1985; Finnerty 1985.

rized in Panel H. The two-day losses range from 7.7 percent (preferred for debt) to 1.1 percent (common for debt).

In summary, the results in table 2 are remarkably consistent with free cash flow theory which predicts that, except for firms with profitable unfunded investment projects, stock prices will rise with unexpected increases in payouts to shareholders (or promises to do so) and will fall with reductions in payments or new requests for funds from shareholders (or reductions in promises to make future payments). Moreover, the size of the value changes seems to be positively related to the change in the tightness of the commitment bonding the payment of future cash flows. For example, the effects of debt-for-preferred exchanges are smaller than the effects of debt-for-common exchanges.

Tax effects can explain some of the results summarized in table 2, but not all. For example, the exchange of preferred for common, or replacement of debt with convertible debt, has no tax effects and yet is associated with price increases. The last column of table 2 denotes whether the individual coefficients are explainable by pure corporate tax effects. The tax theory hypothesizes that all unexpected changes in capital structure that decrease corporate taxes increase stock prices and vice versa.[16] Therefore, increases in dividends and reductions of debt interest should cause stock prices to fall, and vice versa.[17] Fourteen of the 32 coefficients are inconsistent with the corporate tax hypothesis. Simple signaling effects, where the payout of cash signals the lack of present and future investments promising returns in excess of the cost of capital, are also inconsistent with the results–for example, the positive stock price changes associated with dividend increases and stock repurchases.

If anything, the results in table 2 seem too good, for two reasons. The returns summarized in the table do not distinguish firms that have free cash flow from those that do not have free cash flow, yet the theory says the returns to firms with no free cash flow will behave differently from those which do. In addition, only unexpected changes in cash payout or the tightness of the commitments bonding the payout of future free cash flow should affect stock prices. The studies summarized in table 2 do not, in general, control for the presence or absence of free cash flow or for the effects of expectations. If free cash flow effects are large and if firms on average are in a positive free cash flow position, the predictions of the theory will hold for the simple sample averages.

To see how the agency costs of free cash flow can be large enough to show up in the uncontrolled tests summarized in table 2, consider the

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[16] See, however, Miller (1977) who argues that allowing for personal tax effects and the equilibrium response of firms implies that no tax effects will be observed.

[17] Ignoring potential tax effects due to the 85 percent exclusion of dividends received by corporations on holdings of preferred stock.

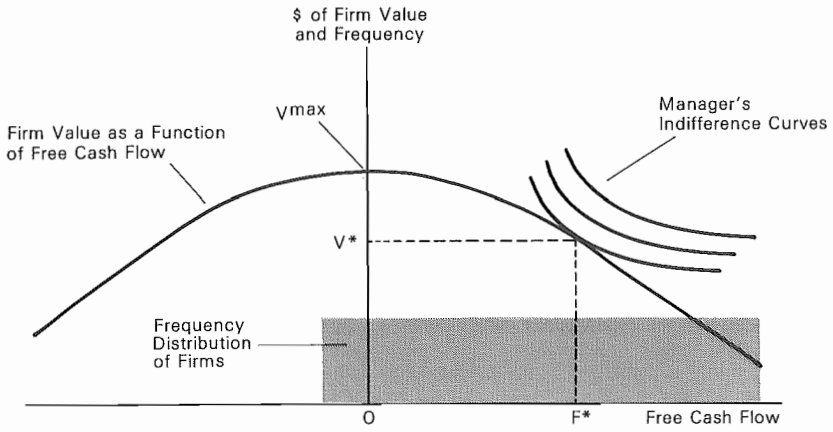

Figure 1

Relation between the level of free cash flow and value of the firm. (F*, V*) is the level of free cash flow and firm value that maximizes the manager's utility. When the frequency distribution of firms is as given here, the sample average change in firm value with respect to free cash flow (or the constraints bonding the payout of free cash flow) will be negative.

graph of equilibrium firm value and free cash flow in figure 1. Figure 1 portrays a firm whose manager values both firm value (perhaps because stock options are part of the compensation package) and free cash flow. The manager, however, is willing to trade them off according to the given indifference curves. By definition, firm value reaches a maximum at zero free cash flow. The point (V*, F*) represents the equilibrium level of firm value and free cash flow for the manager. It occurs at a positive level of free cash flow and at a point where firm value is lower than the maximum possible. The difference Vmax – V* is the agency cost of free cash flow.

Because of random factors and adjustment costs, firms will deviate temporarily from the optimal F*. The dashed line in figure 1 portrays a hypothetical rectangular distribution of free cash flow in a cross section of firms under the assumption that the typical firm is run by managers with preferences similar to those portrayed by the given indifference curves. Changes in free cash flow (or the tightness of constraints binding its payout) will be positively related to the value of the firm only for the minority of firms in the cross section with negative free cash flow. These are the firms lying to the left of the origin, 0. The relation is negative for all firms in the range with positive free cash flow. Given the hypothetical rectangular distribution of firms in figure 1, the majority of firms will display a negative relation between changes in free cash flow

and changes in firm value. As a result the average price change associated with movements toward (V*, F*) will be negatively related to changes in free cash flow.

If the effects are so pervasive that they show up strongly in the crude tests of table 2, the waste due to agency problems in the corporate sector is probably greater than most scholars have thought. This waste is one factor contributing to the high level of activity in the corporate control market over the past decade. More detailed tests of the propositions that control for growth prospects and expectations will be interesting.

Evidence from Going-Private and Leveraged Buyout Transactions

Many of the benefits in going-private and leveraged buyout transactions seem to be due to the control function of debt. These transactions are creating a new organizational form that competes successfully with the open corporate form because of advantages in controlling the agency costs of free cash flow. In 1985, going-private and leveraged buyout transactions totaled $37.4 billion and represented 32 percent of the value of all public acquisitions.[18] Most studies have shown that premiums paid for publicly held firms average over 50 percent,[19] but in 1985 the premiums for publicly held firms were 31 percent (W. T. Grimm, *Mergerstat Review* 1985).

Leveraged buyouts are frequently financed with high debt; 10:1 ratios of debt to equity are not uncommon, and they average 5.25:1 (Schipper and Smith 1986; Kaplan 1987; and DeAngelo and DeAngelo 1986). Moreover, the use of "strip financing" and the allocation of equity in the deals reveal a sensitivity to incentives, conflicts of interest, and bankruptcy costs. Strip financing, the practice in which investors hold risky nonequity securities in approximately equal proportions, limits the conflict of interest among such securityholders and therefore limits bankruptcy costs. Top managers and the sponsoring venture capitalists hold disproportionate amounts of equity.

A somewhat oversimplified example illustrates the organizational effects of strip financing. Consider two firms identical in every respect except financing. Firm A is entirely financed with equity, and Firm B is highly leveraged with senior subordinated debt, convertible debt, and preferred as well as equity. Suppose Firm B securities are sold only in strips; that is, a buyer purchasing a certain percentage of any security must purchase the same percentage of all securities, and the securities

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[18] See W. T. Grimm, *Mergerstat Review* (1985), Figs. 29, 34 and 38.

[19] See DeAngelo, DeAngelo and Rice (1984), Lowenstein (1985), and Schipper and Smith (1986). Lowenstein also mentions incentive effects of debt but argues tax effects play a major role in explaining the value increase.

are "stapled" together so they cannot be separated later. Securityholders of both firms have identical unlevered claims on the cash flow distribution, but organizationally the two firms are very different. If Firm A managers withhold dividends to invest in value-reducing projects or if they are incompetent, the shareholders must use the clumsy proxy process to change management or policies. In Firm B, stripholders have recourse to remedial powers not available to the equityholders of Firm A. Each Firm B security specifies the rights its holder has in the event of default on its dividend or coupon payment; for example, the right to take the firm into bankruptcy or to have board representation. As each security above equity goes into default, the stripholder receives new rights to intercede in the organization. As a result, it is quicker and less expensive to replace managers in Firm B.

Moreover, because every securityholder in the highly leveraged Firm B has the same claim on the firm, there are no conflicts between senior and junior claimants over reorganization of the claims in the event of default; to the stripholder it is a matter of moving funds from one pocket to another. Thus, Firm B will not go into bankruptcy; a required reorganization can be accomplished voluntarily, quickly, and with less expense and disruption than through bankruptcy proceedings.

The extreme form of strip financing in the example is not normal practice. Securities commonly subject to strip practices are often called "mezzanine" financing and include securities with priority superior to common stock yet subordinate to senior debt. This arrangement seems to be sensible, because several factors ignored in our simplified example imply that strictly proportional holdings of all securities is not desirable. For example, IRS restrictions deny tax deductibility of debt interest in such situations and bank holdings of equity are restricted by regulation. Riskless senior debt need not be in the strip because there are no conflicts with other claimants in the event of reorganization when there is no probability of default on its payments.

Furthermore, it is advantageous to have the top-level managers and venture capitalists who promote leveraged buyout and going-private transactions hold a larger share of the equity. Top-level managers on average receive over 30 percent of the equity, and venture capitalists and the funds they represent generally retain the major share of the remainder (Schipper and Smith 1986; Kaplan 1987). The venture capitalists control the board of directors and monitor the managers. Both managers and venture capitalists have a strong interest in making the venture successful because their equity interests are subordinate to other claims. Success requires (among other things) implementation of changes to avoid investment in low-return projects in order to generate the cash for debt service and to increase the value of equity. Finally, when the equity

is held by a small number of people, efficiencies in risk-bearing can be achieved by placing more of the risk in the hands of debtholders, assuming the debt is held in well-diversified institutional portfolios.

Some have asserted that managers engaging in a buyout of their firm are insulating themselves from monitoring. The opposite is true in the typical leveraged buyout, because the venture capitalist is generally the largest shareholder and controls the board of directors. The venture capitalist therefore has both greater ability and greater incentives to monitor managers than directors with little or no equity, who represent diffused shareholders in the typical public corporation.

Leveraged buyouts increased dramatically in the last decade, from $1.2 billion in 1979, when W. T. Grimm began collecting the data, to $44.3 billion in 1986. Less than a handful of these management buyouts have ended in bankruptcy, although more have gone through private reorganizations. A thorough test of this organizational form requires the passage of time and recessions.

Evidence from the Oil Industry

The oil industry is large and visible. It is also an industry in which the importance of takeovers in motivating change and efficiency is particularly clear. Therefore, detailed analysis of it provides an understanding of how the market for corporate control helps motivate more efficient use of resources in the corporate sector.

Reorganization of the industry. Radical changes in the energy market from 1973 to 1979 imply that a major restructuring of the petroleum industry had to occur. These changes include the following:

- A tenfold increase in the price of crude oil from 1973 to 1979.
- Reduced annual consumption of oil in the United States.
- Reduced expectations of future increases in the price of oil.
- Increased exploration and development costs.
- Increased real interest rates.

As a result of these changes, the optimal level of refining and distribution capacity and crude reserves fell over this period; as of the late 1970s, the industry was plagued with excess capacity. Reserves are reduced by reducing the level of exploration and development, and it pays to concentrate these reductions in high-cost areas such as the United States. Substantial reductions in exploration and development and in refining and distribution capacity meant that some firms had to leave the industry. Holding reserves is subject to economies of scale, while exploration and development are subject to diseconomies of scale.

Price increases created large cash flows in the industry. For example, 1984 cash flows of the 10 largest oil companies were $48.5 billion or 28 percent of the total cash flows of the top 200 firms in *Dun's Business*

Month survey.[20] Consistent with the agency costs of free cash flow, management did not pay out the excess resources to shareholders. Instead, the oil industry continued to spend heavily on exploration and development even though average returns on these expenditures were below the cost of capital.

Paradoxically, the profitability of oil exploration and drilling activity can decrease even though the price of oil increases, if the value of reserves in the ground falls. This decrease can occur when the price increase is associated with reductions in consumption that make marketing newly discovered oil difficult. In the late 1970s, the increased holding costs associated with higher real interest rates, reductions in expected future oil price increases, increased exploration and development costs, and contrived reductions in current supply (and thus larger future potential flows) combined to make many exploration and development projects uneconomic. The industry, however, continued to spend heavily on such projects.

The hypothesis that exploration and development expenditures by the oil industry were too high during this period is consistent with the findings of McConnell and Muscarella (1985). Their evidence indicates that announcements of increases in exploration and development expenditures by oil companies in the period 1975–81 were associated with systematic *decreases* in the announcing firm's stock price. Moreover, announcements of decreases in exploration and development expenditures were associated with increases in stock prices. These results are striking in comparison with their evidence that exactly the opposite market reaction occurs with increases and decreases in investment expenditures by industrial firms, and SEC evidence that increases in research and development expenditures are associated with increased stock prices.

Additional evidence of the uneconomic nature of the oil industry's exploration and development expenditures is contained in a study by Bernard Picchi of Salomon Brothers (1985). His study of the rates of return on exploration and development expenditures for 30 large oil firms indicated that on average the industry did not earn "even a 10 percent return on its pretax outlays" in the period 1982–84. Estimates of the average ratio of the present value of future net cash flows of discoveries, extensions, and enhanced recovery to expenditures for exploration and development for the industry ranged from less than 0.6 to slightly more than 0.9, depending on the method used and the year. In other words, taking the cost of capital to be only 10 percent on a pretax basis, the industry was realizing on average only 60 cents to 90 cents on

[20] See "Cash Flow: The Top 200" (1985).

every dollar invested in these activities. Picchi (1985, emphasis in original) concludes:

> For 23 of the companies in our survey, we would recommend *immediate* cuts of perhaps 25%–30% in exploration and production spending. It is clear that much of the money that these firms spent last year on petroleum exploration and development yielded subpar financial returns even at $30 per barrel, let alone today's $26–$27 per barrel price structure.

The waste associated with excessive exploration and development expenditures explains why buying oil on Wall Street was considerably cheaper than obtaining it by drilling holes in the ground, even after adjustment for differential taxes and regulations on prices of old oil. Wall Street was not undervaluing the oil; it was valuing it correctly, but it was also correctly valuing the wasted expenditures on exploration and development that oil companies were making. When these managerially imposed "taxes" on the reserves were taken into account in stock prices, the net price of oil on Wall Street was low. This low price provided incentives for firms to obtain reserves by purchasing other oil companies and reducing expenditures on non-cost-effective exploration. In this way, the capital markets provided incentives for firms to make adjustments that were not effectively motivated by competition in the product markets.

High profits not usually associated with retrenchment. Adjustment by the energy industry to the new environment has been slow for several reasons. First, organizations cannot easily change operating rules and practices that have worked well for long periods in the past, even though they do not fit the new situation. Nevertheless, survival requires that organizations adapt to major changes in their environment.

Second, the past decade has been a particularly puzzling period in the oil business because at the same time that changes in the environment have required a reduction of capacity, cash flows and profits have been high. This condition is somewhat unusual in that the average productivity of resources in the industry increased while the marginal productivity decreased. The point is illustrated graphically in figure 2.

As the figure illustrates, profits plus payments to factors of production other than capital were larger in 1985 than in 1973. Moreover, because of the upward shift and simultaneous twist of the marginal productivity of capital schedule from 1973 to 1985, the optimal level of capital devoted to the industry fell from Q1 to Q2. Thus, the adjustment signals were confused because the period of necessary retrenchment coincided with substantial increases in value brought about by the tenfold increase in the price of the industry's major asset, its inventory of crude oil reserves.

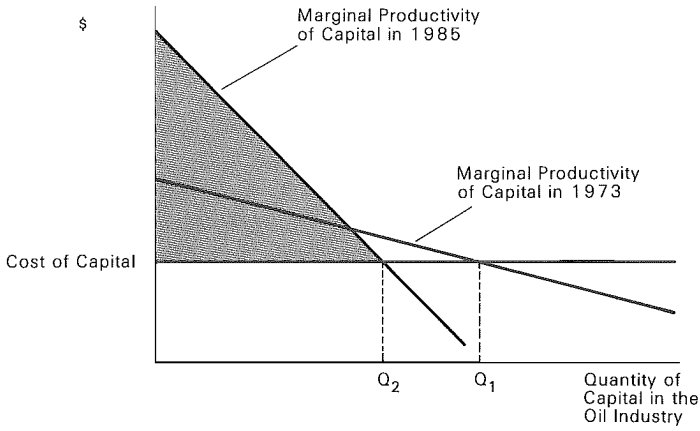

Figure 2

Optimal level of capital in the oil industry prior to 1973, Q_1, and in 1985, Q_2. The shaded area represents the profits plus payments to factors of production other than capital earned by the industry in 1985. The shift in the marginal productivity of capital schedule raised the average productivity of capital but reduced the marginal productivity to a level below the cost of capital. As a result profits and cash flow increased, but capital had to leave the industry.

The large cash flows and profits generated by the increases in oil prices both masked the losses imposed by the product markets on marginal facilities and enabled oil companies to finance major expenditures internally. Thus, the normal disciplinary forces of the product market have been weak and those of the capital markets have been inoperative during the entire decade.

Third, the oil companies' large and highly visible profits subjected them to strong political pressures to reinvest the cash flows in exploration and development to alleviate the incorrect, but popular, perception that reserves were too low. Furthermore, while reserves were on average too high, those firms that were substantially short of reserves were spending to replenish them to avoid the organizational consequences associated with reserve deficiencies. The resulting excessive exploration and development expenditures and the considerable delays in retrenchment of refining and distribution facilities wasted industry resources.

In sum, the stage was set for retrenchment in the oil industry in the early 1980s, yet the product and capital markets could not force managements to change their strategy because the industry's high internal cash flows insulated them from these pressures. The fact that oil industry managers tried to invest funds outside the industry is also evidence that they could not find enough profitable projects within the industry to use the huge inflow of resources efficiently. Unfortunately, these efforts

failed. The diversification programs involved purchases of companies in retailing (Marcor by Mobil), manufacturing (Reliance Electric by Exxon), office equipment (Vydec by Exxon), and mining (Kennecott by Sohio, Anaconda Minerals by ARCO, Cyprus Mines by Amoco). These acquisitions turned out to be among the least successful of the last decade, partly because of bad luck (for example, the collapse of the minerals industry) and partly because of a lack of managerial expertise outside the oil industry.

The effects of takeovers. Ultimately the capital markets, through the takeover market, have begun to force managers to respond to the new market conditions. Unfortunately, there is widespread confusion about the important role of takeovers in bringing about the difficult but necessary organizational changes required in the retrenchment.

Managers, quite naturally, want large amounts of resources under their control to insulate them from the uncertainties of markets (Donaldson 1984). Retrenchment requires cancellation or delay of ongoing and planned projects. This adjustment affects the careers of the people involved, and the resulting resistance means such changes frequently do not get made without the major pressures often associated with a crisis. A takeover attempt can create the crisis that brings about action where none would otherwise occur.

T. Boone Pickens of Mesa Petroleum perceived early that the oil industry must be restructured. Partly as a result of Mesa's efforts, firms in the industry were led to merge, and in the merging process they paid out large amounts of capital to shareholders, reduced excess expenditures on exploration and development, and reduced excess capacity in refining and distribution. The result has been large gains in efficiency. Total gains to the shareholders in the Gulf/Chevron, Getty/Texaco and DuPont/Conoco mergers, for example, were over $17 billion. Much more is possible. Jacobs (1986) estimates total potential gains of approximately $200 billion from eliminating the inefficiencies in 98 petroleum firms as of December 1984.

Recent events indicate that actual takeover is not necessary to induce the required adjustments:

- The Phillips restructuring plan, brought about by the threat of takeover, involved substantial retrenchment and return of resources to shareholders, and the result was a gain of $1.2 billion (20 percent) in Phillips' market value. The company repurchased 53 percent of its stock for $4.5 billion in debt, raised its dividend 25 percent, cut capital spending, and initiated a program to sell $2 billion of assets.
- Unocal's defense in the Mesa tender offer battle resulted in a $2.2 billion (35 percent) gain to shareholders from retrenchment and return of resources to shareholders. Unocal paid out 52 percent of

its equity by repurchasing stock with a $4.2 billion debt issue and will reduce costs and capital expenditures.

- The voluntary restructuring announced by ARCO resulted in a $3.2 billion (30 percent) gain in market value. ARCO's restructuring involved a 35 percent to 40 percent cut in exploration and development expenditures, repurchase of 25 percent of its stock for $4 billion, a 33 percent increase in its dividend, withdrawal from gasoline marketing and refining east of the Mississippi, and a 13 percent reduction in its work force.
- The announcement of the Diamond-Shamrock reorganization in July 1985 provides an interesting contrast to the others and further support for the cash flow theory, because the company's market value fell 2 percent on the announcement day. Because the plan results in an effective increase in exploration and capital expenditures and a reduction in cash payouts to investors, the restructuring does not increase the value of the firm. The plan involved reducing cash dividends by 76 cents per share (a cut of 43 percent); creating a master limited partnership to hold properties accounting for 35 percent of its North American oil and gas production; paying an annual dividend of 90 cents per share in partnership shares; repurchasing 6 percent of its shares for $200 million, selling 12 percent of its master limited partnership to the public; and *increasing* its expenditures on oil and gas exploration by $100 million per year.

Free Cash Flow Theory of Takeovers

Free cash flow is only one of approximately a dozen theories to explain takeovers, all of which are of some relevance in explaining the numerous forces motivating merger and acquisition activity (Roll forthcoming 1988). The agency cost of free cash flow is consistent with a wide range of previously unexplained data for which there has been no consistent explanation. Here I sketch some empirical predictions of the free cash flow theory for takeovers and mergers and what I believe are the facts that lend it credence.

The positive market response to debt creation in oil and other takeovers (Bruner 1985; Asquith, Bruner and Mullins 1987) is consistent with the agency costs of free cash flow and the control hypothesis of debt. The data are consistent with the notion that additional debt increases efficiency by forcing organizations with large cash flows but few high-return investment projects to pay out cash to investors. The debt helps prevent such firms from wasting resources on low-return projects.

The major benefit of diversification-motivated mergers may be that they involve less waste of resources than if the funds had been invested

internally in unprofitable projects. Acquisitions made with cash or securities other than stock involve payout of resources to (target) shareholders, and this can create net benefits even if the merger creates operating inefficiencies. To illustrate, consider an acquiring firm, A, with substantial free cash flow that the market expects will be invested in low-return projects with a negative net present value of $100 million. If Firm A makes an acquisition of firm B that generates zero synergies but uses up all of Firm A's free cash flow (and thereby prevents its waste) the combined market value of the two firms will rise by $100 million. The market value increases because the acquisition eliminates the expenditures on internal investments with negative market value of $100 million. Extending the argument, we see that acquisitions that have negative synergies of up to $100 million in current value will still increase the combined market value of the two firms. Such negative-synergy mergers will also increase social welfare and aggregate productivity whenever the market value of the negative productivity effects on the two merging firms is less than the market value of the waste that would have occurred with the firms' investment programs in the absence of the merger.

The division of the gains between the target and bidding firms depends, of course, on the bargaining power of the two parties. Because the bidding firms are using funds that would otherwise have been spent on low- or negative-return projects, however, the opportunity cost of the funds is lower than their cost of capital. As a result, they will tend to overpay for the acquisition and thereby transfer some, if not all, of the gains to the target firm's shareholders. In extreme cases they may pay so much that the bidding firm's share price falls, in effect giving the target shareholders more than 100 percent of the gains. These predictions are consistent with the evidence that shareholders of target companies reap most of the gains from takeovers.

Acquisitions are one way managers spend cash instead of paying it out to shareholders. Free cash flow theory implies that managers of firms with unused borrowing power and large free cash flows are more likely to undertake low-benefit or even value-destroying mergers. Diversification programs generally fit this category, and the theory predicts that they will generate lower total gains. Thus, some acquisitions are a solution to the agency problems of free cash flow while others, such as diversification programs, are symptoms of those problems.

Low-return mergers are more likely to occur in industries with large cash flows whose economics dictate retrenchment. Horizontal mergers (where cash or debt is the form of payment) within declining industries will tend to create value because they facilitate exit: the cash or debt payments to shareholders of the target firm cause resources to leave the industry directly. Mergers outside the industry are more likely to have low or even negative returns because managers are likely to know less

about managing such firms. Oil fits this description, and so does tobacco. Tobacco firms face declining demand as a result of changing smoking habits but generate large free cash flow and have been involved in major diversifying acquisitions recently—for example, the $5.6 billion purchase of General Foods by Philip Morris. The theory predicts that these acquisitions in nonrelated industries are more likely to reduce productivity, although the positive total gains to buyers and sellers indicate these negative productivity effects are outweighed by the reductions in waste from internal expansion.

Forest products is another industry with excess capacity where acquisition activity is to be found—for example the acquisition of St. Regis by Champion International and Crown Zellerbach by Sir James Goldsmith. Horizontal mergers for cash or debt in such an industry generate gains by encouraging exit of resources (through payout) and by substituting existing capacity for investment in new facilities by firms that are short of capacity. Food industry mergers also appear to reflect the expenditure of free cash flow. The industry apparently generates large cash flows with few growth opportunities. It is, therefore, a good candidate for leveraged buyouts, and these are now occurring; the $6.3 billion Beatrice leveraged buyout is the largest ever.

The broadcasting industry generates rents in the form of large cash flows from its licenses. This industry also fits the free cash flow theory. Regulation limits the overall supply of licenses and the number owned by a single entity. Thus, profitable internal investments are limited, and the industry's free cash flow has been spent on organizational inefficiencies and diversification programs, making these firms takeover targets. The CBS debt-for-stock exchange and restructuring as a defense against the hostile bid by Turner fits the theory, and so does the $3.5 billion purchase of American Broadcasting Company by Capital Cities Communications. Completed cable systems also create agency problems from free cash flows in the form of rents on their franchises and quasi-rents on their investment and are likely targets for acquisition and leveraged buyouts. Large cash flows earned by motion picture companies on their film libraries also represent quasi-rents and are likely to generate free cash flow problems. The attempted takeover of Disney and its subsequent reorganization fit the theory. Drug companies with large cash flows from previous successful discoveries and few potential future prospects are also candidates for large agency costs of free cash flow.

The theory predicts that value-increasing takeovers occur in response to breakdowns of internal control processes in firms with substantial free cash flow and organizational policies (including diversification programs) that are wasting resources. It predicts hostile takeovers, large increases in leverage, the dismantling of empires with few economies of scale or scope to give them economic purpose (for

example, conglomerates), and much controversy as current managers object to loss of their jobs or changes in organizational policies forced on them by threat of takeover.

Free cash flow theory predicts that many acquirers will tend to perform exceptionally well prior to acquisition. Empirical evidence from studies of both stock prices and accounting data indicates exceptionally good performance for acquirers prior to acquisition (Magenheim and Mueller 1985; Bradley and Jarrell 1985). This exceptional stock price performance is often associated with increased free cash flow, which is then used for acquisition programs as observed in the oil industry.

Targets will be of two kinds: firms with poor management that have done poorly before the merger, and firms that have done exceptionally well and have large free cash flow that they refuse to pay out to shareholders. Both kinds of targets seem to exist, but more careful study is required. Asquith (1983) finds evidence of below-normal stock price performance for 302 target firms in the 400 days before 20 days prior to the takeover bid. Mandelker (1974) finds negative abnormal performance for target firms in the period from 40 months before until 9 months before the outcome of the merger bid is known. Langetieg (1978) reports significant negative returns in the period from 72 months before until 19 months before the outcome date, but positive abnormal returns in the 19 months preceding the merger date.

The theory predicts that takeovers financed with cash and debt will create larger benefits than those accomplished through exchange of stock. Stock acquisitions do nothing to take up the organizations' financial slack and are therefore unlikely to motivate managers to use resources more efficiently. The recent evidence on takeover premiums is consistent with this prediction.[21]

Stock acquisitions tend to be different from debt or cash acquisitions and are more likely to be associated with growth opportunities and a shortage of free cash flow. They therefore represent a fundamentally different phenomenon from the nongrowth- or exit-motivated acquisitions that have been occurring in the 1980s. Thus, the growth-oriented and conglomerate mergers and acquisitions of the late 1960s and the early 1970s reflect a different phenomenon than that represented by the exit-motivated mergers and acquisitions of the late 1970s and 1980s.

Free cash flow theory predicts that mergers in the same line of activity will show larger profits than diversification mergers. Elgers and Clark (1980) find shareholders of merging firms gain more from conglomerate than non-conglomerate mergers, and Wansley, Lane and Yang (1983) and Asquith and Kim (1982) find no differences in returns for

[21] See Wansley, Lane and Yang (1987 forthcoming) who find higher returns to targets and to bidders in cash transactions, and Wansley and Fayez (1986).

conglomerate and non-conglomerate mergers.

Palepu (1986), in the best study to date of the determinants of takeover, finds strong evidence consistent with the free cash flow theory of mergers. He studied a sample of 163 firms acquired in the period 1971–79 and a random sample of 256 firms that were not acquired. Both samples were in mining and manufacturing and were listed on either the New York or the American Stock Exchange. He finds that target firms were characterized by significantly lower growth and lower leverage than the nontarget firms, although there was no significant difference in their holdings of liquid assets. He also finds that poor prior performance (measured by the net of market returns in the four years before the acquisition) is significantly related to the probability of takeover and, interestingly, that accounting measures of past performance such as return on equity are unrelated to the probability of takeover. He also finds that firms with a mismatch between growth and resources are more likely to be taken over. These are firms with high growth (measured by average sales growth), low liquidity (measured by the ratio of liquid assets to total assets), and high leverage, and firms with low growth, high liquidity, and low leverage. Finally, Palepu's evidence rejects the hypothesis that takeovers are due to the undervaluation of a firm's assets as measured by the market-to-book ratio.

The McConnell and Muscarella (1985) finding of positive average market response to announcements of increases in capital expenditure programs in all industries except oil is inconsistent with free cash flow theory. The inconsistency between the results reported in table 2 and in this study could occur because firms that announce changes in capital expenditure programs tend not to have free cash flow. Resolution of these issues awaits more explicit tests.

Free cash flow is only one of the many factors that go into a takeover decision. But the evidence indicates that it is an important factor and that it provides a useful perspective on the conflict.

High-Yield, Non-Investment-Grade ("Junk") Bonds

The past several years have witnessed a major innovation in the financial markets—the establishment of active markets in high-yield bonds. These bonds, rated below investment grade by the bond-rating agencies, are frequently referred to as junk bonds, a disparaging term that bears no relation to their pedigree. High-yield bonds are best viewed as commercial loans that can be resold in secondary markets. They are further evidence of the securitization that has converted formerly illiquid financial claims such as mortgages into marketable claims. Total publicly held high-yield bonds have risen from $7 billion in 1970 to

$125 billion in 1986, or 23 percent of the total corporate bond market (Taggart 1986; Drexel Burnham Lambert 1987). By traditional standards these bonds are more risky than investment-grade bonds, and therefore they carry interest rates 3 to 5 percentage points higher than the yields on government bonds of comparable maturity. In an early study, Blume and Keim (1984) find that the default rates on these bonds have been low and the realized returns have been disproportionately higher than their risk.

High-yield bonds have been attacked by those who wish to inhibit their use, particularly in the financing of takeover bids. The invention of high-yield bonds has provided methods to finance takeover ventures similar to those used to finance more traditional ventures. Companies commonly raise funds to finance ventures by selling claims to be paid from the proceeds of the venture; this is the essence of debt or stock issues used to finance new ventures. High-yield bonds used in takeovers work similarly. The bonds provide a claim on the proceeds of the venture, using the assets and cash flows of the target plus the equity contributed by the acquirer as collateral. Similarly, individuals purchase homes using the home plus their down payment as collateral for the mortgage. The structure of this contract offers nothing inherently unusual.

Some might argue that the risk of high-yield bonds used in takeover attempts is "too high." But high-yield bonds are by definition less risky than common stock claims on the same venture since the claims of common stockholders are subordinate to those of the holders of high-yield bonds. Would these same critics argue that the stock claims are too risky and thus should be barred? The risk argument makes logical sense only as an argument that transactions costs associated with bankruptcy or recontracting are too high in these ventures, or that the bonds are priced too high and investors who purchase them will not earn returns high enough to compensate for the risk they are incurring. This overpricing argument makes little sense, however, because there is vast evidence that investors are capable of pricing risks in all sorts of other markets. That they are peculiarly unable to do so in the high-yield bond market is inconceivable.

In January 1986 the Federal Reserve Board issued a new interpretation of its margin rules that restricts the use of debt in takeovers to 50 percent or less of the purchase price. The rule has had little effect on takeovers, because bidders otherwise subject to the constraint have instead used high-yield preferred stock rated below investment grade, which is converted to debt after completion of the acquisition or bridge loans. This rule was apparently motivated by the belief that the use of corporate debt had become abnormally and dangerously high and was threatening the economy. This assessment is not consistent with the

Table 3
Ratio of Debt to Equity as Measured by Nonfinancial Corporations

Year	Book Value	Current Asset Value	Market Value
1961	57.1	41.1	38.5
1962	58.2	42.5	45.6
1963	59.6	44.5	41.7
1964	59.9	45.4	39.8
1965	61.1	46.5	40.0
1966	62.7	47.4	48.4
1967	64.7	48.7	41.3
1968	67.2	50.5	40.2
1969	68.1	50.3	50.3
1970	70.5	50.7	54.7
1971	70.4	50.7	50.0
1972	70.2	50.3	48.1
1973	70.9	48.9	67.7
1974	70.2	43.9	105.2
1975	66.7	41.6	79.5
1976	65.6	41.1	74.2
1977	67.7	41.4	87.6
1978	69.1	41.1	94.8
1979	69.9	39.9	88.7
1980	68.3	37.8	70.0
1981	71.0	38.3	82.7
1982	74.3	40.0	77.7
1983	73.0	40.6	69.2
1984	81.4	46.1	80.5
1985	78.0	46.5	60.8

Source: Board of Governors of the Federal Reserve System.

facts. Table 3 presents measures of debt use by nonfinancial corporations in the United States. The debt-equity ratio is measured relative to three bases: market value of equity, estimated current asset value of equity, and accounting book value of equity measured at historical cost.

Although debt-equity ratios were higher in 1985 than in 1961, they were not at record levels. The ratio of debt to book value of equity reached a high of 81.4 percent in 1984 but declined to 78.0 percent in 1985. Debt-equity ratios in which equity is measured on an historical cost basis are relatively high now because of the previous decade of inflation. The ratio of debt to current asset value of equity, which takes account of inflation, was 50.7 percent in 1970 compared to 46.5 percent in 1985. The market-value ratio rose from 54.7 percent in 1970 to 80.5 percent in 1984 and then plummeted to 60.8 percent in 1985. The 1985 market-value ratio was 44 percentage points below its 1974 peak of 105.2

percent. Thus, the Federal Reserve System's own data are inconsistent with the reasons given for its restrictions on the use of debt.

High-yield bonds were first used in a takeover bid in early 1984 and have been involved in relatively few bids in total. In 1984, only about 12 percent of the $14.3 billion of new high-yield debt was associated with mergers and acquisitions. The following year, 26 percent of the $14.7 billion of new high-yield debt was used in acquisitions.[22] According to *Mergers & Acquisitions*, 1986 acquisitions-related high-yield debt still represented less than one of every 12 dollars in acquisition value. Nevertheless, high-yield bonds are an important innovation in the takeover field because they help eliminate mere size as a deterrent to takeover. They have been particularly influential in helping to bring about reorganizations in the oil industry.

Historical default rates on high-yield bonds have been low, but many of the bonds are so new that the experience could prove to be different in the next downturn. Various opponents (including executives who desire protection from the takeover market and members of the financial community, such as commercial banks and insurance companies, who want to restrict competition from this new financing vehicle) have backed regulations and legislation to restrict the issuance of high-yield bonds, to penalize their tax status, and to restrict their holding by thrifts, which can now buy them as substitutes for the issuance of non-marketable commercial loans. These proposals are premature, to say the least.

The holding of high-yield bonds by thrifts is an interesting issue. The recent deregulation of the banking and thrift industries presents many opportunities and challenges to the thrifts. Elimination of restrictions on interest paid to depositors has raised the cost of funds to these institutions. Thrifts have also received the right to engage in new activities such as commercial lending. Survival requires thrifts to take advantage of some of these new business opportunities.

The organizational costs of developing commercial lending departments in the 3500 thrifts in the country will be substantial. Thousands of new loan officers will have to be hired and trained. The additional wage and training costs and the bad-debt losses that will be incurred in the learning phase will be substantial. High-yield bonds provide a potential solution to this problem. If part of the commercial lending function could be centralized in the hands of investment bankers who provide commercial loans in the form of marketable high-yield debt, a thrift could substitute the purchase of this high-yield debt for its own commercial lending and thereby avoid the huge investment in such loan departments.

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[22] Source: Drexel Burnham Lambert, private correspondence with the author, 1987.

Conclusion

Although economic analysis and the evidence indicate that the market for corporate control is benefiting shareholders, society, and the corporation as an organizational form, it is also making life more uncomfortable for top-level executives. This discomfort is creating strong pressures at both the state and federal levels for restrictions that will seriously cripple the workings of this market. In 1985, 1986 and 1987 dozens of bills on this topic were in the congressional hopper, all proposing various restrictions on the market for corporate control. Some proposed major new restrictions on share ownership and financial instruments. Within the past several years the legislatures of numerous states have passed antitakeover laws and the U.S. Supreme Court has recently upheld the Indiana law that prohibits someone who purchases 20 percent or more of a firm's shares without permission of the board of directors from voting those shares unless such approval is granted by majority vote of disinterested shareholders. New York state law now bars the purchaser of even 100 percent of a firm's shares from doing anything with the assets for five years unless permission of the incumbent board is obtained.

This political activity is another example of special interests using the democratic political system to change the rules of the game to benefit themselves at the expense of society as a whole. In this case, the special interests are top-level corporate managers and other groups who stand to lose from competition in the market for corporate control. The result will be a significant weakening of the corporation as an organizational form and a reduction in efficiency.

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Discussion

*Edward J. Frydl**

Does a process of mergers and acquisitions that results in a more leveraged corporate sector strengthen or weaken the economy? Michael Jensen answers this question by using the free cash flow model. This model implies that increased leverage, or other change in financial structure that reduces the free cash flow under management discretion, improves the value of the firm and is therefore of overall economic benefit. Under this view, management refrains from paying out dividends or taking other actions that constrain free cash flow, in order to avoid the discipline of recurrent financing in the capital markets. Furthermore, managers are viewed as less knowledgeable about capital investment opportunities overall than the market at large. In such circumstances, increased leverage, such as that achieved through the substitution of debt for equity, can be of economic benefit through the efficiency gains it brings about.

Jensen does note in passing that potential bankruptcy costs are a counterweight to the benefits of leverage and that highly debt-intensive acquisitions such as management-led leveraged buyouts have yet to be tested by the difficult phase of the business cycle. And he does stop short of claiming that the free cash flow model is a fully sufficient explanation of merger activity. All these qualifications aside, however, the gist of Jensen's message is clear: more corporate leverage brought about by real or potential takeovers is better.

My comments on this line of argument fall into two classes: those that express some doubts about the adequacy of the underlying free

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cash flow model and those that question whether the benefits of leverage implied by that model are the only consequences worth concern.

Is the Free Cash Flow Model Adequate?

Time Series Patterns

In support of the free cash flow model, Jensen has marshalled an impressive array of cross-sectional evidence from unrelated studies. That model, however, appears to be less useful in explaining the most prominent stylized fact of time series data on mergers and acquisitions, the existence of distinct merger waves. Corporate sector cash flow has a cyclical character; merger waves, despite the name, do not. If excess cash flows are generated by relative price swings—a factor cited as important in the oil industry mergers—takeover activity should be more randomly distributed over time.

Indeed, of the four factors that Jensen cites as behind the 1980s merger wave—(1) easier antitrust enforcement, (2) withdrawal of resources from declining industries, (3) deregulation in various sectors and (4) changes in "takeover technology," including the availability of finance—only the third meshes well with the free cash flow model. The first and last factors, basically changes in behavior at the Justice Department and at investment banks, are, I agree, major causes of the merger wave. But what do they have to do with the excess cash flow of firms? And declining industries, like the poor, we will always have with us. Why are they specific to the 1980s? Yes, the sectoral deregulation of recent years can affect the cash flows of firms and create merger opportunities. But not all deregulations work that way. Some, such as regional banking pacts, lessen a direct constraint on mergers without directly affecting cash flow. Others, such as telephone industry deregulation, lead to divestitures, not mergers.

Managers and Raiders

The free cash flow theory rests on an assumption that profit maximization is systematically violated. In Jensen's formulation, managers do not maximize the value of the firm but instead optimize a broader utility function that includes free cash flow as an argument. This variable does not enter as a "good" in and of itself, but stands in proxy for something like an easy life in the executive suite. But in any realistic managerial utility function, job security must surely count as an argument. No rational, utility-maximizing manager will willingly turn himself into shark bait. However, the systematic relation between job security and free

cash flow will be negative. And in that case, there is no longer a clear presumption that the manager's optimum differs from the corner solution of profit maximization.

But let us assume that agency costs do introduce a tendency to deviate from the economic optimum. Takeovers are portrayed as a systematic correction to this tendency. At this point a questionable asymmetry gets slipped in: managers have human weakness that leads to deviations from optimum but acquirers always spot value. But why should they? Raiders are not a random sample of the market at large. The recurrence of the same names—Pickens, Posner, Icahn, Goldsmith, and so on—at least suggests that the thrill of the hunt may supplement cold calculation. Once we allow that raiders may have motives beyond maximizing value, presumptions about the benefits of takeovers get murkier. But do not takeovers drive up stock prices? Yes, but maybe raiders overpay. Post-takeover operating profits do not paint so convincing a picture of efficiency gains.

Is More Leverage Better?

From the viewpoint of the free cash flow model, greater leverage is a benefit since it puts management under the whip and promotes efficiency. But there can be negative effects from leverage as well.

Inefficiencies from Leverage

Consider leveraged buyouts. Most of the concern about these deals is that the high degree of debt creates financial risk. But in many examples this has hardly been so. In these leveraged buyouts, asset sales have yielded the new owners rates of return on equity of several hundred percent in very short order, sometimes less than a year. No financial risk here. The realization of operating efficiencies is unlikely to account for such a quick big payoff. Rather, management had a better awareness of the true value of corporate assets than the stock market did. In such circumstances, there may be a problem of fair treatment involved but not a problem of economic efficiency. But, in theory anyway, ready access to leveraged buyout finance could worsen agency-cost inefficiencies. It could induce management to favor investments in projects with backloaded or relatively obscure payoffs that will appear relatively unprofitable to the general market, which will be lacking crucial information. The firm will then be truly undervalued and management can capture the benefits through a leveraged buyout. But the investment projects that maximize the leveraged buyout payoff need not be the best economically.

Macrofinancial Risk

Concerns about the macrofinancial risks of corporate leverage have been expressed scores of ways. I want to make only one minor point along those lines. Takeover finance is a field of competition between commercial banks that lend and investment banks that can arrange funds in securities markets. With commercial banks under general competitive pressures, they are more inclined to be aggressive in this field. Now if the typical bank-financed takeover is the high-payoff leveraged buyout mentioned earlier, there is no problem. To the contrary, it would be one of the least risky loans for banks. But many leveraged buyouts do have a high degree of financial risk. And through bank financing those risks put another weight on the integrity of the deposit base.

As a final point, I feel compelled to defend the honor of the Federal Reserve against some extreme charges on the matter of the application of margin rules to takeover debt financing. Jensen writes: "This rule was apparently motivated by the belief that the use of corporate debt had become abnormally and dangerously high and was threatening the economy." He then cites numbers that show that on a book-value basis, debt-equity ratios are historically high, but on a replacement cost or "market-value" basis they are not. And he concludes: "the Federal Reserve System's own data are inconsistent with the reasons given for its restrictions on the use of debt."

Give us a break! First, Jensen's market-value ratio is really the ratio of book debt to market equity. New York Fed estimates of the market value of debt yield a ratio that does not "plummet" in 1985, a year of falling interest rates. It does not go to a new historical peak, but it remains far above the levels of the 1960s.

Second, if the Fed thought debt was dangerously high and a threat to the economy, I hope it would act with more resolve than through an essentially technical clarification of margin requirements—prompted, I will note, by an inquiry from an interested party to a takeover bid—that restricts financing through a shell operation only to 50 percent debt financing. The action taken was commensurate with the problem perceived. Chairman Greenspan has recently testified that he does not see corporate indebtedness as an immediate threat to the economy.

Third, the use of preferred stock in place of debt in takeover finance complies with the requirement. That this does not apparently restrict takeover activity is a free market decision. I can see no evidence that the intention of the Fed decision was to restrict takeovers. However, the view that preferred stock is the same thing as debt strikes me as bizarre and is reminiscent of the view that perpetual floating-rate notes are really a money market instrument. At a minimum, holders of preferred cannot start bankruptcy actions if dividends are interrupted.

A final comment. At some points I have taken issue with Jensen's findings. But the whole body of his research on takeovers is one of the brighter lights shining on a topic still wrapped in dark emotions. His work has defined the terms of the debate. And for readers with open minds, it has shaken loose some of the blinders of prejudice.

Effects of Mergers and Acquisitions on the Economy: An Industrial Organization Perspective

*Richard E. Caves**

Once upon a time, study of the effects of mergers was clearly the province of specialists in industrial organization. But then, following two upheavals, this turf was lost. The first change was the shift (in the United States; less in other industrial countries) toward diversifying mergers and away from those combining competing or vertically related companies. The second change was the development of "event studies": the method of inferring the profitability of mergers ex ante from changes in stock-market values at the time when the transaction is announced.

The first change removed the bulk of acquisitions from categories for which microeconomic theory possesses strong models. We have lacked equally strong theories to explain the causes and the consequences of diversification. Some models can explain why diversifying mergers might improve the efficiency of resource use, while others show that they might facilitate collusive or rent-seeking behavior. But the yea-saying models have not attracted much interest except in business administration; and the nay-saying models, resting on stringent assumptions and hard to test empirically, have made only a modest impression.

The second change allowed the study of mergers to be annexed in a bloodless coup by the finance specialists. "Event studies" seem to have everything going for them. They focus directly on the primary question of whether mergers improve the use of scarce resources.[1] They avoid the vexing controlled-experiment problems that plague any attempt to infer the consequences of mergers from ex post data. And their authors possess deadly weapons for repelling skeptics who fear slippage between

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anticipations and outcomes, in the form of accumulated evidence failing to reject the hypothesis of financial-market efficiency.

One must admire the extensive findings about the market for corporate control that have emerged from the methodology of event studies.[2] The methodology's neatness certainly explains the widespread acceptance of their principal normative conclusion about mergers, especially diversifying mergers: that they create value in the eyes of shareholders, hence presumptively involve efficient reallocations of control over resources, and should therefore receive kindly treatment from public policy. Alas, this conclusion may well be wrong. In this paper I show that ex post evidence on the efficiency of mergers, especially that developed recently in the industrial organization camp, amounts to a convincing rejection of the presumed efficiency of mergers. Furthermore, recent developments in the study of corporate organization and governance help us understand why firms enthusiastically pursue mergers that in the end destroy value for their shareholders.

The first section briefly reviews the ex ante evidence from event studies that supports a favorable evaluation of the efficiency of mergers. It also considers what factors may explain the occurrence of mergers, consistent with the world view that most finance specialists find congenial: efficient capital markets and value-maximizing actors. Then we turn to the evidence on the efficiency of mergers from the field of industrial organization. There we find that the traditional modes of investigating their ex post productivity sustain a fragile case for them at best, and several important recent investigations provide strongly negative evidence. Then we turn to recent research on the economics of corporate governance for indications why nonproductive mergers may occur. The concluding section reviews some implications of this evidence for both business practice and public policy.

Event Studies and the Efficiency of Mergers

The Conventional Wisdom

The evidence from event studies on the efficiency of mergers is so extensive and consistent that a brief summary suffices. Acquisitions always entail a large gain for the target firm's shareholders over the market value of the freestanding entity. The proportional gain if anything has been rising over time and amounts to a premium of 30 percent for the change in

[1]Even the contribution of horizontal mergers to monopolistic distortions can be tested by the expected value of rents that they create for competitors not involved in the merger.

[2]Jensen and Ruback (1983) provided an excellent summary of this literature. See Cook (1987) for an update.

corporate control via takeover, 20 percent via merger (Jensen and Ruback 1983). The average return to the bidding firm's shareholders is less clear. Some studies have found small but statistically significant gains, others small losses. It seems safe to conclude that the bidder's shareholders approximately break even. A bundle for the target's shareholders plus zero for the bidder's still sums to a bundle, supporting the conclusion that mergers create value and accordingly are economically efficient.

These results evidently invite the conclusion that mergers are profitable and therefore socially desirable.[3] Yet the event studies themselves leave important doubts. Have we really established that the dollar value of the gain to bidder and target taken together is positive? Acquiring firms are typically much larger than their targets, and the sum of the target's proportionally large gain and a zero-mean and variable change in wealth for the bidder need not sum to a significant positive value. Firth (1980) found for British mergers that the mean sum is negative but insignificantly different from zero. For the United States, as Roll (1986) pointed out, relatively few studies have performed the exercise of calculating and testing the significance of mean dollar-value measures of gain, and those have obtained insignificant positive values.[4] Although we shall continue to treat a positive ex ante dollar value of mergers as a stylized fact for purposes of this paper, the "fact" is not established with statistical confidence.

A second question arises for the bidding firms. If their shareholders on average get nothing from deals that absorb much managerial time and other transaction costs, what keeps the bidders in the game? It is suggested that a target (or its investment banker) can readily stage an auction that puts bidders into a Bertrand competition that drops all the surplus into the outstretched hands of its own shareholders. That may be true. However, if the *average* bidder's shareholders break even, that means they lose about half the time. Do we call this random noise, or do those shareholders correctly perceive that their wealth is impaired? This thought certainly raises a question about the motives of bidders' managements, even if it does not impugn the creation of value by the average merger.[5]

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[3]Nobody denies the possibility that private and social values diverge. However, with diversifying mergers so prevalent, few treat the qualification as an important one. Tax factors have been taken more seriously as sources of private-social discrepancies in U.S. mergers; we return to them below.

[4]Jensen and Ruback (1983, pp. 22, 47) noted this qualification while maintaining that takeovers (if not necessarily mergers) on average generate net benefits.

[5]If mergers are productive but target firms can capture the full value of expected rents, then we should expect no relationship among mergers between the size of the gain to the target (due to the synergy) and the valuation of the merger by the bidder's shareholders (a random variable). Yet the evidence shows a strong negative relationship between them; see papers cited by Mueller (1977, pp. 329–30) and Roll (1986, pp. 202–6).

Some event studies have implicitly addressed this problem of what the bidder's shareholders are valuing. It is not necessarily the individual merger against the alternative of "do nothing." The financial resources expended on the merger at hand might have been used instead for another investment in physical or corporate assets that would also create value, though not so much. Or the market may value a bidder's larger strategic plan that entails a series of mergers and (perhaps) other transactions; then its valuation of the individual merger "event" rates this transaction not against "do nothing" but for its efficacy in pursuing the preannounced strategy. Empirical evidence has given this hypothesis only mixed support. Be that as it may, doubts about what the market is valuing ex ante do nibble ominously at the claimed sufficiency of these valuations for establishing the expected productivity of merger transactions.

A third concern with the event studies arises from the behavior of market valuations following the "event"—the announcement date of the merger or (in a few studies) its date of consummation. At the moment a merger is announced, securities-market participants react with what information they have at hand. As time passes, they can invest in securing more information, and also a good deal of previously confidential information is likely to be revealed. Expectations are likely to be refined, but no obvious bias should carry this adjustment either upward or downward. If the managers who contracted the merger hold insider information on its productivity, of course, the post-announcement valuation would rise.[6] However, the studies that have followed post-announcement valuations for bidders have observed a change that is usually negative and (when negative) statistically significant. The studies range in temporal coverage from a month or so following the announcement to several years after the consummation.[7] The contributors to Mueller's (1980) international study employed a similar procedure of following share values for acquiring firms, relative to matched enterprises or to the average firm in the acquirer's market. For five countries they found that the relative value of the bidder's shares rises in the year of the merger, then falls off to zero or below after three years. These negative second thoughts by bidders' shareholders seriously qualify the inferences that

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[6]Roll (1986) pointed to another reason: an event putatively desired by shareholders that is probabilistic at the time of announcement later becomes certain.

[7]Besides the ones tabulated by Jensen and Ruback (1983), p. 21, see also Weidenbaum and Vogt (1987); they include Dodd (1980), Eger (1983), Choi and Philippatos (1984), and Magenheim and Mueller (1987). Magenheim and Mueller showed that the measured extent of the post-event decline may be quite sensitive to the way in which the cumulative residuals are estimated, and specifically the degree to which the estimation period picks up the premerger high returns that acquiring firms regularly exhibit.

the average bidding firm breaks even and the average merger creates value.[8]

Gains from Diversifying Mergers: Theory

If we accept the positive inference from event studies, the conclusion that mergers are productive may require no more theoretical foundation than the widely assumed disinclination of purposive individuals to leave currency on the footpath. Many explanations have accumulated as to why mergers should have a positive realized return to the decision-maker. Only a few of them, however, are consistent with well-functioning markets and value-maximizing behavior all around. Of these, the explanation that commands the most empirical support is "synergies" due to the sharing between activities of "lumpy" or intangible multiuse assets. Assume that the firm operating in a certain activity must employ some real asset that is efficiently acquired or enlarged only in discrete lumps, and that it cannot be readily shared between independent firms. An intangible asset such as production know-how is the limiting case in terms of its "excess capacity" for the firm utilizing it. Assume also that such a lumpy asset enters into the production functions for other activities as well. Then the firm holding the underutilized asset can employ it fully by adding another activity that requires the same asset. The opportunity cost for the firm entering this new activity will be less than for a de novo entrant who must recruit a unit of this asset at market cost. (Rubin (1973) provided a model of this expansion process.) Expansion either by acquisition or green-field entry could potentially realize this gain.

This "lumpy multiuse asset" model of diversification has a good deal of empirical support. Economic research has associated diversification with high levels of research and development activity (which creates intangible assets that sometimes have diverse and unpredictable uses), common customers, distribution systems, and channels for acquiring inputs (Lemelin 1982; MacDonald 1985). Stewart, Harris, and Carleton (1984) confirmed that diversifying mergers follow a similar pattern. Other support comes from the literature of business administration, where "related diversification" has often been seen as a profitable activity to be undertaken at an appropriate stage in the firm's evolution (for example, Rumelt 1974). Some investigators who analyzed market valuations of

[8]Krishna Palepu pointed out that it is easy for target shareholders to value a merger, but estimating its contribution to future cash flows of the bidding firm is a complex exercise (even apart from the opportunity-cost question mentioned above). The pattern of no abnormal return to the bidder on "event day" followed by negative returns thereafter could be read as a negative overall evaluation that emerges only after sharpened pencils have done their work.

mergers in cross section found that "related" mergers are valued more highly than those without any apparent synergistic potential.[9]

A second explanation of diversifying mergers' value lies in managerial efficiency. Corporate shareholders face a public-good problem in monitoring hired managers to assure that they obtain the maximum value from the firm's resources. The market for corporate control permits a single agent (at substantial transaction cost) to obtain sufficient voting shares to expel managers who follow suboptimal policies, and to restore the firm to the pinnacle of optimality. Because a "raider" normally cannot capture the full rent due to this expulsion (Grossman and Hart 1980), mergers to improve efficiency are arguably underprovided, and takeovers are all the more to be cherished.

No strong evidence on the prevalence and success of these managerial tune-ups has come to light. Event studies have found that the market valuation of the target firm declined for a period prior to the acquisition, suggesting managerial deficiencies that the incumbents are not expected to cure on their own (Jensen and Ruback 1983, p. 25).[10] Yet negative abnormal returns could also stem from disturbances that depress the expected profitability of the firm's bundle of resources, but in ways remediable through consolidation with another firm. Both interpretations imply that mergers are productive. Still another explanation lies in arbitrage: when the target's share price is depressed (for whatever reason), acquisition is a cheap way to acquire its real assets. Because only a little ex ante evidence uniquely indicates that managerial overhaul motivates a merger (Palepu 1986), the hypothesis that mergers actually do shape up deficient management can really be tested only on ex post profit or productivity data. (See below.)

Managerial shape-up and the full use of lumpy, fungible assets are the most plausible theoretical bases for mergers' productivity that are consistent with efficient capital markets and wealth-maximizing behavior. Numerous other hypotheses have been put forth. (Mueller 1977 provided a compact survey.) Apart from those resting on market distortions (taxes; seeking rents from market power), they imply either that capital markets suffer imperfections (the price/earnings game) or that managers pursue goals other than maximizing value for shareholders (maximization of growth; reduction of risk to the firm's cash flow). One hypothesis on the borderline holds that a nonfinancial firm could run an efficient portfolio strategy by searching systematically for bargains in the market for corporate control. That hypothesis is implausible in well-

[9]You and others (1986), who do not confirm this hypothesis, cite earlier papers that failed to reject it.

[10]Consistent with this are studies showing that target firms on average have lower ratios of market to book value than matched firms not taken over (for example, Hindley 1970).

developed capital markets, where "attractive companies with good managements show up on everyone's computer screen and attract top dollar in terms of acquisition premium" (Porter 1987). Another borderline hypothesis holds that, by dint of expertise and objectivity, a multibusiness firm's central administrative office can shunt cash flows more effectively among controlled businesses than could the capital markets interacting with independent business managements. That hypothesis gets a boost from the return to respectability of the "pecking order" hypothesis of corporate finance, which concludes that managers (for several reasons) assign lower shadow prices to internally generated funds than to those obtained externally (new borrowings or equity issues). For example, external borrowings may entail transaction costs associated with problems of agency that can be avoided or reduced if the bidder not only transfers surplus cash flows to the target but also assumes supervisory control over their use.

In short, if one infers from event studies that value-maximizing corporate managers make intendedly rational decisions, there is no shortage of models to explain why mergers that are neither horizontal nor vertical could represent productive uses of resources. Accordingly, a skeptic who suspects (or finds) that a substantial proportion of mergers are unproductive can base his doubts on two foundations. The bidding managers may fail to maximize expected value, either because other motives dominate their preferences or because an unrecognized bias blights their expectations. Or, discrepancies between private and social valuations of merged firms' cash flows may make mergers profitable but socially unproductive. The ex post evidence on mergers' profitability, to which we now turn, is crucial for distinguishing between these alternatives.

Productivity of Mergers: Ex Post Evidence

Ex post studies of mergers' effects may have been overshadowed by the event-study methodology, but important evidence has nonetheless been accumulating. Furthermore, most recent contributions are resoundingly negative on the average productivity of mergers and sharply at variance with the findings of the event studies. We first review evidence from studies of realized profits and productivity levels, then highlight several new studies with strongly negative import.

Evidence on Realized Profit and Productivity

Many ex post appraisals were made of the profitability or productivity of mergers completed in the United States during the 1950s and

1960s. While not particularly decisive, they were not on balance blatantly inconsistent with the positive conclusion of the later event studies.[11] Acquiring firms during the 1950s appeared to attain no excess profits from their efforts, a result that is of course consistent with real gains that just offset premiums paid to target firms' shareholders. Reid's extensive study (1968) concluded that the profit performance (several measures) of acquiring firms decreased with the extent of their merging activity, but the later evidence took a more favorable turn. Weston and Mansinghka (1971) concluded that the acquisitive conglomerates of the 1960s began the period earning profits below those of a control group (due to capital sunk in declining industries) but pulled themselves up to equality with the control group. They attributed the apparent gain in productivity to the more aggressive use of leverage, substituting tax-deductible debt for equity and thereby transferring revenue from the U.S. Treasury to the owners of capital. The targets' managers apparently sinned by underexploiting their borrowing power.

Later research on postmerger movements of market valuations also underlined the importance of leverage increases: Choi and Philippatos (1983, 1984) found negative changes in the postmerger value of the bidder to occur in acquisitions that were unrelated (that is, had no obvious basis for real synergy) and entailed no substantial increase in leverage.[12] The evidence on the average outcome of mergers for acquiring firms took a nosedive after macroeconomic conditions in the early 1970s brought down the acquisitive conglomerates (Mueller 1977, pp. 323–5). Thus the ex post evidence for the United States indicates overall that acquirers realized little profit, and what they did obtain came mainly in a private but not a social form; but the premiums to target shareholders stand as unimpugned gains.

Great Britain has been the site of numerous studies of the results of mergers. While their findings may not apply to the United States or other countries, their scope and character warrant a review. Meeks (1977) compared the actual profitability of merged companies and their premerger components with the average of all companies classified to their industries. In the three years preceding the acquisition, the acquirers were at least one-fifth more profitable than their industries, while their targets were about normally profitable (which of course questions the managerial shape-up hypothesis). After the merger, especially in the third through the sixth subsequent years, the average normalized profitability of the consolidated enterprise was significantly negative, with approximately 60 percent of the sampled acquirers showing

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[11]The relevant studies were surveyed by Steiner (1975, chap. 8) and Mueller (1977).

[12]Evidence from other countries agrees on this point. See Singh (1971, pp. 160–1) and Mueller (1980, pp. 302–3).

losses.[13] The deterioration is not associated in a simple way with mergers that represent far-flung diversifications for the bidder, or with the size of the target relative to the acquirer.

The British literature also includes two close investigations of the effects of mergers on the surviving firm's productivity. Newbould (1970) intensively explored the actions that acquirers undertook to integrate and utilize the assets absorbed in 38 mergers. Because these mergers were horizontal, they should have provided the maximum opportunity for synergistic gains. He found that a small minority of acquirers did obtain each of several types of gains; overall, he concluded that half his sample realized no gain or very little, the other half medium to high gains. He also found that ingesting acquisitions took considerable effort from the bidder's management. Cowling and others (1980) also studied productivity changes occurring in largely horizontal mergers in Britain, using an efficiency measure that boils down to the profit margin on sales adjusted for changes in input and output prices. None of nine mergers that were studied intensively (Cowling and others 1980, chap. 5) exhibited extensive gains in efficiency, and two-thirds showed extensive declines in the few years following the merger—declines that suggest substantial transition costs. Other intensive studies of mergers in the engineering and brewing industries (chaps. 6, 7) were no more positive.

In conclusion, the ex post studies of the performance of acquiring companies in the United States provide little positive evidence for the productivity of mergers, while the British evidence shows specifically that any gains seem to be erased by transition costs. Although some studies of mergers in Britain have also painted a less rosy picture (Firth 1980; compare Franks and Harris 1986) than their American counterparts, the British ex post evidence is not obviously irrelevant to the United States.

Control Changes and Market Shares

We now turn to the first of three recent studies that are particularly negative on mergers. Mueller (1985) drew upon surveys taken by the Federal Trade Commission in 1950 and 1972 of shipments by the 1,000 largest companies in narrowly defined 5-digit product classes. He focused upon 209 companies in the 1950 study that were acquired by 123 others included in the 1,000-largest group in both years. Thus, he could observe market shares in both years for business units that did and did

[13]Meeks adjusted the acquirers' profits to eliminate premiums paid for the target's assets. He also deleted 20 outliers from his sample of 233 observations; if they are retained, the apparent decline in postmerger relative profitability is much larger than the 4 to 10 percent reported after their elimination. His results are consistent with earlier studies by Singh (1971) and Utton (1974).

not undergo changes in control. His data imply that an unacquired business on average retained 88 percent of its 1950 market share in 1972, while an acquired one retained only 18 percent! Part of the decline could well have taken place before the changes in control, which of course were distributed over the period. However, the size of the declines coupled with the relatively weak evidence of debilitated premerger profits of target firms (Ravenscraft and Scherer 1987, chap. 3) leave little doubt that significant declines in market shares followed changes in control.

The sample included both diversifying and horizontal mergers, and the latter were examined separately for the theoretical reason that a horizontal acquisition undertaken to exploit market power must (on Cournot assumptions) give up some market share in order to attain its goal. The share losses for horizontal acquisitions were indeed even larger than for diversifying ones, but an enormous decline remains for the latter.

Mueller's results are naturally subject to various qualifications, such as mergers (by both the acquiring and the control firms) outside of the 1,000-largest sample. However, the dramatic size of the share declines seems blatantly inconsistent with any persistent efficiency gain from mergers, implying instead that enterprises seeking to run acquired business units on average underperform their previous specialized managers, or at best fail to improve on their records.

Business-Unit Profitability and Divested Acquisitions

In the early 1970s not a few of the "go-go conglomerates" of the 1960s were dismantled, and late in the decade it became a commonplace observation that many acquired business units were being resold or reestablished as independent firms (Porter 1987). On the face of it, firms divesting businesses that they have acquired need not be burying their mistakes. On the one hand, some gains from merger are one-shot. The badly run business can be bought, its managerial cadre shaken up, and turned loose again as an independent entity. The business that benefits from receiving an infusion of intangibles from its acquirer or supplying them to the acquirer can also be turned loose once it has received the indicated transfusion. The acquirer might as well perform the value-creating deed and then capitalize the value of its achievement. Divestments, in principle, need not indicate failed mergers. On the other hand, the bumbling acquirer who has spoiled the profitability of a good business can rectify its mistake by reselling the unit only if the damage is temporary and reversible by a management with a greener thumb. Otherwise, the loss is unavoidable and can be realized but not reversed by selling the withered acquisition.

With these points recognized, the observer is nonetheless impressed with the many doleful tales: "We bought Business X but then found out we didn't know how to run it, and so are putting it back on the market." Ravenscraft and Scherer (1987, chap. 5) undertook a series of case studies of acquired businesses that went through a divestment cycle, confirming this conventional wisdom from the business press. Some acquirers tripped over a "lemons" problem, learning after the transaction of substantial problems with the acquired business that they had not previously spotted. The acquirer's managerial outsiders then were ineffective at providing a fix. Yet the opportunity cost of managerial effort was high and figured as strongly in the divestment decision as the opportunity cost of funds. The cases are consistent with the view that multibusiness companies have certain repertories of skills and control/evaluation/reward structures that work well for a subset of businesses but are apt to fumble when extended into new areas.

In their statistical analysis, Ravenscraft and Scherer (1987, chaps. 3, 4) used the Federal Trade Commission's Line of Business data for an intensive study of changes in profitability of narrowly defined business units that had undergone changes in control, with special attention to the occurrence of sell-offs. By means of the 1950 FTC survey (also used by Mueller), they were able to identify businesses of the large companies responding to the 1977 Line of Business survey that had experienced changes in control. An important dividend of this study is information on the premerger profitability of many target firms too small to be publicly traded. It turns out these small units were highly profitable, while profits of larger acquired businesses were not substantially below average (a finding that agrees with other investigators). In assessing the profitability of business units that had been acquired, they controlled for profit opportunities either with a fixed-effects model or with the standard exogenous variables indicating profit opportunities.[14] Their evidence clearly shows that acquired businesses suffered a substantial deterioration of profitability. In their most carefully constrained sample, the profitability during 1974–77 of business units acquired in single mergers was down by one-half from their premerger profitability; yet their rates of asset growth were rapid, so they were not being milked as cash cows.

Ravenscraft and Scherer found that during 1974–81 one-fifth of the business units reporting Line of Business data during 1974–77 were sold off. At the earliest time they could be observed (seven years before sell-off), these units' profits were 66 percent below the average for all reporting units, and they tended strongly toward negative values as the day of

[14]A distinctive feature of this study by Ravenscraft and Scherer is its careful attention to the effect of a merger's accounting treatment on the subsequent measurement of the real profitability of the acquired assets.

expulsion approached. The pre-acquisition profits of these units were no different from those of acquired businesses not sold off during this period. Sell-off was more likely for businesses that the owner had acquired since 1950 and for those diversified from the parent's industrial base.

Thus, the important Ravenscraft-Scherer study shows that mergers on average had substantial negative effects on the real profitability of acquired business units, and that the booming market in corporate divisions is importantly fueled by diversified companies that are disposing of their worst mistakes.

Technical Efficiency and Corporate Diversification

The third recent study to question the productivity of mergers is one that I am completing in collaboration with David R. Barton. We use the methodology of stochastic frontier production functions to assess the extent to which plants classified to various 4-digit U.S. manufacturing industries in 1977 displayed productivity levels below the attainable frontier. The methodology proceeds from the standard statistical estimation of a production function, but it assumes that the error term comprises two components, the usual normally distributed random error and another asymmetrically distributed (half-normal, for example) component indicating the dispersion of inefficient plants below the frontier. The observed residual—the sum of these two components—is expected to have a skewed distribution, a prediction confirmed by the data for a satisfyingly high proportion of industries. The variance of the one-sided distribution indicating technical inefficiency can be inferred under quite general assumptions.

Our objective was to discover the average extent of technical inefficiency and, even more, to determine what factors explain its variation from industry to industry. Our interest in the average evaporated when we discovered that the several reasonable ways of expressing it in a form comparable among industries yield wildly divergent results. Fortunately, interindustry differences in these measures are highly correlated despite their different means. We confirmed a number of hypotheses—the important one for present purposes being that technical efficiency decreases significantly as the extent of corporate diversification increases. We used two measures of this end product of mergers. The extent of inbound diversification is inferred from the proportion of shipments that emanate from plants classified to the industry at hand controlled by firms based in other industries. The extent of outbound diversification is measured by the proportion of shipments by firms classified to this industry emanating from plants which they control that are classified to other industries. The sum of these measures has a highly significant negative effect on the industry's technical efficiency, as does the measure

of inbound diversification by itself. Outbound diversification takes a smaller coefficient and is only marginally significant statistically. This pattern is consistent with the hypothesis that multibusiness companies do a poor job of managing business units that are remote from their industrial base, and that efforts to do so have a negative though less substantial and predictable effect on the efficiency of their base activities.

The obvious negative implications of this analysis for diversifying mergers require careful qualification. First, we cannot distinguish between diversification attained by merger and by other means. Second, while the statistical association between diversification and inefficiency is strong, the methodology does not specifically identify the plants of diversified companies as the ones that bring up the rear of the productivity distribution. A third qualification, which we could address with our data, lies in the facts that (1) research-intensive industries *appear* technically inefficient (because of incompletely diffused innovations and competitors' uneven success in the inventive race), and (2) diversification and research intensity are strongly associated, as we know from other evidence. We allowed the effect of inbound diversification on technical efficiency to differ between industries with high and low ratios of research and development outlays to sales, finding that diversification erodes efficiency in both groups but more in the low-R&D sector. Thus, in context of the studies by Mueller (1985) and Ravenscraft and Scherer (1987) summarized above, these results seem to add substantially to the negative evidence on the ex post efficiency of mergers. In particular, they indicate substantial declines in the real productivity of acquired assets, not merely that acquirers fail to create enough value to justify their acquisition premiums.

Managerial Transaction Costs

Popular discussion has flagged another possible source of inefficiencies from mergers that has not been documented in the research literature. It is that merger activity distracts managers excessively from maximizing the productivity of the resources that they currently supervise. The threat of acquisition is supposed to constrain managers to deploying resources for short-run payouts, implying that problems of agency and asymmetrical information between managers and the financial markets keep the managers from maximizing the value of the firm over a long time horizon. The evidence that we have documents the high effort-cost of effecting mergers for acquiring managers (Newbould 1970), and a good deal of casual evidence suggests that the productivity of an acquired firm drops sharply in the short run while everyone conjectures on the course of the axe's descent. However, the best attempt to find a specific embodiment of these costs—a negative effect of merger

activity on the level of research and development outlays (Hall 1987)—came up with nothing. This hypothesis remains open.

Tax Incentives for Mergers

While our concern in this paper is not chiefly with discrepancies between mergers' public and private returns, we can note some recent evidence from Auerbach and Reishus (1987a, 1987b) on the effects of taxation on the pecuniary gains from mergers. They sampled 322 acquisitions of publicly traded companies, mostly during 1976–82, generating (1987a) direct measures of the sizes of benefits stemming from various tax provisions. The tax-loss carryforwards of one company can be used to offset taxable earnings of the other. This practice they found present in about one-fifth of all mergers, with the average benefit 10.5 percent of the value of the acquired firm—substantial in relation to the premium paid for control. Also significant although harder to measure is the gain from writing up the depreciable basis of the acquired property—a small gain in their estimation but subject to substantial underestimation. For their time period, however, they did not confirm the evidence from earlier periods (summarized by Weston 1981, pp. 30–33) that mergers were important occasions for increasing the acquirer's leverage. During 1976–82, they note, leverage increases were common among nonmerging firms.

Auerbach and Reishus also (1987b) sought to discriminate between the tax-related opportunities of merging and nonmerging firms. The influence of tax-loss carryforwards was significant in some specifications but not economically important; no robust influence of write-up opportunities was found. Thus, the tax motives for mergers seem to be quantitatively substantial but not demonstrably important among the factors inducing corporate mergers.

What To Make of It?

We have a conundrum. Ex ante, mergers appear to create value for bidder and target together that is substantial relative to the premerger worth of the target firm. That is, the financial markets appear to believe that bidders can wring a *lot* more value from the typical target's assets. Ex post, recent studies run exactly in the opposite direction, indicating that mergers reduce the real profitability of acquired business units, shrivel their market shares, and increase the intra-industry dispersion of plants' productivity levels.

Attempts to reconcile these results could proceed along several lines. One might ask how, if the financial markets are so smart, they can

be so apparently wrong. I duck this issue except to recall a colleague's formulation of adaptive expectations: "People do pretty stupid things, but they wise up eventually." It is more fruitful to proceed in the direction favored by industrial organization economists, namely, to examine the cross-section variance of merger experience for clues as to why some mergers yield more value than others. Most event studies and some ex post assessments of mergers' value have emphasized average experience and not the variance of cases and the factors explaining it. Clearly, not all cats are black, nor are all mergers bad. If mergers create value ex ante, it remains true that at least a large minority of acquiring firms' shareholders suffer losses in value. If average market valuations of acquiring companies drop off after the acquisition, it remains true that around 40 percent of them increase. Our ultimate question thus is what explains those mergers that work out badly, or which ones were assessed with inadequate pessimism at the time of announcement.

Recent work on managerial behavior certainly supplies part of the answer. Jensen (1986) hurled down the charge that managers can gain utility from diverting "free cash flow" to projects that yield low expected returns but provide various rewards to the firm's managerial cadre. He thus restates a traditional concern of industrial organization with the "split between ownership and control" (Berle and Means) and the "exercise of managerial utility" (Williamson).[15] If unproductive mergers may result from a bargain between shareholders and managers that is incomplete, or incompletely monitored, then we have at the least a basis for explaining why value-destroying mergers can occur.

That managerial behavior can affect mergers is usually heard nowadays in a different context. The spotlight falls on target-firm managers, because golden parachutes, greenmail, poison pills, and other feverish contrivances may function to preserve managerial rents at the expense of shareholders.[16] Of course, less cynical explanations also abound, for these devices may also serve as ploys for getting the shareholders a better deal, guarantees of postponed managerial compensation against expropriation, or other such impeccable roles. However those compet-

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[15]One might suggest that Jensen reprises a tune heard often before in earlier research on mergers: they achieve growth for the sake of opportunities for the managerial cadre or the pecuniary benefits growth provides them; mergers reduce risk not to the shareholders but to employees whose utility diminishes with the variance of outcomes for the firm; mergers that enlarge the firm also make its independence—and its top managers' jobs—more defensible against would-be acquirers. See, for example, Reid (1968), Newbould (1970), and Mueller (1977). For evidence associating mergers with the compensation contracts of bidders' managements, see Firth (1980), Larcker (1983), and Lewellen, Loderer, and Rosenfeld (1985).

[16]For example, Morck, Shleifer, and Vishny (1987) found clear evidence that a target management hostile to a takeover was apt to be underperforming (low market/book value) and have a small equity stake in the firm.

ing hypotheses may be resolved, much less attention has gone to managerial behavior by bidders' managers. Nonetheless, what we have does lay significant blame at that door. You and others (1986) investigated in cross section the excess returns to bidding firms' shareholders and found that shareholders fare worse, the smaller is the proportion of the bidder's shares held by managers and directors, and the larger the proportion of the board of directors composed of insiders. This result ties the diversion of "free cash flow" specifically to managerial incentive structures and the effectiveness of the board as a monitor on shareholders' behalf.

Other evidence also supports the hypothesis that free cash flow provides a major opportunity for bidding firms' managers to divert funds to low-value uses. A series of papers beginning with Baumol and others (1970) investigated the rate of return imputed to cash flows invested by large, mature corporations, finding it very low indeed. This result by itself does not decisively point to managerial behavior, because of the advantage to (some) shareholders of converting potential dividends into (then) more lightly taxed capital gains. But it is consistent with Jensen's hypothesis of contention over free cash flow, as well as with the diffuse evidence that acquiring firms tend to be cash-rich.[17]

Conclusions and Implications for Industrial Organization and Market Performance

Conclusions

We have reached the following conclusions:

(1) Evidence from event studies has been widely read as confirming the efficiency of the typical corporate merger. While it does confirm substantial gains to the owners of target firms, the evidence for significant gain to target and bidder together is in fact thin.

(2) Theoretical bases exist for synergistic gains from mergers, outside of those between horizontally or vertically related firms, but little evidence connects the empirical achievement of these gains to merger transactions.

(3) The thrust of evidence accumulated in the past on the ex post profitability of mergers is that the average acquiring firm at best realizes no net profit on its consolidated assets.[18]

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[17]The tendency for bidding firms to enjoy positive excess returns in the months before a merger may be read as evidence that good news resulting in higher earnings causes managers to undertake a spending spree on mergers (Franks and Harris 1986).

[18]Depending on accounting practices and the method of measuring profitability, these studies may indicate either that mergers create no value at all, or that the gains do not exceed the acquisition premium.

(4) Recent studies show that business units that have been through changes in control on average suffer substantial declines in profitability and losses in market share; industries with many such business units show enlarged gaps between average and best-practice plant productivity levels.

(5) There has been some concern that utility maximization by target managers precludes beneficial mergers. Less appreciated until recently has been the evidence that the managers who make acquisitions that destroy wealth for their shareholders are those in a position to pursue goals other than their shareholders' welfare.

Implications

These results have numerous implications for economic behavior and public policy. We can start with issues of corporate governance and management. It is hard to state the implications for business managers, when one is unsure whether they are part of the problem or part of the solution. Roll's (1986) assessment suggests managers require a stern lecture on the sin of hubris, with an excursion into such statistical issues as the winner's curse and the importance of relying on available a posteriori evidence (on the proportion of mergers that succeed) and not just subjective judgments on the proposal at hand (*we* can do it!).

However, other evidence (You and others 1986) suggests that the problem lies in the agency relationship between managers and shareholders. We know that a "clean" story can be told about this bargain: shareholders know ex ante that managers' utility embraces the policies that they are allowed to pursue, and so the owners offer a compensation package that optimally trades off pecuniary compensation against the managers' scope for actions that increase their utility at the expense of shareholders' wealth. The trouble is that owners who would monitor managers ex post (raiders included) face significant transaction costs. Furthermore, finding real-life counterparts of these fictive corporate charters is no easy task—they fall to hand more readily in the literature on corporate governance than in the file cabinets of Wilmington, Delaware.

At this point public policy becomes relevant. While I shall not review the possibilities here, a case certainly stands for tax and other policies that encourage managers to return free cash flow to shareholders (through dividends and stock repurchases) rather than invest it in mergers and other low-yield projects.

Economists and others have been concerned with diverse possible consequences of mergers that so far have gone unmentioned in this paper. They may increase concentration, raise collusive potential (even across markets), aid the rationalization of excess capacity, make firms

more effective in competing with large foreign rivals, and so on. I have put these questions aside because of the primacy of the question whether mergers increase the productivity of resources. If assets subjected to a change in corporate control cannot be used effectively, the rug is snapped smartly from beneath any hypothesized consequence of mergers that depends upon value-maximizing behavior by the merging firm. With that precondition in doubt, let me offer a few (no doubt high-handed) propositions about mergers' effects on industrial organization:

(1) Outside the United States where horizontal mergers are much more prevalent, the same studies that cast doubt on their positive contribution to resource productivity confirm their traditionally expected effects on price (for example, Cowling and others 1980). Williamson's (1968) trade-off between allocative efficiency and cost minimization may be no trade-off at all.

(2) Some event studies have claimed that horizontal mergers do not have monopolistic effects, because competitors' share values do not rise as they would if the merged firm were expected to contract output or hold the price umbrella a little higher. Could these shareholders appreciate (as Newbould 1970 found) that their own managers might react to a competitor's bad merger by undertaking a bad merger of their own?

(3) Is there any evidence to support the widespread faith that national firms enlarged through mergers become more effective at dealing with their overseas rivals? I shall simply assert that I have never seen such a case convincingly documented.[19] More to the point, an extensive project on the bases for success of national industries in international markets, now being completed by Michael E. Porter, reveals on generous interpretation two cases out of 110 in which a firm with effective rivalry in its home market absent or suppressed has gone on to triumph against overseas rivals.

(4) Are horizontal mergers effective for rationalizing resources in contracting industries? This is the one form of asset redeployment for which mergers have shown some aptitude (for example, Cowling and others 1980, chap. 6). The closures and transfers of facilities that mergers effect could in principle be done in other ways, but a merger transaction may sometimes serve to upset obsolete but rent-yielding contracts and end bargaining stalemates more effectively than other methods of recontracting.

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[19]Those who put it forth display no familiarity with the Cournot-based proposition that a consolidated firm in quest of maximum profits will produce less than its erstwhile independent components.

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Discussion

*Michael Bradley**

The title of Richard Caves's paper is "The Effects of Mergers and Acquisitions on the Economy." However, the bulk of the paper deals with a review of the empirical evidence concerning the effects of these transactions on the profitability of the combining firms.

> Economists and others have been concerned with diverse possible consequences of mergers that so far have gone unmentioned in this paper. They may increase concentration, raise collusive potential (even across markets), aid the rationalization of excess capacity, make firms more active in competing with large foreign rivals, and so on. I have put these questions aside because of the primacy of the question whether mergers increase the productivity of resources. If assets subjected to a change in corporate control cannot be used effectively, the rug is snapped smartly from beneath any hypothesized consequence of mergers that depends upon value-maximizing behavior by the merging firm (Caves 1987).

In other words, before one can argue that corporate mergers increase social welfare, one must first show that these transactions increase the value or productivity of the assets of the combining firms. I wholeheartedly agree with this premise but strongly disagree with Caves's interpretation of the existing evidence.

Caves begins his inquiry into the profitability of corporate mergers and acquisitions with a critical examination of the empirical evidence provided by financial economics. In his review of so-called "event studies," he readily admits that this body of empirical evidence universally shows that corporate acquisitions reallocate corporate resources to higher-valued uses.

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> The evidence from event studies on the efficiency of mergers is so extensive and consistent that a brief summary suffices. Acquisitions always entail a large gain for the target firm's shareholders over the market value of the free-standing entity. . . . The average return to the bidding firm's shareholders is less clear. Some studies have found small but statistically significant gains, others small losses. It seems safe to conclude that the bidder's shareholders approximately break even. A bundle for the target's shareholders plus zero for the bidder's still sums to a bundle, supporting the conclusion that mergers create value and accordingly are economically efficient (Caves 1987).

This passage serves as an adequate summary of empirical work from the field of financial economics. Moreover, Caves is correct in pointing out that, to date, event studies have yet to establish that the dollar value of the gain to the target and bidder taken together is positive. I am sure that he will be pleased to learn that I have recently completed a study with Professors Desai and Kim that attempts to fill this void in the empirical literature (Bradley, Desai, and Kim 1987).

In this paper we estimate the combined return to matched pairs of targets and bidders involved in interfirm tender offers over the period 1962–84. Our sample consists of all successful tender offers where both the target and acquiring firms were listed on either the New York Stock Exchange or the American Stock Exchange at the time of the offer. Our selection criteria yield a sample of 236 successful combinations.

The major finding of the study is that the average successful tender offer generates a statistically significant 7.4 percent revaluation of the combined resources of the two firms. This 7.4 percent translates into an average value creation of $117 million, stated in December 1984 dollars. Our subperiod analysis reveals that the percentage synergistic gain created by successful offers has remained remarkably constant over time. However, the average dollar gain created by the offers in the 1981–84 period is more than double the gain created in the earlier periods. The average synergistic gain created by these 1981–84 tender offers is in excess of $218 million because the average target is three times larger than it was in the early 1960s. We also find that the gains to target stockholders have increased over time, whereas those to acquiring firms have decreased. In fact in the 1981–84 subperiod, the stockholders of acquiring firms suffered a significant capital loss of almost 3 percent. However, the total gain to these acquisitions is a significant 8 percent. This result demonstrates the danger of examining the returns to acquiring firms in isolation. While there is evidence that the acquirers in the most recent period paid too much for the targets they acquired, these acquisitions still created significant synergistic gains.

Caves characterizes event studies as providing ex ante evidence regarding the efficiency of corporate mergers and acquisitions. The sec-

ond part of his paper is a review of what he terms ex post studies from the field of industrial organization. These studies involve measuring the effects of mergers and acquisitions on the performance of acquiring firms using the more traditional standards of industrial organization: accounting numbers, market share, and technological efficiency. Before I comment on the particular studies that Caves cites, let me note from the outset that I think that this area of research is very important if we are ever going to understand the nature of corporate combinations. Examining the ex post performance of acquiring firms will undoubtedly provide insights regarding the underlying motivation of these and other corporate control transactions.

The industrial organization studies employing accounting measures of performance are by and large consistent with the results of event studies. However, a study by Mueller in 1985 shows that on average, an unacquired business retained 88 percent of its 1950 market share in 1972, while an acquiring one retained only 18 percent. Caves interprets this result as important evidence that corporate acquisitions do not enhance efficiency. While it is impossible to evaluate the merits of Mueller's study from the brief description offered in the current paper, the difficulty in defining market share at a point in time is well known, let alone defining changes in market shares from 1950 to 1972. I would venture to say that many, if not most, of the markets that existed in 1972 did not exist in 1950.

Caves goes on to cite the results of studies by Porter and by Ravenscraft and Scherer as evidence contrary to the thesis that corporate mergers increase economic efficiency. Essentially these authors examine the history of divested business units. They find that a significant number of these divestments involved assets that were previously acquired by the divesting firms. They interpret these transactions as evidence of failed acquisitions. Caves does point out that all divestitures do not involve assets that were obtained through a merger or acquisition; nor do they necessarily reflect failed ventures on the part of the divesting firm. These qualifications having been made, he goes on to argue that these transactions cast serious doubts as to the ability of acquiring firms to run their acquired assets efficiently. On a previous occasion, I noted that examining divestitures to gain insights into the nature of corporate acquisitions is like trying to understand the institution of marriage by interviewing only divorced couples. I just can't see how this line of inquiry will improve our understanding of the nature of corporate acquisitions.

The last piece of evidence that Caves offers comes from his own work with David Barton. Their work indicates that diversified firms are not run as efficiently as sole-purpose firms. From this result he concludes that diversifying acquisitions are not efficient because diversifying firms are, on average, operated less efficiently. Here again it is hard

to see how this finding helps us understand the welfare implications of corporate mergers. I am skeptical that we can even meaningfully distinguish among horizontal, vertical, and diversifying combinations.

In the end, Caves concludes:

> We have a conundrum. Ex ante, mergers appear to create value for the bidder and target together. . . . Ex post, recent studies run exactly in the opposite direction. . . (Caves 1987).

He then goes on to sketch out several lines of research that might reconcile these apparently conflicting results. However, he misses the most obvious. Why not conduct one study that combines the methodology of event studies with the more traditional approaches of industrial organization? One could then test directly whether capital market agents were able ex ante to anticipate the ex post performance of acquiring firms. I suspect that firms with poor post-acquisition performance also realized a less than average capital gain when the acquisition was announced. But this is an empirical question that can be answered with existing data and methodology. Unless and until the empirical results of event studies are reconciled directly with the empirical work on post-acquisition performance, I am afraid that the arguments made by financial economists and industrial organization specialists concerning the welfare implications of corporate mergers will continue to pass like ships in the night.

Finally, it should be noted once again that studying only the ex post performance of acquiring firms can, and most probably will, lead to misleading conclusions. Since all serious empirical work finds that target stockholders capture the lion's share of the synergistic gains created by corporate mergers, one cannot focus exclusively on the ex post performance of acquiring firms to infer the welfare implications of these transactions.

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Should Merger Policy Be Changed? An Antitrust Perspective

*William James Adams**

Over the past 15 years, a revolution has occurred in U.S. merger policy.[1] Antitrust attacks on non-horizontal mergers have all but disappeared. Regulation of horizontal mergers now starts from the presumption that "the vast majority of horizontal mergers pose no market power problems and should simply be approved rapidly" (Schmalensee 1987, p. 44). In February 1986, the Reagan adminisration urged Congress to codify the new interpretation of Section 7 and to mandate consideration of a merger's salutory effects on economic efficiency.[2] If former Commerce Secretary Baldridge had had his way, the Administration would have sought complete repeal of the antimerger law.

Reversal of the conventional wisdom on mergers can be traced to acceptance of Robert Bork's views on the subject. In large measure, the case for the status quo rests on the soundness of his position. As a result, I shall discuss that position in some detail. Finding it deeply flawed, I then propose a research agenda for those who doubt the adequacy of current enforcement. I begin, however, with a brief discussion of the U.S. Supreme Court opinion that did so much to inspire retreat from an activist policy stance.

The Status Quo Ante: Von's

In 1960, Von's Grocery Company acquired Shopping Bag Food Stores. Both companies operated chains of retail grocery stores in the

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Los Angeles metropolitan area. In 1958, Von's ranked third in area sales with 4.7 percent of the market and Shopping Bag ranked sixth with 4.2 percent of the market.[3] The largest seller in the area, Safeway, enjoyed a market share of 8 percent. The merger would have increased four-firm seller concentration from 24.4 percent to 28.8 percent, eight-firm concentration from 40.9 percent to 44 percent, and twelve-firm concentration from 48.8 percent to 50 percent.

Between 1948 and 1958, seller concentration had declined at the four-firm level (from 25.9 percent). Safeway had lost almost half its market share (from 14 percent), and the two largest sellers had lost one-third of their combined market share (from 21 percent). At the eight- and twelve-firm levels, seller concentration had increased (from 33.7 percent and from 38.8 percent, respectively). Nevertheless, membership in the group of top-ranked firms was hardly stable: Of the 20 largest sellers in 1958, seven "were not even in existence as chains in 1948."[4]

Declining concentration at the four-firm level, and instability of market rank at the 20-firm level, were hardly surprising. "The continuing population explosion of the Los Angeles area, which has outrun the expansion plans of even the largest chains, offers a surfeit of business opportunity for stores of all sizes"[5] and there were "no substantial barriers to market entry." In fact, "many of the stores opened by new entrants were obtained through the disposition of unwanted outlets by chains; frequently the new competitors were themselves chain-store executives who had resigned to enter the market on their own."[6] Between 1953 and 1962, the number of chain stores operating in the area increased from 96 to 150. In addition to thousands of single-outlet shops, 269 separate chains operated in the area at some time during that period.

On May 31, 1966, the Supreme Court decided to prohibit the merger.[7] Speaking through Justice Black, the court did not claim that the merger had in fact diminished competition. Rather, citing the incipiency

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[1] The revolution is embodied in the merger guidelines of the Department of Justice. As Ravenscraft (1987) points out, however, juxtaposition of the Johnson and Reagan versions understates the enforcement gap between the two administrations. The 1968, 1982, and 1984 guidelines are reprinted in Commerce Clearing House, *Trade Regulation Reporter*, volume 1, paragraphs 4490–4495 (1984), 4500–4505 (1982), and 4510 (1968). The Federal Trade Commission has also announced its views of Section 7. A general statement appears in paragraph 4516. Applications to specific industries appear in paragraphs 4520 (cement), 4525 (food distribution), and 4535 (textiles).

[2] The Merger Modernization Act of 1986, S2160, 99th Congress, 2nd session.

[3] The facts concerning this case are taken from the majority and minority opinions of the U.S. Supreme Court, 384 U.S. 270 (1966).

[4] 384 U.S. 270, 290; Justice Stewart, dissenting.

[5] Ibid., 288.

[6] Ibid., 300.

[7] 384 U.S. 270 (1966).

[8] 374 U.S. 321 (1966), 362.

doctrine announced in *Philadelphia National Bank*,[8] it asserted that the merger might (with unspeculated probability) reduce competition in the future.

Black justified his concern for future competition by citing the disappearance of single-outlet grocery stores in the area. Between 1950 and 1961, the number of such stores declined from 5,365 to 3,818. Coupled with the rise of seller concentration described above, and a history of acquisitions by sellers ranked among the top 20 (if not the top few), Black concluded: "These facts alone are enough to cause us to conclude contrary to the district court that the Von's-Shopping Bag merger did violate section 7."[9]

Black's accounts of the origins of the Clayton and Celler-Kefauver Acts reveal his conviction that competition depends more on the preservation of small business than on the limitation of seller concentration. Regarding the Clayton Act, Black observes: "The Sherman Act failed to protect the smaller businessmen from elimination through the monopolistic pressures of large combinations which used mergers to grow ever more powerful. As a result in 1914 Congress, viewing mergers as a continuous, pervasive threat to small business, passed section 7 of the Clayton Act . . . "[10] Regarding the Celler-Kefauver Act, Black adds: "Like the Sherman Act in 1890 and the Clayton Act in 1914, the basic purpose of the 1950 Celler-Kefauver Act was to prevent economic concentration in the American economy by keeping a large number of small competitors in business."

Unfortunately, Black fails to explain why small business per se promotes competition. He presents a tempting target to those asserting that his merger policy is really designed to restrict competition so as to preserve a now inefficient way of life. From his brother, Justice Stewart, to the majority of economists, most readers of his opinion have taken aim.

The Status Quo: Robert Bork

In *The Antitrust Paradox: A Policy at War with Itself*, Robert Bork opines that only two types of merger warrant legal intervention on antitrust grounds. The first involves combination of actual competitors—firms that already sell either in the same market or in markets for substitute products. The second involves fusion of potential competitors—firms that most likely will become actual competitors in the future. Labeling both as horizontal forms of merger, Bork argues that other types of combination—vertical and conglomerate—should never be barred by

[9] 384 U.S. 270, 274.
[10] 384 U.S. 270, at 274–75.

government: "Properly drawn and applied horizontal rules are all that we need" (Bork 1978, p. 245).

Even horizontal mergers should be curbed only rarely. With respect to mergers involving actual competitors, Bork is inclined to allow any merger that confers less than 60 percent of well-defined markets on the resulting enterprise. Ultimately, however, he adopts a position that makes "presumptively lawful all horizontal mergers up to market shares that would allow for other mergers of similar size in the industry and still leave three significant companies. In a fragmented market, this would indicate a maximum share attainable by merger of about 40 percent. In a market where one company already has more than 40 percent, the maximum would be scaled down accordingly. For example, where one company already had 50 percent, it could not engage in any horizontal mergers, and no other company could create by merger a share above 30 percent (barring some exceptional circumstance, such as the imminent failure of one of the merger partners)" (pp. 221–22). Meanwhile, elimination of potential competitors should be prevented "only when three other conditions are met: the outside firm is a probable entrant by internal growth if the merger is disallowed; there are no other equally probable entrants; and entry is sufficiently difficult that restriction of output is possible." In Bork's view, "Very few industry situations will meet these conditions . . . " (p. 260).

How does Bork justify the shave he applies to the Clayton Act? His razor glides fundamentally on the proposition that competition policy should be deployed to only one purpose: promotion of economic efficiency. "Antitrust policy should never concern itself with equity in income distribution" (p. 220). Implicitly, then, Bork suggests that policymakers should ignore market power whenever it is exercised in Pareto-optimal fashion.[11]

The significance of shifting antitrust's focus from market power to economic efficiency can be illustrated simply. Consider an industry characterized by constant returns to scale. Currently, the industry contains enough producers to guarantee competitive prices. These producers, however, are contemplating merger. If, upon merger, they would not be able to discriminate in price, industry output would fall after the merger. If, however, they would be able to discriminate perfectly in price, output would remain as it was before merger. Since discrimination enhances their profit as well as their output, monopolists will indulge in it whenever possible. Thus, as long as perfect discrimination is feasible, Bork's

[11] For tactical reasons, no doubt, Bork refers to Pareto optimality as "the consumer welfare model." Rather than describe social surplus as the sum of consumer and producer surplus, he notes that ownership of producers by consumers makes producer surplus a special case of consumer surplus.

welfare economics imply that a horizontal merger eliminating all competition should be allowed to stand.

The same logic applies to vertical mergers. Consider a bilateral monopoly in which the upstream monopolist determines the price of an intermediate product (such as flour) and the downstream monopolist determines the price of a final product (such as doughnuts). If the miller is allowed to acquire the baker, the price of doughnuts will fall, and production of both flour and doughnuts will increase. Bork explicitly approves of such a merger (p. 230).

Now suppose the miller's flour is used to bake bread as well as doughnuts. To the extent that consumers exhibit inelastic demands for bread and elastic demands for doughnuts, the miller would like to charge high prices for flour used in bread and low prices for flour used in doughnuts. Arbitrage between bakeries might prevent such discrimination, however, creating incentives for the miller to acquire all bakers of doughnuts (Perry 1978). If prevented from engaging in such acquisitions, the miller will charge the textbook's monopoly price to all bakers. This price will result in less output of flour than would either price discrimination or extension of the miller's monopoly forward into flour-using activities. As long as the miller acquired his initial monopoly legally, he should be allowed to acquire the bakers of doughnuts (Bork 1978, p. 240).

Having limited the scope of antitrust policy to realization of economic efficiency, Bork justifies his preoccupation with horizontal mergers in the following manner: Horizontal mergers can increase profits even if they fail to increase productive efficiency. Vertical and conglomerate mergers, however, only increase profits if they increase productive efficiency. Such mergers might injure competing sellers, but they do not endanger Pareto optimality. They should not, therefore, be prohibited by law.

Bork employs this sequence of assertions to assail the argument of Comanor (1967) that vertical mergers can cause barriers to new competition.[12] Consider again the bilateral monopoly in which a single miller sells flour to a single baker of doughnuts. As long as the two monopolists transact at arm's length, potential competitors might reasonably contemplate entry into either line of business alone. In so doing, they could achieve a position devoid of disadvantage vis-à-vis their incumbent rival. If, however, the miller merges with the baker, potential competitors must integrate themselves or run the risk associated with being forced to buy from or sell to a rival. Since the capital requirements of integration exceed those of entering a single business, the incumbent's behavior (according to Comanor) might douse the enthusiasm of poten-

[12] Interestingly, even the 1984 merger guidelines side in principle with Comanor.

tial entrants for playing the incumbent's game.

Not so, says Bork. As some potential competitors enter milling, others might enter baking, obviating the need for an unintegrated entrant to deal with the integrated incumbent (p. 322). In the absence of scope economies, the unintegrated newcomers will suffer no disadvantage vis-à-vis their integrated predecessor. Moreover, bankers would be delighted to finance companies entering profitable lines of business. "It is hard to follow the assertion that there is a particularly high degree of uncertainty when an industry is 'occupied by vertically integrated firms enjoying the fruits of their fewness.' It is precisely the presence of those fruits that makes entry attractive and less uncertain" (p. 323).

Bork also deploys his logic to criticize an argument he attributes to Areeda regarding the impact of vertical integration on the pace of innovation. Areeda had observed that an upstream monopolist might be induced to integrate forward in order to retard innovation at the downstream stage. Bork rejects the claim in these terms: "the loss of innovativeness is as much a cost to the vertically integrating monopolist as it is to society. Any ingot monopolist selling to competitive fabricators will want his customers to be as vigorous, imaginative, and active as possible, because their success will enable him to sell them more ingot at a monopoly price. . . . If he thinks the benefits outweigh the costs, there is no reason for antitrust to second-guess him" (pp. 242–43).

In Robert Bork's world, then, output restriction is the sole reason for proscribing mergers, and output restriction can be expected from only a few horizontal mergers. Most mergers are prompted by the desire to realize economies of scale or scope. Such economies appear on social as well as private ledgers of gain. No wonder Borkland rarely spawns mergers in need of policy treatment.

The Adequacy of Bork's Logic

Bork's prescriptions for antitrust policy depend critically on his conceptions of social welfare and market power. Unfortunately, he shrivels the concepts of equity and market power; and he oversimplifies certain theorems of welfare economics to the point of inaccuracy.

Social Welfare

The meaning of equity. Bork divides social welfare into matters of equity and matters of efficiency. Equating equity with the distribution of income, and observing that all economic activity redistributes income, he asserts that any "choice between two groups of consumers . . . should be made by the legislature rather than by the judiciary" (p. 111).

Even if we accept Bork's view that maldistribution of income should be treated by policies other than antitrust, we can disagree with his decision to focus antitrust exclusively on efficiency. To define equity solely in terms of income is to define the concept naively narrowly. Equity also embraces the concept of procedural fairness, in political as well as in economic life, and judicial activity has been inspired far more and far longer by fairness than it has by efficiency.

Fairness is adjudicated most easily and most appropriately when social consensus has been achieved as to what is fair. Whatever the consensus on the fairness ranking of various distributions of income, there may be substantial consensus on such elements of political equity as "one man, one vote" or "equal protection of the laws." To the extent that market power affects the distribution of political influence as well as the distribution of income, antitrust authorities might properly be instructed to attack market power even if society cannot agree that the monopolist's income is unjust.

The standard argument supporting linkages between political and economic power is that contained in the logic of collective action (Olson 1965). Due to the free-rider problem, benefits accruing to the many tend to be represented less effectively than are benefits flowing to the few. Hence concentrated industries tend to secure government's sweetest favors. Bork is aware of the argument, at least in Areeda's version, yet he discusses it as if he did not understand it (p. 240).

The meaning of allocative efficiency. Bork equates allocative efficiency with maximization of output in partial-equilibrium settings. He does so when he asserts that antitrust policy should aim at preventing output restriction. Bork recognizes that in a world of second-best, restrictions of output at the industry level may be socially efficient (p. 113). What he does not appear to recognize is that even a first-best world may sport monopolists who overproduce certain commodities (Adams and Yellen 1976). The oracle of allocative efficiency does not instruct us to tolerate any monopolist who appears to abhor output restriction in a specific situation.

The likelihood of productive inefficiency. In focusing on output restriction, Bork implicitly reveals his belief (widely shared) that no profit-maximizing firm, not even a monopolist, will employ inefficient methods of production. Once again, Bork relies too readily on intermediate levels of economic theory. Profit maximization does not guarantee productive efficiency in environments displaying market power. Williamson (1986) and Salop and Scheffman (1983) describe persuasively how established firms might deliberately pad their costs so as to raise the costs of rivals even further. Let me adduce two further examples, both involving merger, and both involving technological change.

The first is the example attributed by Bork to Areeda and mentioned

above. In it, an upstream monopolist integrates forward to prevent technological change downstream. As we saw, Bork asserts that technological change downstream will be desired as much by an upstream monopolist as by society itself. Suppression of technological change cannot, therefore, be the motive for forward vertical integration.

This argument depends on spinach-strong assumptions. In particular, it assumes that the innovation alters demand for the monopolist's (upstream) product in such a manner that expansion of output downstream augments demand upstream. If this condition fails to obtain, the monopolist may gain from forward integration. After integrating, his choice between burial and adoption of the innovation depends on a host of factors, including the likelihood that other sellers downstream can free-ride on the new technology once it is introduced.

The second example involves backward integration to retard innovation. Consider a monopolist of long-distance telephone service between two points. Current states of technology and demand render the monopoly natural in the sense that marginal cost is falling in the region of market demand. Producers of telephone equipment, however, are experimenting with new systems of transmission. One of these not only reduces unit cost at each rate of operation but also shrinks minimum efficient scale. Given market demand, the new technology would permit several companies to provide service without sacrifice of productive efficiency. As a result, natural barriers to entry would evaporate and suppliers of telephone services would earn competitive rates of return. If acquisition of upstream tinkerers retards or prevents the innovation, the downstream monopolist may gain even though society loses.[13]

This example can be interpreted as a form of rent-seeking activity. Such activity is undertaken quite frequently—so frequently that even Judge Posner acknowledges its importance.[14] The pursuit of economic rent can break the one-to-one correspondence between productive efficiency and profit maximization. And yet Bork refuses to admit the policy consequences of the phenomenon (pp. 112–13).

Distributive efficiency. Distributive inefficiency occurs when existing output can be reassigned among consumers so as to enhance the utilities of some without detracting from the utilities of others. As long as each unit of a given product is offered for sale at the same price, or as long as each consumer is charged no less than his reservation price for each unit

[13] If natural monopolists are regulated, the argument continues to hold in principle unless regulators prevent realization of any monopoly profit.

[14] According to Posner (1976, p. 11), traditional analysis of monopoly "ignored the fact that an opportunity to obtain a lucrative transfer payment in the form of monopoly profits will attract real resources into efforts by sellers to monopolize, and by consumers to prevent being charged monopoly prices. The costs of the resources so used are costs of monopoly just as much as the costs resulting from the substitution of products that cost society more to produce than the monopolized product."

he contemplates buying, distributive efficiency is assured. Where natural or institutional conditions permit firms with market power to discriminate, but only imperfectly, distributive inefficiency is likely to occur. Given the prevalence of imperfect price discrimination, Bork should treat it explicitly. Since imperfect discrimination restricts output in his sense, I presume that Bork would attack mergers that increase its virulence.

Market Power

The Clayton Act prohibits mergers that might lessen competition substantially or tend to create a monopoly. Neither preservation of small business nor promotion of economic efficiency is mentioned explicitly in the statute. A sound approach to merger policy should begin with a sophisticated understanding of competition and monopoly.

All profit-maximizing enterprises aspire to monopoly. Few, however, succeed unilaterally in removing the elasticity from their demand curves. Most must hope simply to share a dominant position; and collective monopolists must cooperate, implicitly or explicitly, to reap their profits.

In most market environments, however, firms also experience incentives to defect from cooperative behavior. The tension between incentives to cooperate and incentives to defect on agreements creates uncertainty about market outcomes. Believing that market environments determine the relative strengths of the two incentives, and hence the probabilities associated with various forms of behavior, students of industrial organization devote much of their attention to identifying environmental traits that are conducive to competition.

Many believers in the behavioral impact of environment agree with Bork that markets can be analyzed independently when hunting for predictors of cooperative behavior. Seller concentration, product differentiation, the market share associated with operation at minimum efficient scale, and the ratio of fixed to variable cost in the short run are considered the most important determinants of actual and potential competition, and each of these elements of market structure appears suitable for examination without reference to conditions in other markets.

I do not wish to assail the importance of accepted predictors of market performance. Countless studies have verified their importance. On both theoretical and empirical grounds, however, I do wish to question the contention that the likelihood of cooperation or entry in specific markets fails to depend on the integration patterns of those who inhabit them.

Consider first the issue of cooperation.[15] Suppose that each of several competitors in a given market must choose between the monopoly price and another price halfway between monopoly and competition. If each believes that the rest will match (instantaneously) its price, then all will choose the monopoly price—effecting thereby the cooperative outcome. But how does the firm acquire expectations regarding the behavior of rival sellers? How does it establish its conjectural variations in price or output? Experience within the market surely counts. If the seller meets its rivals in other markets, however—especially in markets of similar structure and technology—then experience in those other markets also matters. Just as there might be technological economies of scope, so there might be informational economies of scope which give rival oligopolists a better understanding of what to expect from each other.

Information is not the only advantage of parallel integration. Parallel oligoply may permit rivals to economize on damage deposits against defection, to identify more cheaply those who do defect, to punish defectors at more favorable ratios of enforcer benefit to enforcer cost, and to avoid side payments detectable by antitrust authorities.[16]

Patterns of integration also affect the correspondence between entry and competition. The typical entrant in oligopolistic markets is already engaged in other lines of business. If established sellers in its new market happen also to operate in its other markets, the entrant might be cooperating already with its new rivals. Such cooperation might facilitate further cooperation in the new market. In a world of parallel integration, entry does not always vitalize competition appreciably.

Parallel integration is just one of many reasons to believe that horizontal dominance does not by itself determine power levels. For our purposes, however, it suffices to make the point that antitrust authorities should not believe that economic theory justifies benign neglect of all but horizontal mergers.

The real problem with Bork's conception of economic theory is his failure to appreciate the grounding of strong propositions in strong assumptions. Many of his "economic" assertions are true under certain circumstances. Most, however, are false in a wide range of plausible situations. It is intellectually inappropriate, therefore, to employ such sweeping language as "Basic analysis shows that there is no threat to competition in any conglomerate merger," (p. 246) or, "Antitrust's concern with vertical mergers is mistaken. Vertical mergers are means of creating efficiency, not of injuring competition. There is a faint theoreti-

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[15] For a fuller account of the theories presented here, see Adams (1974).

[16] In addition to Adams (1974), see Krattenmaker and Salop (1986) and Bernheim and Whinston (1987).

cal case, hardly worth mentioning, that vertical mergers can be used by very large firms for purposes of predation under exceptional circumstances, but it is highly doubtful that that narrow possibility has any application to reality" (p. 226). Bork's unwillingness to refrain from such rhetoric makes it difficult to reject the hypothesis that his views are rooted more in ideology than in social science. The criticism he pins on others—that one logical demonstration reveals nothing about the workings of the world—applies to him in spades.[17]

Empirical Evidence Bearing on the Bork Approach

Bork apparently believes that antitrust policy can be formulated on the basis of logic alone, for he offers no empirical support for his views. One should not infer, however, from his taste for the a priori that such evidence fails to exist. In this section, I shall report briefly the results of some studies that impugn the adequacy of Bork's framework.

Horizontal Mergers

Bork does not attempt to justify his threshold standard for horizontal mergers with empirical evidence on the relationship between market share and market power. And yet, such evidence does exist.

Several early studies suggested that, across manufacturing industries, market share of leading sellers does correlate positively with long-run profitability—even at market shares below the threshold adopted by Bork for government intervention.[18] Unfortunately, profitability has been interpreted by some as a reward to productive efficiency, rather than as a sign of market power; so the policy implications of these studies appeared ambiguous.

More recent evidence from the airline industry suggests that profitability rises with market share even after costs are controlled. As in the early studies, the effect of market share appears well before the threshold picked arbitrarily by Bork. This evidence merits description in some detail.

Airline service between two given cities might appear to exemplify a contestable market. If existing providers of service attempt to raise prices above cost, other established airlines—not to speak of brand-new

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[17] "We have built up an extraordinarily severe law on the basis of speculation alone, and demonstrably empty speculation at that" (Bork 1978, p. 234).

[18] "PIMS data studies reveal that increasing sample businesses' market share from 10 to 50 percent led on average to a doubling of ROI—from 16 to 32 percent" (Scherer 1980). The PIMS data set was utilized in a series of studies undertaken at the Harvard Business School. ROI denotes return on investment.

carriers—can enter the market with ease (Bailey, Graham, and Kaplan 1985). Even at the four airports where regulatory constraints on landings and takeoffs are binding, individual authorizations (slots) can be purchased for surprisingly small sums—$500,000 to $750,000, according to Borenstein (1987a, p. 16). As a result, even high levels of concentration might be expected to result in competitive behavior and performance. Bork's retinue might be hard-pressed to brand any horizontal merger between airlines as anticompetitive; they would certainly not leap to curb mergers resulting in market shares below Bork's trigger level.

Borenstein (1987a) estimated the determinants of revenue per passenger mile on actual trips undertaken in the United States during the fourth quarter of 1985. His explanatory variables include elements of cost (distance associated with each ticket coupon used en route, volume of traffic handled by the carrier at each airport en route); elements of market power (market share of the carrier at the initial and ultimate airports, concentration in a few rival airlines of traffic not handled by the carrier at those two locations, existence of regulatory constraints on landings and takeoffs at the two locations), and a few other variables (for example, the ratio of actual to non-stop distance between origin and destination). These factors explain 70 percent of the variance among trips in revenue per mile.

Flight-specific costs do affect revenue per mile: the longer the flight, the lower the revenue per mile. Similarly, airport-specific costs of a carrier also affect revenue per mile: the greater the carrier's traffic at stops en route, the lower the revenue per mile.

Market Share (Percent)	Fare Premium (Percent)
10 to 20	9.5
20 to 30	17.6
30 to 40	34.8
40 to 50	27.8
50 to 60	46.9
60 to 70	44.3
70+	44.9

For example, raising market share from less than 10 percent to between 30 percent and 40 percent, other things equal, would, on average, raise revenue per mile by 35 percent. Beyond market shares of 50 percent to 60 percent, revenue per mile no longer rises with the proportion of traffic controlled by the carrier. By that point, however, revenue per mile is more than 40 percent above what it would have been (other things equal) at market shares under 10 percent. In other words, the marginal impact of market share on market power is greatest in the range of

market share that fails, according to Bork, to warrant control of mergers.

Market share is not the only determinant of market power revealed in Borenstein's study. Other things equal, including market share, revenue per mile is significantly greater when the origin or destination is a slot-constrained airport. Moreover, residual seller concentration—concentration of that part of the market not handled by the carrier—impinges positively on the carrier's revenue per mile. The sign of this coefficient is consistent with the existence of cooperation among rival carriers.[19]

Borenstein's results indicate that barriers to new competition in route-specific markets are substantially greater than believers in the contestability of markets might predict.[20] Frequent flyer programs, coupled with the mechanics of computer-based reservation systems controlled by leading carriers, reduce cross-price elasticities of demand between carriers. Passengers tending to fly to or from a small set of locations will find it both convenient and (for business travel, at least) advantageous to fly primarily with the leading airlines serving those locations. Under these circumstances, marginal entry may not be profitable. Unless a new provider of service is willing to establish a density of flights comparable to those of significant incumbents, it is unlikely to match their profits; and yet most airports handle insufficient traffic to serve as hubs for multiple airlines.

The importance of radical (as opposed to marginal) entry also explains the low price charged for the right to land at a slot-constrained airport. A major attraction of serving a slot-controlled airport is the desire to exercise market power. But market power requires nontrivial market share—market share in excess of that associated with a single slot. To acquire market share sufficient to achieve some modicum of power requires multiple slots, and the price per slot certainly rises with the number of slots demanded.

Notice the analogy to a standard observation in the takeover literature. Those who acquire quoted companies tend to pay substantial premia over current market prices. They do so because they wish to acquire more than rights to receive dividends and capital gains: their aim is to control the target company, and control implies ownership of a substantial fraction of the target's stock.

The conclusion to be drawn from work of Borenstein and others is that horizontal mergers injure competition even when combined market

[19] It is also consistent with the view, endorsed by Bork, that giants do not trample upon pygmies. The position of the giant is most advantageous when the giant faces a cloud of atomistic competitors. Power exercised against the interest of the fringe would imply a negative sign on the coefficient associated with residual concentration.

[20] Other studies confirm the relationship between seller concentration at the airport level and fares. See Kaplan (1986, p. 64); see also the studies of Morrison and Winston (1986 and 1987).

share falls well below the Bork threshold and even when casual observation suggests barriers to entry are low. Discounts to frequent flyers and preferential positioning in computer-based reservation systems are the kinds of practices that led Chief Justice Warren to endorse (in *Brown Shoe*) the congressional view that "a merger has to be functionally viewed, in the context of its particular industry."[21]

Non-Horizontal Mergers

Empirical evidence also supports the proposition that intermarket relationships affect the state of competition. Heggestad and Rhoades (1978) examined instability between 1966 and 1972 in the market shares of the three leading commercial banks in each of 187 Standard Metropolitan Statistical Areas. Arguing that instability of share is directly related to the degree of rivalry, and hence to the vitality of competition, they hypothesized that such instability should correlate negatively with seller concentration (three-bank level), positively with growth of deposits in the market (1966–72), negatively with such institutional constraints on competition as regulation of branching, and—if parallel integration affects the degree of cooperation—negatively with the number of times leading sellers in the market (the top five) meet each other elsewhere in the state. Heggestad and Rhoades test several versions of the multimarket contact variable, ranging from inclusion of all contacts to inclusion only of contacts in (a) large markets or (b) markets where the two firms collectively exhibit a large market share in relation to leading sellers. They also distinguish situations where high counts of interaction occur because a few firms meet each other in many places from situations where high counts occur because many firms meet each other in a few places. All explanatory variables display the predicted sign. In every version, the multimarket contact variable differs negatively from 0 at the .10 level of statistical significance.[22]

The findings of Heggestad and Rhoades are consistent with those in other studies of parallel integration in banking (Solomon 1970; Rhoades and Heggestad 1985). They are also consistent with evidence based on a

[21] 370 U.S. 294, at 321–322.

[22] When multimarket contact is measured only in markets where the two sellers enjoy a combined market share of at least one-third the market share of the three largest sellers, and where it weights multiple contacts among a few firms especially heavily, the coefficient differs negatively from 0 at the .05 level of statistical significance.

[23] Feinberg (1985, p. 225) concludes: "At the company level the evidence supports the theory, showing sales-at-risk, a measure of the importance of multimarket contacts, to increase price-cost margins in the moderate range of concentration where collusion is feasible but difficult to achieve without mutual forbearance. The industry-level results are weaker, casting some doubt on the hypothesis." Similarly, Scott (1982, p. 375) observes: "The results imply that multimarket contact does have an impact on performance . . . conditional on high concentration, it is associated with higher profits . . ."

full spectrum of manufacturing industries.[23] The market-power consequences of multimarket contact might even explain the finding that integration tends to be most profitable when a firm extends its product line into areas relatively close to home (Rhoades 1973 and 1974): the farther afield the new activity, the less likely is further contact with established rivals.[24] Although multimarket contact deserves a good deal more empirical study, we may conclude provisionally that parallel integration might well enhance market power. Mergers that fail to influence the degree of horizontal dominance can nevertheless impair competition.

Apart from reminding antitrust authorities that merger policy should not ignore vertical and conglomerate mergers, the conception of market power advanced here has certain practical virtues. In the Bork approach, a merger must be horizontal or it cannot harm competition.[25] If it can be shown that the merging firms operate in different markets, and that plenty of potential competitors exist, the merger will almost assuredly pass scrutiny. On the other hand, if the merger involves two competitors, and their market shares are significant, the merger may well be challenged. As a result, lawyers are encouraged to devote all their efforts to defining relevant markets in advantageous manners—opponents of the merger seeking either narrow definitions to show large market shares or broad definitions to show similarities of product. Once it is recognized that mergers with horizontal effects are not the only ones that might jeopardize competition, greater attention can be devoted to improving our understanding of how any type of merger might be anticompetitive. Economists and lawyers alike will be liberated to search without blinders for the specific traits of market and company structure associated with the exercise of market power.

Unintentionally, the approach to market power adopted here provides Justice Black with a logically coherent justification for his predisposition to favor small business. Black emphasized the single-store characteristic of small groceries. But firms with single shops are firms that have not integrated into several grocery markets. They cannot have engaged in parallel integration with rival stores. Their scope for cooperation may be small in comparison with that available to firms with identical market shares but different propensities to intersect in a plethora of geographically distinct markets.

At the same time, the doctrine of parallel integration would provide followers of Bork with a compelling justification for allowing Von's to acquire Shopping Bag. Neither chain operated in multiple retail markets

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[24] As Ravenscraft (1987) observes, this finding can also be explained by economies of scope.

[25] In both the 1982 and the 1984 merger guidelines, competitive injury is discussed under two headings: horizontal mergers, and horizontal effects of non-horizontal mergers.

(unless one considers Los Angeles itself to comprise multiple markets). Even combined, the two confined their activities to a single metropolitan area. Thus, even if parallel integration merits government intervention, the concept should be applied to a Safeway, a Krogers, or an A&P.

Parallel integration applies as much to banking as to food retailing. It might have provided a strong argument for prohibiting Seattle's National Bank of Commerce from acquiring the Washington Trust Bank of Spokane, as described in *Marine Bancorporation*.[26] Ironically, however, Black's eagerness to defend small business on weak terrain prevented such an experiment.

An Agenda for Students of Merger Policy

During the next decade, the distribution of mergers by type and by industry is likely to change appreciably. As a result, antitrust authorities will be obliged to ponder the competitive effects of mergers in relatively unfamiliar situations. It is important to anticipate some of the issues that will arise.

(1) Joint ventures. We are likely to witness the proliferation of partial mergers—joint ventures created for nominally limited purposes.[27] NUMMI, the offspring of General Motors and Toyota, exemplifies the joint venture engaged in production. Especially challenging, however, will be the treatment of joint ventures engaged in inventive activities (Grossman and Shapiro 1986). The antitrust laws have already been relaxed legislatively on behalf of cooperative research.[28]

(2) Crisis mergers. Just as *Appalachian Coals*[29] once justified the formation of crisis cartels—cartels born amidst severe macroeconomic contraction—so there will be calls to permit horizontal merger of companies not yet threatened with bankruptcy but faced nonetheless with the collective necessity of major structural adjustment. The steel industry is a likely case in point.[30]

(3) Mergers in deregulated industries. Antitrust law tends to impinge lightly on regulated industries. Even so, regulated industries tend not to experience heavy doses of merger. Upon deregulation, however,

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[26] 418 U.S. 602 (1974).

[27] Since 1918, export cartels enjoy statutory exemption from antitrust prosecution under the Webb-Pomerene Act. Although few in number, such associations tend to link producers inhabiting concentrated industries.

[28] National Cooperative Research Act of 1984, PL 98-462.

[29] 288 U.S. 344 (1933).

[30] In 1968, Wheeling (#10) merged with Pittsburgh (#16). In 1971, Jones & Laughlin (#7) merged with Youngstown (#8). In 1983, LTV added Republic to a steel portfolio which already included Jones & Laughlin/Youngstown. Meanwhile, however, U.S. Steel was prevented from acquiring National Steel.

merger activity can escalate sharply.[31] "Thus, deregulation has the potential to be a major determinant of the current merger wave" (Ravenscraft 1987).

Given the flux in economic circumstance, even restoration of the status quo ante in merger policy would not suffice to guarantee high-quality competition. Future merger policy will of course require refinement of our theories of market power; and, in response to demand, theoretical papers will sprout. In all probability, however, these will establish that mergers of a given type are likely to increase social surplus in some circumstances but reduce it in others. The most important step, therefore, in our preparation for the future is to abandon the ideological approach to antitrust, exemplified by Robert Bork, and to recognize the importance of seeking empirical evidence on the sources and uses of market power. Given the height of the present merger wave, this search must not be delayed.

The papers presented at this conference certainly help us to appreciate the limitations of a priori speculation. Richard Caves provides us with strong evidence that ex ante valuations of company stock predict poorly the efficiency gains associated with mergers. His evidence supports the position that mergers that injure competition may be proscribed without undue fear—as expressed in the current merger guidelines—that productive efficiency will be jeopardized.

Caves also points out that the empirical foundations of merger policy may be fashioned from foreign as well as domestic materials. In fact, international evidence has two major virtues in the present context.

First, the rich countries have adopted a continuum of approaches to merger: Some have renounced all (antitrust) regulation; others have chosen modest levels of intervention; only a few are said to bridle mergers sharply.[32] Consider, for example, last year's treatment of mergers in Europe:[33]

- France: No mergers were prohibited under national antitrust rules.

[31] Mergers contemplated and consummated in the airline industry are reported in Levine (1987) and Borenstein (1987b). More generally: "All of these [deregulated] industries—banking, broadcasting, communications, transportation, and oil and gas—have experienced a substantial amount of merger activity in the 1980s. According to W.T. Grimm's figures, these five industries accounted for 37 percent of all merger activity by value of assets and 22 percent of the number of mergers, between 1981 and 1986" (Ravenscraft 1987).

[32] For France, see Act No. 77-806 of July 19, 1977, title II; for Germany, see the Act against Restraints of Competition of 27 July 1957, section 24, as amended in 1973; for Japan, see the Act Concerning Prohibition of Private Monopoly and Maintenance of Fair Trade (Act No. 54 of April 14, 1947), Chapter IV, section 10; for the United Kingdom, see, Fair Trading Act 1973, part V. All appear in English translation in Organization for Economic Cooperation and Development (1981).

[33] The following evidence is taken from EC Commission (1987).

[34] The case involved acquisition of one German producer of industrial gases (Agefko Kohlensaueare Industrie) by another (Linde). The cartel office subsequently allowed L'Air Liquide, a major French producer of gases, to acquire Agefko. Claiming inadequacy of German statute, the cartel office reluctantly approved the acquisition of AEG by Daimler Benz.

- Italy: No mergers were prohibited under national antitrust rules.
- Germany: The Federal Cartel Office prohibited one merger;[34] 11 were abandoned voluntarily after intervention by that agency.
- United Kingdom: The Director-General of Fair Trading advised the Secretary of State on 293 mergers; the Secretary of State referred 13 mergers to the Monopolies and Mergers Commission (six of these were then abandoned voluntarily); and the Monopolies and Mergers Commission issued six reports, two of which concluded that the merger being considered would operate against the public interest.[35]
- European Communities: The EC Commission continued its 13-year-old effort to gain approval by the Council of its draft regulation on merger control. Currently, mergers covered by the Treaty of Rome can be prohibited only if they reinforce (as opposed to create) a dominant position.[36] Even this limited weapon has been used sparingly:[37] Between June 1985 and May 1986, the 1,000 largest companies in the European Communities engaged in 296 mergers and an additional 163 acquisitions of minority holdings. None in either category was challenged on antitrust grounds.

Coupled with North American and Japanese evidence, the European record should help us to unlock the impact of antitrust policy on the frequency of merger and the structure of relevant markets.

The second virtue of international evidence on merger policy stems from the fact that each merger issue of the future—joint ventures in production and research, mergers to combat structural imbalance, and the relationship between mergers and regulation—has been or is being debated vigorously abroad.[38]

Joint ventures of various forms have been scrutinized frequently under the antitrust laws of the European Communities. A good example, in light of current interest in cooperative R&D, is the Henkel/Colgate case.[39] These two large manufacturers of personal and home care products decided to create a joint venture to explore new technologies relevant to household detergents. The agreement left each party free to employ the joint venture's discoveries in any way it pleased and to engage in R&D on its own. Within the European Economic Community

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[35] One involved the acquisition of Mitel by British Telecom (Cmnd 9715, January 1986). The other involved merger of General Electric Co. (GEC) and Plessey (Cmnd 9897, August 1986).

[36] Europemballage Corporation and Continental Can Company Inc. v. EC Commission, [1973] CMLR 199.

[37] So sparingly, in fact, that a recent British effort to enjoin a prospective merger (Argyll Group plc & Others v. Distillers Company plc) on the grounds that it contravened Article 86 EEC "was refused on grounds of uncertainty and convenience." (EC Commission 1987, point 200).

[38] Another relevant issue—the importance of foreign competition when defining market boundaries—has been considered routinely in antitrust proceedings abroad.

[39] Re Henkel-Colgate, December 23, 1971, JO 1972 L14/14.

as a whole, the two accounted for 37 percent of detergent sales. In particular countries of the community, one or the other accounted for more than 50 percent of such sales. Together with Unilever and Procter & Gamble, the two accounted for a large majority of European sales of most products in their lines.

The EC Commission allowed the venture to stand, even though it restricted competition. The Commission justified its decision by arguing that the joint venture promoted technical progress, allowed consumers to share in the benefits, restrained competition no more than necessary, and restrained competition insubstantially.

Subsequent to Henkel/Colgate, the Commission has introduced a block exemption for agreements relating to R&D, whereby cooperative inventive activity enjoys automatic exemption from EC antitrust law as long as it meets certain criteria.[40] Ventures that fail to qualify for block exemption remain eligible for individual exemption. Early indications suggest that the block exemption will be accorded sparingly.[41]

Crisis mergers have also been scrutinized by the Commission,[42] especially the steel mergers covered by Article 66 of the Treaty of Paris.[43] Such mergers have occurred frequently; they often include producers accounting for major fractions of national output.[44] To my knowledge, no steel merger has been blocked by the Court of Justice. The European strategy of managed merger and contraction of the steel industry (the Davignon Plan) has in fact been accompanied by reductions of capacity,[45] but the causal relationship between policy and structural change remains untested.

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[40] Regulation (EEC) No 418/85 of December 19, 1984 (OJ L 53, 22.2.1985), which took effect in March 1985.

[41] See, for example, the treatment of an agreement between BP International Ltd and MW Kellogg Company, decision of December 2, 1985 (OJ L 369, 31.12.1985).

[42] The Commission has also investigated swapping of lines of business between firms. See its decision of 4 December 1986 (OJ L 5, 7.1.1987) in the matter of ENI/Montedison.

[43] The EC Commission enjoys explicit authority to regulate mergers in industries covered by the European Coal and Steel Community; the Treaty of Rome, instituting the European Economic Community, does not identify merger as an antitrust offense. In *Continental Can*, however, the Court of Justice of the EC held that mergers can be considered abuses of dominant position and hence illegal under article 86 of the Treaty of Rome. Since 1973, the Commission has been seeking approval by the Council of explicit merger rules (EC Commission 1986, p. 47).

[44] During 1985, for example, the Commission approved 7 of 7 mergers covered by the rules of the ECSC (EC Commission 1986, pp. 86–89).

[45] See, for example, EC Commission 1986, p. 152, table 5.

Finally, for the past several years, the EC Commission has devoted considerable attention to the state of competition in air transport.[46] Until now, the Commission's efforts have aimed at relaxation of national controls on the freedom of carriers to price as they please.[47] Given the trend toward privatization of national carriers and development of joint operating agreements, however, the Commission may be called upon shortly to evaluate mergers in this industry. At the national level, British antitrust authorities have just decided to allow the recently privatized British Airways to acquire British Caledonian Airways, even though British Airways already accounts for 83 percent of Britain's "international scheduled aviation market" and absorption of British Caledonian would boost that figure to 95 percent.[48]

Foreign evidence must be interpreted with care. Mergers that fail to injure competition in foreign settings may injure competition here, and vice versa. Nevertheless, it is myopic to ignore the experience of other rich market economies. Many (but by no means all) features of European legislation, regulation, and interpretation reflect apparent adherence to maxims encouraging relaxation of merger control. As a result, the impact on competition of policies proposed for the United States can be evaluated empirically. Far be it for me to draw conclusions from research not yet performed, but I suspect that foreign evidence would confirm the importance of shedding our current tolerance of anticompetitive mergers.

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[46] See EC Commission, Civil Aviation Memorandum No. 2, March 15, 1984 (OJ C 182, 9.7.1984).

[47] In many EC countries, airline fares must be approved governmentally before they can be implemented. On international routes, served typically by at least one carrier from each country, "competing" airlines tend to set prices cooperatively before submitting their requests to relevant national authorities. Some such authorities encourage—others go so far as to require—the cooperation. On July 18, 1986, the EC Commission attacked this method of pricing as a violation of the Rome treaty. The EC Court of Justice then held (Ministere Public v. Asjes and Others, OJ C 131, 25.9.1986 ["Nouvelles Frontieres"]) that the treaty's rules of competition do apply to transport, but that enforcement would remain with national governments until the council signed the necessary enabling rules. Although obliged in principle to abide by the pro-competition philosophy of the treaty, and although subject to investigation by the EC Commission, national governments remain free in practice to maintain existing modes of cooperation.

[48] *The Economist*, July 25, 1987, p. 15, and November 14, 1987, pp. 64-65. British Airways must surrender its licenses to serve certain routes (although it may apply for them anew) and it must surrender takeoff and landing slots at Gatwick airport, "many of which it might well have given up anyway." *The Economist*, November 14, 1987, p. 64.

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Discussion

*Robert W. Crandall**

Jim Adams's paper appears to be a revival of the populist antipathy towards combinations among large firms. Adams asks us to reconsider merger policy because these large firms *might* acquire greater political power, *might* affect the distribution of income, and *might* distort resource allocation through mergers and takeovers.

There is very little reference in the paper to the vast body of industrial organization research that helped to reverse the 1960s (and later) tide of increasing legal attacks on mergers of all sizes and descriptions. Nor does Adams provide any new body of research that shows these earlier studies to be flawed. Indeed, the paper even overlooks some recent research that could be mustered in support of Adams's abhorrence of mergers.

The Requisites for a Revival of Antimerger Policy

If I were launching an attack on the recent permissive trend towards mergers by antitrust authorities in both Democratic and Republican administrations, I would need at least the following ammunition to throw at the enemy:

(1) Evidence that there has been an increase in either market concentration, aggregate concentration, or parallel integration in the U.S. economy.

(2) Evidence that mergers have contributed to this increase in concentration.

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(3) Evidence that the increase in concentration is likely to result in a decrease in economic welfare.

(4) A pragmatic rule that would allow antitrust authorities to intervene to stop socially undesirable mergers while allowing useful consolidations, takeovers, and acquisitions to be consummated.

Without a doubt, this is a large order, but I do not think that Adams has even begun to supply the needed firepower for a revival of the populist antipathy towards mergers. In my view, the "new learning" in industrial organization escapes from his assault relatively unscathed. Let me elaborate by examining each of the above requisites.

Changes in Concentration

Nowhere in Adams's paper is there reference to a dangerous increase in or even a dangerous level of market concentration, parallel integration, or aggregate concentration. Certainly, part of the populist fuel for antimerger policy in the 1960s was a belief that Exxon, General Electric, IBM, and General Motors would some day control the world. Aggregate concentration in manufacturing (however relevant or irrelevant such a concept may be) was rising dramatically from 1947 through 1966. The largest 50 firms accounted for 17 percent of manufacturing value added in 1947. By 1966, the largest 50 firms (a somewhat different group) controlled 25 percent of value added. The share of the largest 200 manufacturing firms rose from 30 percent to 42 percent in the same period.

During the 1950s and the 1960s, average concentration within individual manufacturing industries was also rising, but at a glacial pace. Nevertheless, readers of Servan-Schreiber or Galbraith might have been excused if they held to a belief that large industrial giants were increasing their dominance of most of the world's important markets.

Obviously, the world has changed. Aggregate concentration in U.S. manufacturing in the 1980s is almost exactly where it was in 1966. In services such as banking, U.S. firms have sagged badly relative to the rest of the world. Whatever the current average level of market concentration in U.S. manufacturing, it means very little unless assessed in the context of global competition. Americans are not now worried about the market dominance of leading firms in U.S. manufacturing—they are worried that these wimpy giants cannot compete with Korean, Japanese, German, or Taiwanese firms.

Adams provides us with no new data for the intellectual heirs of Servan-Schreiber to gnaw upon. There is nothing in this paper to suggest that concentration is rising—that market dominance is increasing in U.S. industries. There is nothing to suggest that multinational, con-

glomerate firms are acquiring greater economic, social, or political power. Why then should we be concerned about mergers?

The Effects of Mergers on Concentration

Mergers might increase market concentration or aggregate concentration, and they may lead to greater parallel integration. But is there any evidence of these effects from the recent merger waves? Note that the merger boom of the 1960s does not seem to have led to major increases in concentration in the U.S. economy in the 1970s or 1980s. Even where mergers have reduced the number of competitors in an important industry—such as steel or automobiles—U.S. firms hardly seem poised to extract large monopoly rents, because of competition from foreign producers (unless we close the doors to imports). Nor does it appear that the current wave of large and sometimes hostile takeovers or mergers has increased concentration perceptibly.

Work by Ravenscraft and Scherer may help to explain why mergers have not had these effects upon concentration. They have found that a large share of acquisitions work out poorly for the acquiring company in the long run. Over time, a large share of these acquisitions are spun off because they perform so badly within the merged firm.

Nor have recent mergers contributed much to aggregate concentration or parallel integration. Indeed, Ivan Boesky and T. Boone Pickens are not IBM or Exxon. Nor do they appear to be seeking to increase the degree of vertical integration of their targets. If anything, they are moving in the opposite direction.

The Dangers of Concentration

Even if mergers were increasing U.S. market concentration or aggregate concentration, Adams provides us with little that is new that would cause us to fear such a trend. He only mentions in passing the "new learning" in industrial organization that provides the intellectual underpinnings of current merger policy. He offers us a rather paltry array of new studies that may be seen to be taking issue with this research. First, he cites a study by Borenstein, prepared as advocacy testimony in a merger case, to suggest that concentration affects prices. He would have done better to emphasize the work of Morrison and Winston, now only briefly referred to; they demonstrate rather persuasively (in refereed works) that airline market concentration matters. However, invoking his own admonition not to fall into careless traps about the relationship between concentration and economic welfare, Adams must

admit that, in this market, concentration may confer some improvements in general economic welfare in the form of simpler passenger scheduling and single-line continuity on trips through hubs.

As for the effects of aggregate concentration on parallel market structures, Adams may have found a chink in the armor of the "new learning." A few studies seem to show that firms with multiple-market contacts among each other may be less aggressive competitors than firms in single markets of similar concentration. I would read this literature with caution, however, especially where it pertains to regulated industries, such as banks. If enough evidence is amassed to suggest that parallel integration or conglomerate firms provide the opportunity for collusive signalling, we might want to reevaluate our policy toward vertical or conglomerate mergers. We might also want to ask why Pickens and Roger Smith are so intent in reducing vertical integration in their respective industries.

I do not find Adams's reference to some of the "new new" learning as persuasive. Inventive theorists such as Salop, Scheffman, or Stiglitz can develop interesting models that demonstrate a variety of dangers. Some show that under the appropriate assumptions, prices increase with the degree of contestability of a market. Others conclude that prices may actually be lower with greater market concentration under various assumptions. These are interesting models, but they have not been subjected to empirical testing, nor has it been suggested that they might enjoy universal relevance.

Decision Rules for Antitrust Enforcement

Even if he had shown us that concentration is increasing, that it is increasing because of mergers, and that such increases are a threat to general economic welfare, Adams has not given us a new decision rule to guide intervention. He admits that *Von's Grocery* was bad policy, but what is to replace it? Even the Herfindahl ratios in the current guidelines stand naked with little to support them. How would one write the rule for more aggressive intervention? And would the courts allow such a policy to stand?

Adams has given us little to chew upon. He may get his wish for a more activist antitrust policy in the next Administration, but it is far from clear just what form such a policy might assume or that economic welfare would be enhanced by it.

Are Hostile Takeovers Different?

*Lynn E. Browne and Eric S. Rosengren**

In recent years some of the nation's largest corporations have been the object of fierce takeover battles. The effects of these battles for corporate control reach far beyond the board room. Many stand to gain or lose depending upon the outcome. Shareholders and employees, suppliers, creditors, competitors and state and local governments all have an interest in these struggles. In addition, the success of bidders in carrying out takeovers and of companies in resisting sends signals to management of other companies about their susceptibility to a takeover. It is not surprising, then, that both takeover attempts and the tactics used to thwart them have become subjects of intense controversy. A number of states have recently enacted regulations to delay and discourage takeovers, while federal legislators are considering limitations on both takeovers and takeover defenses. This paper examines the nature of the takeover controversy and some of the arguments in favor of restricting takeovers. In particular, it considers whether acquisition attempts distinguished by the opposition of target company management require more stringent regulation than acquisitions that have target management approval.

The conclusion of the paper is that legislation restricting hostile takeovers is not warranted. Shareholders of hostile takeover targets enjoy substantial increases in the prices of their shares as a result of takeover attempts. These increases are as large as, if not larger than, the increases resulting from acquisitions that have target management's approval. Those who would restrict hostile takeovers on the grounds of protecting target company shareholders have little empirical support.

On the other hand, the view that hostile takeovers are attempts to remove entrenched, incompetent management also receives little sup-

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port. Various accounting measures indicate that targets of hostile takeovers are unremarkable firms, or in consulting jargon neither "dogs" nor "stars." Since the nature of target management failure is not obvious, the argument that hostile takeovers exert a useful discipline on managers generally is not persuasive. At the same time, the unremarkable nature of hostile takeover targets provides no basis for protecting these firms and their managements from changes in control.

The first portion of this paper briefly reviews the relationship between takeovers and other forms of acquisition. The second section summarizes the arguments for and against takeovers. The paper then addresses two issues central to this debate: first, what do takeovers mean for shareholders of the target companies and second, are targets of takeovers performing up to their potential. The final section of the paper draws conclusions.

Mergers and Takeovers

In the past 100 years there have been four major merger "booms:" the consolidations of numerous firms in the same industry into industry giants in the 1890s and early 1900s; the large combinations of electric and gas utilities, as well as other types of mergers, in the 1920s; the conglomerate mergers of the 1960s; and the current merger boom, which began in the late 1970s.[1] In all three of the earlier booms, perceived abuses resulted in legislation regulating merger and acquisition activities. Regulations at the turn of the century focused on the anticompetitive effects of mergers, with fears of monopolization leading to the Sherman Antitrust Act (1890) and later to the Clayton and Federal Trade Commission Acts (1914). The regulatory response to the mergers of the 1920s was directed to ensuring that shareholders had sufficiently accurate information to make decisions about merger and acquisition proposals as well as other corporate matters; the Securities and Exchange Act of 1934 established disclosure requirements and otherwise regulated the issuance of securities and related promotional activities. In the 1960s, concern over hostile tender offers led to the passage of the Williams Act in 1968; this Act and accompanying regulations extended disclosure requirements to cash tender offers, which had not previously been covered, and established procedural rules for such transactions. Again the justification was enabling shareholders to make more informed decisions.

The current merger boom is also generating a regulatory response.

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[1] Scherer (1980) and The W.T. Grimm & Co., *Mergerstat Review* 1986, p. 3. Grimm also identifies a merger wave in the 1940s characterized by the acquisition of many smaller companies by larger buyers.

Many states have already passed antitakeover legislation.[2] Other states, as well as federal lawmakers, are considering legislation that would make hostile takeovers more difficult. The model for many of the most recent legislative proposals is the Control Share Acquisitions Chapter of the Indiana Business Corporation Law, the legality of which was upheld by the U.S. Supreme Court in April 1987. Under the Indiana Act, the acquisition of shares in Indiana corporations above certain thresholds does not automatically include the voting rights normally associated with these shares. The transfer of voting rights must be approved by a majority of shareholders, not including the bidder or inside directors and officers of the target company. By its requirement of a shareholders' meeting, the Indiana Act stretches out the time required to consummate a tender offer and makes the outcome of a hostile offer more uncertain. The requirement of shareholder approval of voting rights does not apply if the acquisition is part of a merger agreement, in other words, if it has the support of the target's management and board of directors.

What distinguishes the current regulatory thrust is the focus on hostile takeovers. As the Indiana Act illustrates, most of the antitakeover proposals would not affect mergers or other acquisitions supported by target management. They are directed at hostile takeovers, especially tender offers opposed by target management. While the Williams Act was also prompted by hostile tender offers, its effect was to ensure that the disclosure requirements governing such transactions were comparable to those for other forms of acquisitions. In contrast, current legislation seems designed to discourage hostile tender offers by making acquisitions that are opposed by target management more difficult than those that have its approval.

What Constitutes a Hostile Takeover

Firms can be acquired by merger, purchase of assets, proxy fight, or tender offer. The method chosen depends upon such factors as the attitude of the target company's management, taxes on shareholders of both companies, the time required to complete the acquisition, and costs of the acquisition. A merger occurs when the boards of directors of both companies agree to combine. A vote of the shareholders of the target company and, sometimes, of the acquiring company is required to consummate the merger. Since shareholders generally vote with management, the outcome of the vote is usually a foregone conclusion. A purchase of assets also requires the agreement of target management and, if a major portion of the firm's assets is to be purchased, the ap-

[2] An article by Robert Lenzner in the *Boston Globe*, July 9, 1987, counted over 20 states with antitakeover legislation.

proval of target shareholders.

Most bidders seeking to acquire a company would prefer the cooperation of the incumbent management. Friendly management is more likely to disclose "skeletons" that may not appear on financial statements and to help make the change in control go smoothly. Target management may also be an important asset—one of the reasons the bidder wanted the company in the first place.

Sometimes, however, a bidder faces opposition from target management and sometimes a bidder does not place great value on target management's support. Under these circumstances the bidder may bypass target management and go directly to the shareholders with a tender offer. In a tender offer, the bidder announces his willingness to purchase shares of the target company on the open market; to induce shareholders to sell, a premium over the current market price is usually offered. Engaging in a proxy fight is also an option for a bidder facing management opposition to an acquisition proposal. However, proxy fights, which are determined by shareholder vote, are difficult to win because so many shareholders routinely vote with management. They can also be very expensive. While proxy fights were used in the 1950s, the tender offer has been the preferred mechanism for making hostile takeovers for the past 25 years.

Although tender offers are used to accomplish hostile takeovers, by no means are all tender offers hostile. Since no shareholder meeting is required, tender offers can be completed quite rapidly. Thus, if time is an important consideration, a tender offer may be an advantageous means of effecting a combination even when target management has been involved in the negotiations and supports the transaction.

While not all tender offers are hostile, not all mergers are friendly—even though mergers require a shareholder vote and shareholders commonly vote with management. The fact that a bidder has the option of resorting to a tender offer if merger discussions break down can lead target management to acquiesce to mergers that it might otherwise oppose. The point is simply that what constitutes a hostile takeover attempt is not always clear-cut. Target management may know one when it sees one, but the researcher looking at merger and acquisition statistics may have difficulty. In the following discussion, contested tender offers are taken to represent hostile takeovers. Tender offers that were not contested by target management are not considered hostile, even though they may have been unwelcome.

Hostile Takeovers in the Current Merger Boom

Contested tender offers account for a very small fraction of mergers and acquisitions and a very small fraction of the recent increase in merg-

Table 1
Merger and Acquisition Announcements, 1976–86

Year	Net Announcements	Divestitures	Privately Owned Sellers	Foreign Sellers	Publicly Traded Sellers	Tender Offers[a] Total	Tender Offers[a] Contested
1976	2,276	1,204	856	53	163	70	18
1977	2,224	1,002	971	58	193	69	10
1978	2,106	820	969	57	260	90	27
1979	2,128	752	1,049	79	248	106	26
1980	1,889	666	988	62	173	53	12
1981	2,395	830	1,330	67	168	75	28
1982	2,346	875	1,222	69	180	68	29
1983	2,533	932	1,316	95	190	37	11
1984	2,543	900	1,351	81	211	79	18
1985	3,001	1,218	1,358	89	336	84	32
1986	3,336	1,259	1,598	93	386	150	40

[a]Included in publicly traded sellers.
Source: The W.T. Grimm & Co., *Mergerstat Review 1986.*

er and acquisition activity. Table 1 compares the pattern of merger and acquisition announcements by major category over the period from 1976 to 1986. As can be seen from the table, announcements of mergers and acquisitions rose sharply from 1980, with all categories contributing to the increase. Total tender offers and contested tender offers more than doubled between 1976 and 1986, with much of the increase coming in 1986. Even so, tender offers accounted for fewer than 5 percent of total acquisition announcements in 1986 and contested tender offers just over 1 percent. Why then all the fuss?

One answer is size. Almost half of all acquisitions involve the purchase of privately owned companies. These are generally quite small, although the size is increasing. According to *Mergerstat Review,* the average purchase price in 1986 for those private companies for which such information was available—presumably the largest—was $40 million. In contrast, the average purchase price for publicly traded companies, which include targets of tender offers, was $255 million. The average purchase price for divestitures, the second largest acquisition category, was also considerably smaller than the average for publicly traded companies. The larger the company the more people—managers, employees, investors, suppliers—who might be affected by a change in ownership and the greater the attention the acquisition will receive in the press.

Not only are publicly traded companies larger than other acquisitions, but also the targets of tender offers are larger than other publicly traded targets. Table 2 shows the average market value in 1983 and 1984

Table 2
Average Market Value in 1983 and 1984 of Companies Trading on the Major Exchanges That Were Targets of Takeover Attempts in 1985

Nature of Attempt	Number of Target Companies[a]	Average Market Value (Millions of Dollars) 1984	1983
All Attempts	133	692.4 (111)[b]	578.2 (129)[b]
Tender Offers	49	1532.2 (39)	1139.5 (48)
Uncontested	29	1072.4 (20)	834.0 (29)
Contested	20	2016.2 (19)	1605.9 (19)
Contested, excluding Refining Companies	17	485.8 (16)	460.9 (16)
Mergers and Other Offers, Excluding Tenders	84	237.4 (72)	245.5 (81)
Private by Management	23	162.5 (20)	164.4 (22)
Mergers	61	266.3 (52)	275.7 (59)

[a]Target companies consist of (1) companies that were removed from the CRSP files in 1985 because they were acquired in a transaction that appears in the Transactions Roster of either the 1984 or 1985 volumes of *Mergerstat Review* and (2) companies appearing in the CRSP files that were targets of unsuccessful acquisition attempts according to the 1985 volume of *Mergerstat Review*.

[b]Number of companies with data for that year.

Source: *CRSP Stock Files*, Center for Research in Security Prices, University of Chicago, 1987; *Mergerstat Review*, various issues.

of companies trading on the New York or American stock exchanges that (1) were acquired in 1985 in a transaction reported in *Mergerstat Review* in 1984 or 1985 or (2) were targets of an unsuccessful acquisition attempt reported in *Mergerstat Review 1985*.[3] (Limiting the sample to companies trading on the major exchanges increases the average size.) The companies are grouped according to whether they were targets of contested tender offers, uncontested tender offers, acquisitions in which the bidding entity was a private group including company management (private by management), and mergers and any other forms of acquisition (mergers). Companies that were targets of more than one acquisition attempt in this period are classified according to the initial announcement. Tender offers by company management are considered uncontested tender offers.

Targets of tender offers were larger than companies taken private by their management or acquired in mergers. The average market value of companies that were targets of tender offers was over a billion dollars;

[3] More specifically the companies shown in table 2 consist of (1) companies that were removed from the CRSP files in 1985 because they were acquired in a transaction that appears in the Transactions Roster of either the 1984 or 1985 volumes of *Mergerstat Review* and (2) companies appearing in the CRSP files that were targets of unsuccessful acquisition attempts according to the 1985 issue of *Mergerstat Review*. The CRSP Stock Files are produced by the Center for Research in Security Prices, University of Chicago.

the average market value of companies targeted in other acquisition attempts was less than one-quarter of a billion. The average size of targets of contested tender offers was roughly double that of companies receiving tender offers that were not contested. Among the contested group were three refining companies with very large market values; but even excluding these three, targets of contested tender offers were still larger than companies that were targets of merger proposals or that management attempted to take private.

The three refining companies that were targets of contested tender offers were the only firms in table 2 that were members of this industry. Since hostile takeovers were so few in number this concentration in a single industry is striking. However, an examination of acquisition patterns by industry over several years suggests that the usual pattern is not markedly different for hostile takeovers than for other types of acquisition. Table 3 shows the distribution of offers made from 1983 to 1985 for companies trading on the major exchanges, according to the industry of the target company. (Some companies were targets of several acquisition offers and consequently appear in the table more than once.) As can be seen, contested tender offers were more concentrated in oil and gas related activities—exploration and development, refining, utilities—than acquisitions generally. Contested tender offers were also more concentrated in manufacturing and they were relatively infrequent in the trade and the finance, insurance and real estate industries. However, the differences do not seem dramatic.

Michael Jensen and others have suggested that hostile takeovers occur in response to a need for restructuring in an industry, with the oil industry providing a particularly good example of a radical change in environment leading to an increase in takeover attempts. The figures in table 3 indicate that while such a view has some basis as regards oil and gas, hostile takeovers are not confined to a few industries in the throes of deregulation or otherwise undergoing major changes. Of course, it may simply be that many industries have encountered unusual competitive pressures in recent years. In any event, the distribution of hostile takeovers is fairly similar to that of other acquisitions. This similarity may itself explain why such a small number of transactions generates such widespread concern. If hostile takeovers were concentrated in just a few industries, only those involved with these industries need be concerned about the possibility of a takeover; everyone else could rest secure. If hostile takeovers are widely distributed, no one is safe.

Finally, it is important to recognize that the number of contested tender offers understates the number of unwelcome offers. Probably a substantial fraction of uncontested tender offers, and possibly of merger overtures as well, are not welcomed by target management. Some of these acquisition attempts might be contested were it not for the fact that

Table 3
Acquisition Attempts by Industry of Target, 1983–85

	Number of Attempts				Percent of Total			
		Not	Tenders			Not	Tenders	
	All Attempts	Tenders	Uncontested	Contested	All Attempts	Tenders	Uncontested	Contested
Agriculture	3	2	1	0	.7	.7	1.2	0
Mining	27	17	6	4	6.6	6.2	7.0	8.7
Oil & Gas	24	14	6	4	5.9	5.1	7.0	8.7
Construction	7	6	0	1	1.7	2.2	0	2.2
Manufacturing	225	151	46	28	55.3	54.9	53.5	60.9
Food	24	14	6	4	5.9	5.1	7.0	8.7
Textiles	10	8	2	0	2.5	2.9	2.3	0
Apparel	13	7	3	3	3.2	2.5	3.5	6.5
Paper	11	7	3	1	2.7	2.5	3.5	2.2
Printing	8	7	0	1	2.0	2.5	0	2.2
Chemicals	12	7	3	2	2.9	2.5	3.5	4.3
Refining	9	3	3	3	2.2	1.1	3.5	6.5
Rubber & Plastics	10	6	2	2	2.5	2.2	2.3	4.3
Stone, Clay, Glass	7	4	1	2	1.7	1.5	1.2	4.3
Primary Metals	13	12	1	0	3.2	4.4	1.2	0
Fabricated Metals	17	14	3	0	4.2	5.1	3.5	0
Nonelectrical Mach.	24	14	7	3	5.9	5.1	8.1	6.5
Electrical Equipment	26	20	3	3	6.4	7.3	3.5	6.5
Transportation Equip.	18	13	4	1	4.4	4.7	4.7	2.2
Instruments	10	5	3	2	2.5	1.8	3.5	4.3
Transportation	13	10	1	2	3.2	3.6	1.2	4.3
Air	6	5	0	1	1.5	1.8	0	2.2
Communications	6	4	1	1	1.5	1.5	1.2	2.2
Utilities	15	6	5	4	3.7	2.2	5.8	8.7
Gas Prod. & Distrib.	14	5	5	4	3.4	1.8	5.8	8.7
Trade	50	32	15	3	12.3	11.6	17.4	6.5
Finance, Insurance, & Real Estate	38	33	4	1	9.3	12.0	4.7	2.2
Services	23	14	7	2	5.7	5.1	8.1	4.3
Total	407	275	86	46	100.0	100.0	100.0	100.0

Note: Distribution of offers by industry of target company for companies that were targets of acquisition attempts 1983–85. Some companies were targets of more than one offer. The sample consists of companies trading on the major exchanges that ceased to trade because of an acquisition appearing in *Mergerstat Review* or that were targets of an unsuccessful acquisition attempt recorded in the *Mergerstat Reviews* for 1983 to 1985.

Source: *CRSP Stock Files*, Center for Research in Security Prices, University of Chicago, 1987; *Mergerstat Review*, various issues.

so many contests fail to preserve the target's independence. Between 1976 and 1986 only one-quarter of the companies that contested tender offers succeeded in remaining independent; if they were not taken over

by the initial bidder they were acquired by a third party.[4] Moreover, for a number of companies that did succeed in remaining independent, the price of independence was severe cost-cutting or the sale of major portions of their business.

Although the large size of the targets of hostile takeovers and the fact that no industry is immune mean that the economic significance of takeovers is greater than their numbers would suggest, this is not reason to treat them differently from other forms of acquisition. The following section summarizes the central issues in the dispute over whether takeovers should be restricted.

What Is Wrong/Right with Takeovers?

Discussions of whether or not takeovers should be restricted are often mixed up with discussions of the positive and negative consequences of mergers in general. Do mergers "work:" Is the resulting entity more competitive and more profitable? What is the source of any increased profitability? Is too much debt incurred in the acquisition process? What will be the impact on employees? However, while the debate often follows these lines, much of the opposition to hostile takeovers seems to derive less from the adverse consequences of corporate combinations than from the mechanism whereby combinations occur and from the relationship between acquirer and acquired. Among the most vociferous critics of hostile takeovers are some of the chief executives of large companies that have been active participants in the merger and acquisition process, although as bidders rather than targets. Clearly they are not opposed to acquisitions in general. Moreover, most antitakeover legislation does not address problems arising from acquisitions in general; it would not preclude friendly combinations. It is directed only at acquisition attempts opposed by management of the target company.

Why should the opposition of target management be the basis for imposing more stringent requirements on an acquisition attempt? Managers typically defend their opposition to takeover proposals on the grounds that the offers are inadequate. The true value of the company exceeds the value offered and in opposing the proposal, management is acting in the shareholders' interests. The protection of shareholders is also the ostensible purpose of recent antitakeover legislation. Proponents of the Indiana Act argue that it enables shareholders to decide collectively upon the desirability of a change in control; in particular, the Act is said to permit a more considered response to potentially coercive two-tier and partial tender offers. This view was apparently accepted by

[4] *Mergerstat Review 1986*, p. 79.

the Supreme Court: according to Justice Powell, in the majority opinion, "The primary purpose of the Act is to protect the shareholders of Indiana corporations."[5]

Since the Indiana Act and its offspring are not intended to apply to mergers, there is a presumption that the agreement of target management to an acquisition proposal is sufficient protection for shareholders. If this is the case and if such protection is necessary, then one would expect shareholders to fare better in acquisitions that had target management's support than in hostile takeovers. The next section of this paper will compare what happens to stock prices in a contested tender offer with the experience in other types of acquisitions.

Managers may be quite sincere in opposing what they consider to be inadequate tender offers. Although most offers are substantially above the market price, stock prices can be volatile and a manager might have reason to think that his company's stock will sell at a higher price in the future. In addition, opposition to a tender offer may induce the bidder to sweeten his offer or may create an opportunity for additional bidders to enter the competition and bid up the price. In a recent examination of the premiums on contested and uncontested tender offers announced in 1985, the authors found that the highest premiums were offered by successful "white knights" — bidders acquiring companies that were already targets of takeover attempts. More generally, premiums were higher in situations involving multiple bidders (Browne and Rosengren 1987). Even the prospect of competition among bidders may result in a higher bid than otherwise; the initial bidder may set his bid so as to preclude competing offers and if competition seems to be materializing may subsequently increase the bid.

However, while management opposition to a takeover proposal can benefit target company shareholders, a conflict between the interests of shareholders and the interests of management exists in the face of a takeover that is not present in other corporate decisionmaking. Frequently target management is displaced as a result of a takeover, either because there is no room for target management in the hierarchy of the combined structure or because the acquirer does not think target management is doing a good job.

The incentive for target management to oppose an acquisition attempt is greater, the greater the threat of displacement. This suggests that acquisitions of larger companies are more likely to be opposed than smaller companies, since it will be more difficult to absorb target management. The chief executive of a small company can become a group

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[5] Supreme Court of the United States, *CTS Corp. v. Dynamics Corporation of America et al.* Appeal from the United States Court of Appeals for the Seventh Circuit, No. 86–71. Argued March 2, 1987—Decided April 21, 1987, p. 20.

vice-president within a larger entity with no loss of prestige or salary; but how many companies—no matter how large—have room for two "captains of industry"? By this reasoning, one might also expect acquisitions of companies that are performing poorly, since target management could expect to be judged inadequate. Thus, opposition to a takeover could be an admission of poor management.

Whether or not target management considers itself to be inadequate, the fact that a bidder makes a tender offer without engaging in negotiations with management may foster opposition. Such a tender offer is a statement that at least one entity—the bidder—views the target company as not performing up to its potential and, further, that the support of target management is not necessary to achieve a better performance. Such a statement obviously will not sit well with target management. However, to the extent that it is an accurate assessment, shareholders will be better off if the company is taken over than if it remains independent. At least from a shareholder's perspective, one would not wish to make such takeovers more difficult or less certain in outcome.

Equally importantly, if targets of hostile takeovers are not maximizing shareholder returns, takeovers may benefit not only the shareholders of the targets but also those of other companies. Managers of other companies will see that poor performance increases their companies' vulnerability to takeover and will, therefore, have an added incentive to achieve good results for their shareholders. Those who oppose restrictions on takeovers typically hold this view, arguing that takeovers not only result in gains to shareholders of the target companies but also exert a useful discipline on managers to the benefit of the economy as a whole.

This position does assume, however, that good performance can be discerned fairly readily: targets of hostile takeovers must be recognized to be performing below their potential if takeovers are to have a salutory effect on firm management in general. Moreover, if targets of hostile takeovers are not underperforming—or are underperforming according to criteria apparent only to the bidder—hostile takeovers will appear to managers as random "bolts from the blue." In this case, takeovers will not provide positive incentives, as management will not see serving their shareholders' interests as protecting them from takeovers. Indeed, takeovers may have a negative effect, as managers may be led to protect themselves in other ways. At a minimum, defensive activities distract management's attention from running the company, and in some cases they may actually be harmful, as when management embarks on its own acquisition program simply to make the company too big to swallow.

A later section of this paper will compare the performance of companies that were targets of contested tender offers and companies in-

volved in other types of acquisition attempts. It will also discuss some of the ambiguities surrounding the concept of good performance.

The Effect of Takeovers on Shareholders

Central to any debate over antitakeover legislation is the anticipated effect of restrictions on shareholders. Unlike management and employees, shareholders know with certainty that their economic interests will be directly affected by a takeover. As a result, numerous laws protecting the interests of shareholders during takeovers have been adopted since the 1930s. Requirements that a bidder disclose financing sources and intentions, as well as restrictions on the tender process, provide investors an opportunity to evaluate a takeover proposal. In contrast, the focus of much of the current legislation is not on fuller disclosure; rather, it severely discourages offers actively opposed by management. Since stock prices are often very volatile, and the expected return of current projects may be difficult to assess, management may prevent bids that would be rejected if shareholders were better informed. However, if management is overly optimistic about its firm, or if management's interests diverge from those of the shareholders, management may reject offers that fully informed shareholders would accept.

Table 4 provides the average premium for merger and acquisition offers from 1983 to 1985. Each offer is classified as a merger, uncontested tender offer, or contested tender offer. Firms taken private by means other than tender offer are included in the mergers and other offers category. The premiums are calculated as the percentage increase from the closing price of the stock five days before the date of the announcement; for offers with a previous bidder, the premium for the new offer is calculated from five days before the announcement of the initial offer.

Acquisition attempts, regardless of their form, generally provide stockholders substantial gains. The lowest average premium for any category is 30 percent. Thus, legislation that prevented takeover targets from receiving any offers would clearly be detrimental to shareholders. Average premiums show remarkably small differences between contested offers, uncontested tenders, or mergers. In 1985 the average premium for hostile tender offers was 31.1 percent, within 2 percentage points of uncontested offers and mergers. In 1984 hostile tender offers had premiums equal to those of uncontested offers and 1 percentage point larger than mergers. While there is substantial variation in the size of premiums within each acquisition category, as shown by the large standard deviations, there is little evidence that premiums on hostile tender offers are significantly different from offers not opposed by management. Surprisingly, there is also little difference between the average

Table 4
Average Premium Offered in Merger and Acquisition Attempts

	All Offers			Successful Offers		
	Number/Number with data	Average Premium (Percent)	Standard Deviation	Number/Number with data	Average Premium (Percent)	Standard Deviation
1985[a]						
All	152	31.6	23.9	100	33.3	24.3
Tender Offers	57	30.8	21.0	43	32.2	20.3
Uncontested	35	30.6	22.0	34	31.1	22.2
Contested	22	31.1	19.2	9	36.4	9.5
Mergers and Other Offers, excluding Tenders	95	32.1	25.5	57	34.2	26.9
1984[a]						
All	162/156	38.0	29.1	106/102	38.3	30.7
Tender Offers	46/45	38.8	26.1	36/35	38.9	27.2
Uncontested	36/35	38.8	28.3	32/31	38.2	27.9
Contested	10	38.8	15.9	4	44.2	19.5
Mergers and Other Offers, excluding Tenders	116/111	37.7	30.3	70/67	37.9	32.4
1983[a]						
All	92/90	43.7	47.5	65/63	38.6	24.7
Tender Offers	28	39.1	22.1	21	39.2	25.0
Uncontested	14	32.4	24.9	13	31.7	25.7
Contested	14	45.9	16.4	8	51.5	18.3
Mergers and Other Offers, excluding Tenders	64/62	45.8	55.2	44/42	38.3	24.5

[a]*Attempts in a given year include acquisitions of companies removed from CRSP file in that year and also included in Mergerstat and unsuccessful attempts listed in Mergerstat for that year.*

Source: *CRSP Stock Files,* Center for Research in Security Prices, University of Chicago, 1987; *Mergerstat Review,* various issues.

premium on successful offers and that on all offers, indicating that even unsuccessful acquisition attempts generally offer substantial premiums to stockholders.

While table 4 suggests that there is little difference in premiums between offers opposed by management and those without active opposition, it fails to control for several variables that could substantially affect the size of the premium. Premiums applied to only a fraction of the target shares, particularly those that provide a controlling interest in the company, may be higher than bids for all outstanding shares. Movements in the general level of stock prices around the time of the offer may influence the bid. Since stocks tend to move in conjunction with the market portfolio, failing to control for the movement in the market index at the time of the announcement could bias the results. Finally, the riskiness of the target stock may affect the size of the premium. Since movements in the market portfolio cannot be diversified away, stocks that move together with the market, frequently referred to as high beta stocks, subject the investor to greater risk. Our event study, a technique widely used in the finance literature, controls for these factors.

Event studies are an application of the capital asset pricing model. Using a simple model of stock returns, a forecast of what the return would have been in the absence of an event is compared with the actual return. The difference between the forecasted return and the actual return is attributed to the event. Equation 1 summarizes the calculation of excess returns, the difference between the actual return and the forecasted return after controlling for movement in the market portfolio and the riskiness of the stock.

$$(1)\ ER_{it} = R_{it} - a_i - b_i R_{mt}$$

where R_{it} = return on stock i for day t
R_{mt} = return on the market portfolio for day t
a_i = constant, estimated from a period prior to the event
b_i = beta of stock i, measure of non-diversifiable risk, estimated from a period prior to the event

It is assumed that the forecast errors are not attributable to other events possibly occurring at the same time or to a badly specified forecasting model. The latter assumption is particularly important. While the "true" market portfolio is unobservable, this study, like most event studies, uses the value-weighted New York and American Stock Exchange index as a proxy for the market portfolio. Roll (1977) has shown that applying the Capital Asset Pricing Model with the wrong index can bias the results; however, it is assumed that using the value-weighted index as a proxy for the "true" market portfolio does not introduce significant biases into the study. It is also assumed that a_i and b_i are stable and are not sensitive to the arbitrary choice of estimation period. In this

study the estimation period is the 180 trading days from 240 days before the event to 61 days before the event.

To determine the impact of the merger on takeover targets, the excess returns are summed over an event window and averaged over firms to obtain the cumulative average residual (CAR).

$$(2)\ \text{CAR} = \frac{1}{n} \sum_{i=0}^{n} \sum_{t=p}^{q} \text{ER}_{it}$$

where n = number of firms
p = number of days before the event day (day 0)
q = number of days after the event day

If takeovers were always a complete surprise, the event window over which the excess return should be measured would be the announcement date. However, as the Boesky disclosures have made clear, information about takeovers is frequently available to some market participants prior to the public announcement. A choice of a larger window may capture information released prior to the announcement but risks including movements in stock price unrelated to the takeover. A choice of a small window risks missing some stock appreciation related to early release of takeover information and underestimating the cumulative average residual attributable to the takeover. This is a particular problem in this study, which compares cumulative average residuals by type of acquisition, since some acquisition methods may be more susceptible to prior release of information, either because of the number of people involved prior to the formal takeover announcement or for strategic reasons relating to the bidding process. Consequently, two windows were considered—a 41-day window spanning the 30 trading days before the announcement date to 10 days after the announcement, and an 11-day window, from five days before the announcement to five days after. While arbitrary, they illustrate how sensitive the results are to the choice of window.

To test the significance of the cumulative average residuals it was necessary to construct a test statistic. A procedure common in the event study literature was followed, based on the construction of standardized cumulative residuals that are assumed to be distributed standard normal. (See the appendix for details.) Two hypotheses were examined. The first was that the cumulative average residuals are insignificantly different from zero, since previous studies of acquisition attempts found substantial positive returns to the target firm. The second maintained hypothesis was that excess returns for uncontested tenders, mergers, and firms taken private equal the average excess returns for contested tenders having the same event window. If tender offers that were op-

Table 5
Cumulative Average Residuals by Type of Takeover Attempt, 1985

	41-Day Event Window	11-Day Event Window
Tender Offers		
Contested		
Cumulative Average Residuals	.23	.16
z-0	(8.58)*	(11.62)*
Uncontested		
Cumulative Average Residuals	.23	.22
z-0	(12.00)*	(21.03)*
z-contested	(.57)	(5.28)*
Mergers and Other Offers, excluding Tenders		
Private by Management		
Cumulative Average Residuals	.12	.15
z-0	(4.45)*	(10.46)*
z-contested	(−2.92)*	(.58)
Mergers		
Cumulative Average Residuals	.20	.13
z-0	(11.89)*	(17.39)*
z-contested	(−1.98)	(−1.35)

Note: z statistic is distributed standard normal.
* significant at the 5% confidence level for a two-tailed test.

posed by management were not in the interest of stockholders, the return from offers opposed by management should be lower than the return from offers unopposed by management.

Table 5 provides the cumulative average residual for each type of takeover. Multiple bidder contests are classified by the original bidder, so that unlike table 4, which calculates bidder premiums, there is only one bidding firm included for each acquired firm. Using the 41-day window, the cumulative average residuals are all significantly different from zero at the 5 percent confidence level and no category of takeover has larger excess returns than the contested tender offer. Thus, for a 41-day window, stockholders appear to fare quite well from offers that were opposed by management, with an average 23 percent return after controlling for the general movement in stock prices.

While contested tenders have the same cumulative average residual as uncontested, the residual for contested tenders is 11 percentage points greater than for firms taken private. One can reject the hypothesis that average excess returns for private acquisitions are equal to the average excess returns for contested firms at the 5 percent level. Therefore, stockholders appear to have higher returns on acquisitions opposed by management than on acquisitions where management or family owners directly acquire the company. This difference cannot be

explained by the probability that an initial offer is successful. Both contested tender offers and offers to go private have a 50 percent chance of success, and the returns over the 41-day window are very similar between successful and unsuccessful takeover attempts.

One possible reason for the higher premiums is that contested tender offers are more likely to become multiple-bidder contests. Roughly 40 percent of the contested tender offers attract additional bidders while approximately 30 percent of the private offers result in additional bidders. Therefore, part of the excess return experienced by hostile tenders may reflect investors' expectations of higher future bids. Contested tender offers that eventually became multiple-bidder contests had a cumulative average residual of 30 percent, while contested tenders that remained single-bidder contests had a cumulative average residual of only 19 percent.

Using the 11-day window, the cumulative average residual for contested tender offers is larger than for mergers or for firms being taken private. However, uncontested tender offers have the highest cumulative average residual and the excess returns are significantly larger than the average excess returns for contested tender offers. The higher cumulative average residual for uncontested tenders may partly be explained by differences in bidding strategies. In contested tender offers, early release of information about a tender offer may apply pressure on the top management of the target firm and help to place the firm "in play." In addition, given management's opposition, it may be more profitable to sell to a "white knight." Therefore, encouraging additional bidders may be more rewarding than successfully acquiring the firm. Firms without active opposition by management are much more likely to successfully acquire the firm and may prefer to maintain secrecy to prevent additional bidders from entering the auction and driving up the price. If so, the cumulative average residual would follow the pattern we observe in the table, with most of the increase in returns for uncontested offers occurring around the announcement, while relatively less of the total appreciation of the contested firm occurs around the announcement.

From a shareholder's perspective, restricting tender offers that are opposed by management would be undesirable. In cases where existing management is firmly entrenched, no offers may occur, thus depriving the shareholders of the appreciation in share prices that normally results from a takeover offer. Policies requiring management approval are also likely to discourage multiple-bidder contests, contests that frequently provide the highest returns for shareholders. Acquisitions requiring management approval, mergers and firms taken private by management, have lower average returns than tender offers that management actively opposes. Thus, legislation that discourages offers not supported by management are not likely to be in the best interests of shareholders.

Characteristics of Targets of Hostile Takeovers

As was discussed above, there is some basis for thinking that targets of hostile takeovers might be more poorly managed than companies involved in friendlier acquisition attempts. If takeover targets are, in fact, poorly managed, this poor performance is a powerful argument against restricting hostile takeovers. Shareholders of potential targets will suffer; current management will remain in place or, if a change in control does take place as a result of a merger, it will be on terms determined by a management that has not represented shareholders well in the past. Of perhaps even greater significance is the message that protection of poor performers from possible displacement sends to managers of other companies. Assessing what constitutes poor management is far from simple, however.

One view—commonly held by those opposed to restricting takeovers—is that stock prices are the best guides to performance. Stock prices embody all that is publicly known about both a firm's current circumstances and its future prospects. If one thinks of the stock price as the present value of the stream of earnings that an owner of a share of stock can expect to receive, then a firm that has a promising future with rising earnings will have a higher stock price than one with the same current earnings but a more negative outlook. In other words, the ratio of price to earnings will be higher for the first firm. It is management's responsibility to maximize share prices and thus, shareholder wealth. Poorly managed firms, according to this view, are firms with low stock prices and price-earnings ratios.

However, while the price-earnings ratio may provide some indication of how investors see a firm's future, the quality of management is not the only factor that affects that future. The world may change in ways that even the best management could not anticipate, brightening the future for some firms and darkening it for others. In addition, price-earnings ratios are only meaningful for firms with earnings in some normal range. A firm may suffer losses, but the value of its shares will still be positive, resulting in a negative price-earnings ratio; or a firm may experience very small positive earnings, causing its price-earnings ratio to be very large even though the firm's prospects are not very promising.

The book value of shareholders' equity provides another basis for evaluating share prices. Comparing the ratios of price to book value (per share) for different firms is equivalent to comparing the firms' share prices with what earnings would be if the firms all achieved the same return on equity. For example, if all firms earned a 12 percent return on equity, comparing the resulting price-earnings ratios would produce the same results as comparing ratios of price to book value. Thus, the ratio

of price to book value can be seen as a price-earnings ratio in which the denominator is not the firm's actual earnings but what earnings would be if the firm achieved some "normal" return on equity. A low price-to-book ratio could reflect either below-normal earnings today or normal current earnings but an unpromising future.

In addition, a price-to-book ratio that is below one means that a firm cannot issue new stock without diluting the value of the holdings of current shareholders. This can be a deterrent to expansion, or at least to the use of equity to expand. From the standpoint of those who see stock prices as providing accurate assessments of future prospects, a low price-to-book ratio indicates that a firm's investment plans will not yield satisfactory returns and should be curtailed.

A more fundamental question is whether share prices are reasonably valid representations of firms' prospects. Despite a substantial literature based on this view, many people believe that the stock market is subject to whims, fads and unfounded rumors and, consequently, that share prices are unreliable indicators of future earnings. To the extent that there is some truth to this view, share prices are not useful guides to whether management is doing a good job. A low share price may mean simply that the firm in question is not "in;" perhaps there have been no recent developments to bring the firm to the attention of market participants or perhaps the price has been discounted on the basis of rather superficial analysis.

However, even if stock prices are not good guides to management performance, they might still be good indicators of vulnerability to takeover. Share prices are, after all, prices; and the significance of a low price-earnings ratio or price-to-book ratio may not be so much that the firm's future looks bleak—at least under current management—as that the price of acquiring the firm's assets and the associated stream of earnings is low. In other words, the firm is cheap.

Various accounting ratios offer another approach to measuring the performance of takeover targets. The problem with these is that they show only what the firm is doing today—or over some specified time horizon—and performance at any one time may not be a good guide to the future. Thus, earnings may be high today as a result of wise decisions by past managers; but today's managers may have embarked on a different course. Conversely, the future may be bright even though earnings are low today. Indeed, many start-up companies encounter losses in their early years. Some companies have highly cyclical earnings. Stock prices can capture both the present and what is known about the future.

The return on equity is one of the more common measures of firm performance. It is also one that does not suffer from any ambiguity about what is desirable. Higher is better. This is not true of some of the other standard accounting ratios. In particular, measures showing the

use of financial resources may be subject to different interpretations. According to one view, companies with relatively large liquid assets and low use of debt are likely to be takeover targets. These firms do not use their financial resources as efficiently as they might; by relying more heavily on debt and reducing the proportion of their assets in low-yielding working capital they could achieve higher earnings. However, others might see these firms as prudently managed, particularly if the firms were already achieving high earnings. High liquidity and low leverage provide managers with flexibility in the event of a downturn and reduce the firm's vulnerability to bankruptcy. These ambiguities suggest that an assessment of how well a firm is managed may depend upon one's attitude towards risk.

One variant of the view that takeover targets are not managing financial resources efficiently is the free cash flow hypothesis developed by Jensen. "Free cash flow is cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital" (Jensen 1986, p. 323). Companies that generate substantial cash flows and that use these funds internally in low-value uses rather than pay out the cash to shareholders will be targets of takeovers. The share price will reflect the fact that the cash flow is going to projects with lower returns than could be obtained elsewhere. A bidder acquiring control of these companies can increase the share price simply by ceasing these low-value activities and paying out more cash.

Table 6 presents averages of financial ratios, representing some of these elements of performance, for the acquisition targets of table 2. Ratios in both 1984 and 1983 are shown for the 1985 targets. The financial ratios vary greatly within acquisition categories and outlying observations frequently result in large distortions. Consequently, the averages in table 6 are based on the 50 percent of observations around the median observation in each acquisition category; in other words, they are averages of the "normal" values for each acquisition category. The averages for all observations, along with associated standard deviations and the number of observations in each category, appear in the appendix. (The number of observations is smaller than the number of target companies as some financial variables were not available for some firms.)[6]

To provide some indication of what these financial ratios might look like for firms that are not targets of acquisition attempts, the table also includes the relevant ratios for "all industrials" from the Compustat industry aggregates file. (To be included in this file, the firms must be

[6] Also, financial reports for 1984 were not available in some cases. The annual data provided by the source, Compustat, are based on companies' fiscal years. Data for companies with fiscal years ending in the first five months of the calendar year are treated as occurring in the previous calendar year. This is one reason why there are more observations for 1983.

Table 6
Financial Characteristics of 1985 Acquisition Targets
Average Values for Middle Two Quartiles of Observation

Target	Market Value ($ millions)		Inverse of Price-Earnings Ratio		Ratio of Cash Flow to Market Value		Ratio of Price to Book Value	
	1984	1983	1984	1983	1984	1983	1984	1983
Contested Tenders	425.8	429.5	.096	.086	.179	.170	1.11	1.15
Uncontested Tenders	719.5	496.9	.087	.084	.158	.138	1.36	1.45
Private by Management	101.0	102.3	.088	.066	.146	.155	1.37	1.43
Mergers	139.6	126.6	.093	.066	.164	.129	1.22	1.39
All excluding Contested	175.8	162.0	.090	.072	.158	.137	1.29	1.41
All Industrials	621.7	671.2	.093	.072	.180	.149	1.44	1.58

Target	Return on Equity		Payout Ratio		Inverse of Coverage Ratio		Leverage (Long-Term Debt/ Assets)	
	1984	1983	1984	1983	1984	1983	1984	1983
Contested Tenders	.118	.096	.347	.329	.231	.247	.185	.192
Uncontested Tenders	.138	.132	.315	.215	.197	.197	.159	.145
Private by Management	.129	.114	.120	.063	.172	.141	.213	.225
Mergers	.117	.096	.194	.171	.217	.265	.179	.176
All excluding Contested	.124	.110	.201	.156	.196	.219	.180	.171
All Industrials	.133	.113	.382	.438	.206	.215	.178	.169

Target	Liquidity		Capital Expenditures/ Depreciation		R&D Expenditures/Sales	
	1984	1983	1984	1983	1984	1983
Contested Tenders	1.94	1.94	1.64	1.31	.014	.013
Uncontested Tenders	1.84	2.18	1.81	1.62	.015	.016
Private by Management	2.02	2.08	1.31	1.49	.009	.011
Mergers	1.96	2.36	1.52	1.14	.022	.019
All excluding Contested	2.05	2.23	1.56	1.33	.015	.015
All Industrials	1.56	1.61	1.76	1.55	n.a.	n.a.

Source: Standard & Poor's Compustat Services Inc.

followed regularly by Compustat and must meet certain size and industry representation criteria.) It should be noted, however, that the industrials' ratios are ratios of aggregate industry variables, while the ratios for the various acquisition categories are averages of individual firms' ratios.

The variables appearing in the table are as follows:

(1) Total market value, calculated as the calendar year closing price (Compustat data item 24) multipled by the number of common shares

outstanding (item 25).

(2) Inverse of the price-earnings ratio, calculated by dividing income before extraordinary items adjusted for common stock equivalents (item 20) by the market value. The higher the price-earnings ratio, the lower will be the inverse.

(3) Cash flow, defined as income before extraordinary items (item 18) plus depreciation (item 14), relative to market value. This was included on the grounds that cash flow might be a more meaningful indicator than income of the stream of funds available to those controlling the corporation.

(4) Price relative to book value, calculated as the market value relative to common equity (item 60).

(5) Return on equity, or income before extraordinary items adjusted for common stock equivalents relative to common equity.

(6) Payout ratio, or the ratio of common dividends (item 21) to income before extraordinary items adjusted for common stock equivalents.

(7) Inverse of the coverage ratio, or interest (item 15) relative to the sum of interest and pre-tax income (item 70). The lower the interest relative to interest and pre-tax income, or conversely the higher the coverage ratio, the more debt the company can carry without experiencing difficulties. Bond indentures often specify minimum coverage ratios. Thus, a higher coverage ratio may make a firm an attractive takeover target, while a very low coverage ratio may be an indicator of a firm in financial difficulty.

(8) Long-term debt (item 9) relative to total assets (item 6), a measure of leverage. A low value would indicate that a firm could assume more debt.

(9) Current assets (item 4) relative to current liabilities (item 5), a measure of liquidity.

(10) Capital expenditures (item 30) relative to depreciation.

(11) Research and development expenditures (item 46) relative to sales (item 12).

The last two items are included because opponents of takeovers have claimed that fear of takeovers causes firms to focus on increasing earnings in the short run to the detriment of the long run. By implication, firms that are targets of hostile takeovers are firms that have failed to adopt a short-run mentality and have continued to pursue long-run profit goals. Capital spending and research and development expenditures are intended to capture an orientation to the long run.

An examination of these financial characteristics reveals that targets of contested tender offers were not statistically different from targets of other acquisition attempts in any respect except size. In other words, all one can say with confidence is that targets of contested tender offers had larger market values than other acquisition targets. This conclusion is

based on the averages and standard deviations appearing in the appendix. Despite this general finding, the ratios in table 6 warrant comment. For normal observations, there appear to be small differences.

Share prices for targets of contested tender offers were a little low. Income and cash flow were both slightly higher relative to market value for targets of contested tender offers than for targets of other acquisition attempts. The ratio of price to book value was lower. Thus, depending on one's perspective, either managers of hostile takeover targets were not quite as successful as other managers in maintaining share prices or targets of hostile takeovers were a little cheaper than other acquisitions. The various ratios involving share prices did not differ markedly between the acquisition targets and "all industrials," although the industrial price-to-book ratio was somewhat higher.

The return on equity is perhaps the most interesting ratio. The variation in the return on equity was considerably smaller for targets of contested tender offers than for other firms in the sample. In particular, only two of 20 firms facing hostile takeovers in 1985 experienced losses in 1983; none (out of 19 observations) had losses in 1984. In contrast, 18 percent of the firms that were targets of other acquisition attempts experienced losses in 1983, 14 percent in 1984. Most of the firms experiencing losses were targets of mergers or of attempts by management to go private. Losses among targets of uncontested tender offers were rare. It would appear that bidders do not make tender offers for companies that are in serious financial difficulty, but companies in serious financial difficulty may look to merger partners to help solve their problems.

Because there were so few negative returns among the targets of contested tender offers, the average rate of return for targets of contested tender offers (shown in the apppendix) was higher than that for other targets. For the middle range of observations, however, the average return on equity was lower for targets of contested tender offers than for the rest of the sample. While there were few "losers" among the contested targets, the norm was mediocre. Payout ratios were normally higher for targets of contested tender offers than for targets of other acquisition attempts. (Payout ratios were below the "all industrials" averages; but to the extent that some firms with losses pay dividends, an average based on industry aggregates might well be higher than one based on individual firm ratios.)

Neither the inverse of the coverage ratio nor the ratio of long-term debt to assets suggests that targets of contested tender offers have more capacity to take on debt than targets of other forms of acquisition. Similarly, targets of contested tender offers were not more liquid than other targets. (The liquidity ratios for all acquisition groups were higher than the average for all industrials, however.) Finally, targets of contested tender offers did not engage in more capital spending or research and

development activity than other targets. They were not victims of a commitment to the long run.

In summary, targets of hostile tender offers in 1985 were not very different from targets of friendlier acquisition attempts, except as regards size. Targets of contested tender offers were larger than targets of other acquisition proposals, although not larger than targets of uncontested tender offers. The stock prices for the targets of contested tender offers seem to have been a little lower than the prices for other targets, particularly when measured against book value, but these differences cannot withstand much scrutiny. Targets of acquisitions, both hostile and otherwise, were smaller than the average company in Compustat's industrial file; they also appear to have had higher liquidity ratios. Once again, however, differences were not striking except as regards size.

These results are generally consistent with those of other studies. John Pound, in a study for the Investor Responsibility Research Center Inc., examined the financial characteristics of friendly takeover targets, hostile takeover targets that were acquired, hostile targets that remained independent and a control group (Pound 1985). He found that the variation in characteristics was so great within groups that the groups could not be distinguished statistically. Pound also found that the variables changed considerably from year to year, so that one's perception of the relationships among acquisition categories could differ depending upon the year in question. This caution should be borne in mind when looking at the ratios in table 6.

A recent working paper published by the National Bureau of Economic Research looked at financial and other characteristics of Fortune 500 companies acquired in hostile and friendly transactions (Morck, Shleifer and Vishny 1987). Again, there was little difference among the companies for most financial variables. An exception was the ratio of market value to replacement value of tangible assets, which was lower for the hostile targets. This variable was not considered in the current study, but some of its influence may have been captured in the price-to-book-value ratio, which seems to have been lower for targets of contested tender offers. The NBER study also found that the companies taken over in hostile acquisitions had earlier incorporation dates and differed in some ownership characteristics from friendly acquisitions.

The picture of targets of hostile takeovers as rather ordinary firms, at worst mediocre firms, does not change if one looks at them within their own industries. Table 7 shows how many targets of contested tender offers had returns on equity and price-to-book-value ratios above and below the averages for their respective industries. As can be seen from the table, more takeover targets were below the industry averages than above but the split was fairly balanced. Managers of most takeover targets have legitimate reason to ask, "Why me?"

Table 7
Return on Equity and Price-to-Book Value Ratios for Targets of 1985 Contested Tender Offers

	Number of Observations			
	Return on Equity		Price to Book Value	
	1984	1983	1984	1983
Firm Ratio as a Multiple of the Industry Ratio				
More than 1.1	6	6	6	5
.9 to 1.1	5	4	3	6
Less than .9	7	9	8	7

Data are not available for all firms or corresponding industries for both years. The number of observations is smaller than the number (20) of targets of 1985 contested tender offers.
Source: Standard & Poor's Compustat Services, Inc.

Conclusions

Hostile takeovers have become a source of intense interest and bitter debate. Following the Supreme Court's upholding in April 1987 of Indiana's antitakeover act, a number of states have adopted or are in the process of adopting legislation making hostile takeovers more difficult and more uncertain. Although advocates of restricting takeovers may be motivated by other considerations, such restrictions are commonly justified on the grounds that they protect the shareholders of the takeover targets. Since the restrictions would generally not affect friendly acquisitions, the implication is that hostile takeovers are less favorable to shareholders than other types of acquisition.

Opponents of restricting takeovers counter that target company shareholders, far from benefiting from antitakeover legislation, will be hurt: acquisition attempts will be discouraged and shareholders will be denied the opportunity to sell their shares at an attractive premium. In addition, shareholders of other companies will be adversely affected, as takeovers perform an important disciplinary function in removing managers who are failing to maximize shareholder wealth.

This paper examines, first, whether the experience of target company shareholders is less favorable in a hostile takeover attempt than in other acquisition proposals and, second, whether targets of hostile takeovers differ in key financial characteristics from the targets of other acquisitions. It finds that shareholders fare as well in hostile takeovers as in friendly acquisitions. The premiums offered in hostile takeovers are comparable. More importantly perhaps, the stock market's response to the announcement of a hostile takeover is no different from its reaction to other acquisition proposals. Stock prices rise just as much in response to a tender offer that is contested as they do at the announcement that

management is trying to take a company private or that a company is the object of a merger proposal. If one looks at stock prices over a very short span around the announcement date, prices do not rise as much in response to a contested tender offer as an uncontested tender offer. However, for a somewhat longer event window there is no significant difference. It appears that shareholders do not require protection from hostile takeovers.

It also appears that companies that are targets of hostile takeovers are not very different from targets of friendlier acquisition proposals and probably not very different from companies generally. The share prices for takeover targets appear to be a little lower relative to book value than those of other acquisition targets, but the difference is not statistically significant. Rates of return are not impressive for takeover targets, but losses are rare. Targets of hostile takeovers are certainly not the worst-managed firms. This is not the same as saying they cannot be better managed—only that simple measures do not show obvious failings.

Given the small number of firms that are targets of contested tender offers, it is certainly possible that individual bidders could have sufficiently detailed understandings of these companies to conclude that current management is inadequate, even though standard financial ratios do not reveal problems. In other words, takeover targets may be performing below their potential, but the management failures and the indicators of management failure may be unique to each case. It is also possible, given the small number of hostile takeover targets, that the choice of target has less to do with the failings of target management than with the characteristics of the bidders. Some bidders are obviously more willing to engage in hostile takeovers than others; and their knowledge of particular industries and preferences for particular types of firms will have a strong influence on target choice.

In any event, the message that managers will find their firms vulnerable to takeover attempts if they fail in their responsibilities to shareholders is fuzzy. To the extent that there are differences between targets of hostile takeovers and targets of friendlier acquisition proposals, they are very small and they certainly do not provide management with a guide to what sort of performance will protect them from takeovers. Discipline is only effective if the nature of the failure is clear and this does not seem to be the case for hostile takeovers.

In conclusion, target company shareholders benefit from hostile takeovers. Stock prices increase as much, if not more, in response to a hostile tender offer as in response to a merger or management buyout. However, the unremarkable nature of hostile takeover targets and the absence of clear evidence of management failure casts doubt on the argument that hostile takeovers exert a useful discipline on managers generally.

Appendix

The event study procedure followed in this article is the same as that found in Dodd and Warner (1983), Linn and McConnell (1983), Malatesta (1983), and Patell (1976). Patell provides the most thorough description of the assumptions underlying the event test. The first step is to estimate what the expected return of the stock would be in the absence of the event. Equation 1 is estimated from 240 days before the first event to 61 days before the event.

$$(1) \quad R_{it} = a_i + b_i R_{mt} + e_{it} \qquad t = -240, -239. \ldots -61$$

where R_{it} = return on firm i on day t
R_{mt} = return on market portfolio on day t
e_{it} = disturbance term with $E(e_{it}) = 0$

An event window, the period during which the event is expected to influence the return series, is arbitrary. Ideally, the event window would be determined by the day of the event. However, early release of information may cause the return series to be influenced before the public announcement of a takeover. Two event windows are used in this study. The first extends from 40 days before the event to 10 days after the event, while the smaller window extends from 5 days before the event to 5 days after the event. Over each window, the excess return (ER_{it}) is calculated.

$$(2) \quad ER_{it} = R_{it} - \hat{a}_i - \hat{b}_i R_{mt}$$

To determine whether an excess return is significantly different from 0, a test statistic is created (Johnston 1972, pp. 154–55).

$$(3) \quad SER_{it} = ER_{it}/s_{it}$$

$$s_{it} = \left[s^2 \left(1 + \frac{1}{V} + \frac{(R'_{mt} - \bar{R}_m)^2}{\sum_{1}^{V} (R_{mt} - \bar{R}_m)^2} \right) \right]^{0.5}$$

where s^2 = residual variance from equation 1
$\bar{R}_m$ = average market return over the period estimated in equation 1
R_{mt} = return to the market on day t
R'_{mt} = return on the market on forecast day t
V = number of days in estimation period

The standardized errors are summed to get the standardized cumulative residual.

$$(4) \quad SCR_i = \sum_{t=1}^{t=y} SER_{it} \times Y^{-0.5} \qquad Y = \text{number of days in event window}$$

The test statistic is then calculated as

(5) $z = ASCR * N^{0.5}$ $\quad N$ = number of firms

$$ASCR = \frac{1}{N}\sum_{i=1}^{N} SCR_i$$

The z statistic is assumed to be distributed standard normal.

Table A1 (1 of 3)
Financial Characteristics of 1985 Acquisition Targets

	Market Value		Inverse of Price-Earnings Ratio		Ratio of Cash Flow to Market Value		Ratio of Price to Book Value	
Type of Acquisition	1984	1983	1984	1983	1984	1983	1984	1983
Contested Tender Offer								
Observations	19	19	19	19	19	19	19	19
Average	2016.2	1605.9	.094	.086	.198	.187	1.185	1.247
Standard Deviation	408.3	2985.1	.039	.039	.079	.068	.370	.355
Uncontested Tender								
Observations	20	29	20	29	20	29	20	29
Average	1072.4	834.0	.063	.077	.146	.141	1.537	1.760
Standard Deviation	1116.7	966.9	.116	.046	.102	.060	.776	1.213
Private by Management								
Observations	20	22	20	22	20	22	20	22
Average	162.5	164.4	.061	.040	.166	.140	1.765	3.241
Standard Deviation	174.7	17.2	.091	.094	.092	.091	1.465	7.657
Merger								
Observations	52	59	53	59	49	55	53	59
Average	266.3	275.7	−.122	.013	.236	.099	1.378	1.612
Standard Deviation	436.4	505.0	1.430	.285	.680	.288	.875	1.323
All excluding Contested								
Observations	92	110	93	110	89	106	93	110
Average	419.0	40.6	−.043	.035	.200	.119	1.496	1.977
Standard Deviation	711.1	676.8	1.098	.216	.510	.215	1.025	3.668
t-statistics for difference between means								
Contested − Uncontested	.97	1.27	1.07	.75	1.75	2.42	−1.74	−1.76
Contested − Private	1.98	2.20	1.41	1.97	1.15	1.79	−1.63	−1.11
Contested − Merger	3.00	3.24	.65	1.11	−.24	1.29	−.92	−1.17
Contested − All Other	3.47	3.69	.54	1.03	−.01	1.34	−1.29	−.86

Table A1 (2 of 3)
Financial Characteristics of 1985 Acquisition Targets

Acquisition	Return on Equity		Payout Ratio		Inverse of Coverage Ratio		Leverage	
	1984	1983	1984	1983	1984	1983	1984	1983
Contested Tender Offer								
Observations	19	20	19	20	17	19	18	20
Average	.110	.096	.341	.090	.244	.347	.199	.193
Standard Deviation	.045	.049	.261	1.135	.126	.380	.066	.085
Uncontested Tender								
Observations	20	29	20	29	20	27	20	29
Average	.107	.123	.632	.216	.162	1.524	.176	.156
Standard Deviation	.125	.083	.957	.667	.437	6.743	.099	.108
Private by Management								
Observations	21	23	21	23	21	23	21	23
Average	.100	−.275	.480	−.157	.189	.035	.217	.222
Standard Deviation	.124	1.852	1.480	.794	.384	.930	.119	.140
Merger								
Observations	53	60	53	60	52	59	53	60
Average	.108	.163	.210	.336	−.152	.383	.204	.213
Standard Deviation	.184	.563	.299	1.494	2.554	.581	.161	.176
All excluding Contested								
Observations	94	112	94	112	93	109	94	112
Average	.106	.063	.360	.203	−.008	.592	.201	.200
Standard Deviation	.161	.095	.875	1.215	1.936	3.454	.141	.156
t-statistics for difference between means								
Contested − Uncontested	.08	−1.29	−1.25	−.48	.73	−.74	.79	1.27
Contested − Private	.31	.87	−.39	.82	.55	1.34	−.56	−.79
Contested − Merger	.05	−.53	1.66	−.66	.63	−.24	−.15	−.47
Contested − All Other	.10	.15	−.10	−.38	.53	−.31	−.08	−.19

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Discussion

*John C. Coffee, Jr.**

Although the simple disciplinary model of the hostile takeover views it as an engine of efficiency that creates value for shareholders, largely by pruning corporate deadwood, the picture that emerges from the data gathered by Lynn Browne and Eric Rosengren provides only partial corroboration for this theory. Put simply, their findings support the first half of this story—that is, that shareholders gain—but tend to disconfirm the second half—namely, that takeover targets are inefficiently managed. Basically, they find that takeover targets are not statistically distinguishable from other firms—either other acquisition targets in "friendly" mergers or other firms within the same industry—at least in terms of their financial characteristics. This view of targets of hostile takeovers as rather ordinary firms, at worst mediocre firms, but rarely the laggards within their industry, has been corroborated by other recent research. John Pound's work for the Investor Responsibility Research Center, Inc. (1985), a recent paper by Morck, Shleifer and Vishny (1987) for the National Bureau of Economic Research, and earlier works by other scholars—for example, Langetieg (1978), and Harris, Stewart and Carleton (1982)—agree that the targets of takeovers do not appear statistically different in their financial characteristics from other acquisition targets or from other firms within their own industries. Still, the evidence that shareholders gain from takeovers is irrefutable; no one seriously challenges it, and the aggregate gains may be as high as $167 billion, according to Grundfest and Black (1987).

What explains wealth creation on this scale if there appear to be no villains that deserve the tender offer's guillotine? Several competing hypotheses can account for this pattern. At one polar position is Michael Jensen's "Free Cash Flow" theory, essentially a modified version of the

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disciplinary model, which argues that takeovers discipline a special kind of managerial opportunism, namely the tendency toward cash hoarding and empire-building. If most corporations engage in such behavior, then we should not be surprised that takeover targets do not stand apart from the herd in terms of their financial characteristics. At the other pole is a thesis that asserts that takeovers do not create wealth but only transfer it, largely as the result of disrupting (or breaching) "implicit contracts" that once bound together the modern corporation as an economic and social institution. This view has been most aggressively argued by Schleifer and Summers (1987), and earlier in a more qualified form by both Knoeber (1986) and Coffee (1986). Of course, these two rival hypotheses are not necessarily inconsistent; each could explain a part of the puzzle of the source of takeover gains.

By contrasting these two theories, I believe that we can better understand the forces that have produced the recent epidemic of state takeover legislation. Just since the April 21, 1987 decision of the U.S. Supreme Court in *CTS Corp. v. Dynamics Corp. of America*, 14 states have adopted or modified laws designed to restrict takeovers.[1] A majority of the states have now passed a "second generation" takeover statute, and with the recent passage by Delaware of its takeover statute, it has been estimated that 80 percent of business capital in the United States is now protected by such a statute.[2] Thus, there is a clear and present danger that over the next five-year period the rate of corporate takeovers and associated transactions (such as leveraged buyouts and defensive mergers) may sharply decline.

One can, of course, bemoan this trend or even suggest (as Securities and Exchange Commission Chairman Ruder has) that state takeover statutes should be preempted by new federal legislation, but the prospects for preemptive legislation are at best bleak, since none of the major bills pending before the Congress provides for it. Alternatively, we can inquire (as I will attempt at the end of this comment) whether state takeover regulation can be neutralized by a policy that seeks to secure management's acquiescence. My premise for this suggestion is that the takeover gains to target shareholders are large enough to permit them to compensate other constituencies who are adversely affected; thus, in true Coasean fashion, the winners can "bribe" the losers and reach an

[1] 107 S. Ct. 1637 (1987). The 14 states that have enacted antitakeover legislation since that case are: Arizona, Delaware, Florida, Louisiana, Massachusetts, Minnesota, Missouri, Nevada, New Jersey, North Carolina, Oregon, Utah, Washington and Wisconsin. See Investor Responsibility Research Center (1987).

[2] See the article by Doug Bandow, "Curbing Raiders Is Bad for Business," *New York Times*, February 7, 1988 at F-2. For a recent list of states having antitakeover statutes, see Investor Responsibility Research Center (1987).

efficient equilibrium, despite the significant legal barriers now being erected in the path of takeovers at the state level.

The Alternative Hypotheses: Empire-Building versus Implicit Contracting

Even the strongest proponents of a market for corporate control have long conceded that the source of takeover gains remains a mystery (Jensen and Ruback 1983). Recently, the debate over the source of these gains has become more focused, as increasing evidence suggests that target firms sell in the market at significant discounts from their asset liquidation or break-up values. A National Bureau of Economic Research working paper finds the one financial characteristic that distinguishes hostile takeovers from friendly transactions (at least among Fortune 500 companies) to be the ratio of market value to replacement value of tangible assets. This ratio was lower for the hostile targets (Morck, Shleifer and Vishny 1987).

Elsewhere, I have argued that the characteristic pattern of takeovers began to shift in the early 1980s from "synergistic" acquisitions to "bust-up" takeovers (Coffee 1986). The former, which are aggregative and assume that the whole has greater value than the sum of the parts, had been the dominant pattern throughout the earlier history of the takeover (and indeed all earlier merger and acquisition peak periods). The bust-up takeover is disaggregative and essentially involves a bidder who is seeking to arbitrage the disparity between the stock value of the target and its higher asset liquidation value. Historically, it is easy to understand that the appearance of the junk bond market in the early 1980s made such arbitrage transactions possible, but the deeper question involves how to explain this "negative synergy" that makes many firms more valuable broken up than intact. A number of theories have been offered, including managerial risk aversion, imperfect information, the redundancy of diversified investors owning diversified conglomerates, and managerial compensation practices under which the firm promises an "ex post" settling-up, a promise that the bust-up takeover breaches. I believe further research will someday suggest that changes in the world economy have also made the diversified or "M-Form" conglomerate a comparatively less efficient vehicle for organizing economic activity than alternative contractual arrangements: to reverse Oliver Williamson's well-known thesis, markets may today be more efficient than hierarchies, at least over some range of corporations, which are therefore takeover targets.

Although a range of theories can be offered to explain the preva-

lence of the bust-up takeover, the best-known contemporary theory is probably Michael Jensen's "Free Cash Flow" hypothesis (Jensen 1986). Actually, this theory strikes me as largely a reinterpretation—with original elements, to be sure—of the long tradition of "managerialist" theories, which has featured notable efforts by such writers as Baumol (1959), Marris (1964), Williamson (1963), and more recently, Gordon Donaldson (1984). These writers agree that there is an inherent tendency for excessive growth, because managers' preferences deviate from those of the shareholders. If so, investors should logically discount the firm's stock value below its "break-up" asset value, because the market would anticipate that inefficient investment (that is, diversion of the free cash flow) would continue. In addition, managers may refuse to sell assets or divisions, even though another purchaser would pay more for the particular division; thus, assets do not flow to their highest and best use (or at least to the most optimistic purchaser) until the firm's bust-up permits this potential asset value to be realized. Obviously, the recent finding that target firms have a low ratio of market value to replacement cost seems to corroborate this theory.

An alternative theory has been offered by another group of writers, including this author, who view the modern corporation as a complex institutional mechanism designed at least in part to uphold (and thus permit reliance upon) "implicit contracts" reached between the shareholders and other "stakeholders" in the corporation—for example, managers, creditors, employees, and possibly certain suppliers (Coffee 1986; Knoeber 1986; Shleifer and Summers 1987). The nature of this implicit contract can be variously defined. Some emphasize risk aversion: that is, because shareholders own many stocks, while managers have but one job, they strike an arrangement under which shareholders keep the residual returns, while managers receive the assurance of continuing employment and stable income (Coffee 1986). In short, managers trade off higher returns for lower risk, but are as a result unwilling to commit the firm to risky financial or investment decisions that shareholders would favor. Alternatively, one can model the shareholder/manager "implicit contract" as an attempt to foster investment by managers in "firm-specific" human capital (Williamson 1984). To encourage such investment, managers must be promised a form of quasi-tenure, because such "firm-specific" capital will have limited value to the market. Finally, a third view begins with the recognition that it is difficult to evaluate the senior manager's value to the firm contemporaneously; thus, optimal compensation requires an ex post settling-up process (Knoeber 1986). That is, because one cannot know until years later whether a specific investment decision or marketing strategy will pay off, it is necessary to award deferred compensation on an ex post basis in order to reward managers on a basis commensurate with their contribu-

tion to the firm's earnings.

For present purposes, the differences among these theories are of secondary importance, because all recognize the possibility that shareholders could opportunistically breach the implicit contract. As a result of such conduct, shareholder wealth is increased, but not social wealth. At least in theory, it is possible that the losses to stakeholders could even exceed the gains to shareholders. On a more abstract level, the implicit contracting perspective produces an important paradigm shift, because it moves the focus of the debate from the law's usual concern with reducing "agency costs" to the protection of the interests of these "stakeholders" who are exposed to arguably opportunistic behavior by shareholders.

Implications of the Implicit Contracting Perspective

The assertion that social and shareholder wealth are not positively correlated is obviously subject to challenge. Because the opportunity cost to an employee from being terminated is seldom, if ever, the employee's full wage, it is difficult to believe that employee losses often exceed shareholder gains. Still, the real significance of the implicit contracting perspective is that it forces us to see the board of directors in a very different light. While the law has traditionally viewed the board of directors as the agent of the shareholders, this alternative perspective suggests that the board's role may be that of a mediator. Because long-term contracting between shareholders and the other constituencies is costly and numerous contingencies can arise that could not be foreseen in advance, the parties to the implicit contract need a body to serve in effect as an arbitration panel to preserve the fair expectations of each side. On an ex ante basis, the parties designate the board to perform this role through ex post adjustments (Coffee 1986). This view sounds heretical because, as we all know, only shareholders elect the board of directors, but in practice it is senior management who nominate candidates to fill vacancies on the board, with shareholders only ratifying their selection. Thus, while in theory directors are elected by shareholders, in reality the balance of power over their selection probably tilts in favor of management.

This view of the board as a mediating body brings us back to the distinctive character of the hostile takeover. Uniquely, it permits the bidder to outflank the board. In contrast, a merger or sale of assets generally requires board approval before it is submitted to shareholders. Preempting the board's role has special significance if we view this role as that of a mediator entrusted by the various stakeholders with the task of protecting the expectations of all the contracting parties and, argu-

ably, also with a responsibility for allocating "windfall" gains, such as takeover premiums. This view does not mean that defensive tactics are therefore justifiable, but it does suggest a role for the board beyond that of a bargaining agent for the shareholders; in particular, it invites criticism of those Delaware decisions, such as *Revlon*, that see the board's role (at least once a takeover is inevitable) as only that of a "fair auctioneer" (Coffee 1986, n. 225).

Predictably, some will respond that this view is overly idealized, because there is little evidence to believe that the board has behaved in the past as the wise, paternal, benign mediator that such a theory seems to contemplate. But it is a mistake to see this mediation model of the board's role as equivalent to benevolent paternalism. Lower-echelon employees contract through other means and institutions (for example, collective bargaining) and are not as exposed to opportunism because they do not invest in much "firm-specific" capital or expect an ex post "settling-up." The real contracting parties are chiefly managers and shareholders.

The next step in this analysis explains the appearance of state takeover statutes as the consequence of the preemption of the board's role. If the implicit contract has been breached, a contractual failure has arguably occurred, and legal regulation becomes justifiable. In this perspective, state takeover statutes have nothing to do with shareholder protection, but are instead aimed (albeit covertly) at managerial protection, because the old system of implicit contracting has failed.

To state these arguments is not necessarily to accept them. The first hypothesis—the Free Cash Flow theory—probably has greater explanatory power, because the scale of recent takeover gains (roughly $167 billion, according to Grundfest and Black 1987) cannot be explained simply on the basis of cost savings to shareholders from opportunistic breaches of implicit contracts. This becomes clearer if we consider an individual case. Today, the average takeover premium is around 40 percent. One cannot generally explain a rational bidder paying $1.4 billion for a target whose prior aggregate stock market value was $1 billion, simply in terms of the cost savings that managerial layoffs are likely to effect. Indeed, for such a takeover to be rational on this basis (given both the risks and the notoriously high transaction costs), the bidder would have to expect to realize cost savings considerably greater than this $400 million premium in order for it to earn a reasonable profit. There may have been some takeovers that fit such a pattern, but even in these cases the actual loss to the dismissed managers is their opportunity cost, which will generally be only a fraction of their former salary.

Let us assume then that the disparity between stock and asset values of the typical target firm is attributable more to inefficient empire-building and a bias for earnings retention than to shareholder

opportunism and the reneging on implicit contracts. Still, this view that Free Cash Flow theory explains more (or even most) of the discount does not refute the possibility that managers are exposed to significant losses as a result of takeovers. Rather, it leads us to the critical issue, from my perspective: If shareholders have more to gain from takeovers than managers have to lose, why haven't shareholders found ways to "bribe" managers into acquiescence? This is, of course, what Coase's theorem would predict. The most obvious means by which to align managerial incentives with those of the shareholders is through management compensation formulas. Why then has private ordering not devised new compensation formulas designed to secure managerial acquiescence in takeovers?

Takeover Resistance as a Problem in Management Compensation

Assume the Free Cash Flow formula is correct and managers are biased toward retaining earnings in investments that have negative present value once discounted at a rate equal to the corporation's cost of capital. Because such inefficient retention of earnings does not enrich management personally, it can have only a limited utility for them. Assume that for each dollar of "free cash flow" that is inefficiently invested, management receives a positive utility of 10 cents (because salaries are positively correlated with size, or because there is greater psychic income in managing a larger firm, or for some other reason). Seemingly, a compensation formula could be devised that effectively paid managers 20 cents for each dollar of free cash flow not so invested, but instead paid out. Why then hasn't internal contracting within the firm fashioned such a formula?

One answer may be that the failure to pay out free cash flow to shareholders may have more to do with implicit contracting within the firm than has hitherto been recognized. This answer may also explain why target firms do not have more distinctive financial characteristics (because the practice is widely prevalent). For example, risk-averse managers might prefer the lower, but less risky, positive utility associated with empire-building to the highly risky cash substitute that a compensation formula offers.

Another answer may be that there are legal barriers that preclude the adoption of more optimal management compensation formulas. This answer has been tentatively put forward by Jensen and Murphy in a recent, very interesting working paper, but it ultimately seems difficult to accept, at least in the form in which they articulate it. They begin with a striking fact: as they compute it, executive compensation is extremely

insensitive to the stock market performance of the firm employing the manager, changing "less than two cents for every $1,000 change in equity value" (Jensen and Murphy 1987). If this is the case, it is little wonder that managers have let stock market values sink below asset liquidation values. Managers are essentially in the position of fixed-interest creditors and, as such, should behave in a highly risk-averse fashion. This leads to the next question: Why are management compensation practices so indifferent to the firm's stock value? Here, Jensen and Murphy suggest that fears of legal liability may lead directors to undercompensate managers. This seems overstated, because cases imposing such liability are notoriously lacking, and only in the case of twelfth-hour "golden parachutes" or gratuitous pensions to the chairman's widow have courts intervened to enjoin the transaction.[3] In general, the business judgment rule reigns more supremely in this area than in most others.

The problem may instead lie with the difficulty inherent in designing the kind of management compensation formula that is needed (and also with its relative novelty, which might subject it to a greater likelihood that courts would enjoin it). Simply keying managers' salaries to the firm's stock price is too crude, because it does not distinguish the "firm-specific" component from the "systematic risk" component of the stock price. Possible formulas that could make such a distinction may be overly complicated and are not easily implemented, particularly if managers are poor risk bearers and need a stable income stream. Also, if some managers are risk-neutral, then stock-based compensation can give rise to a moral hazard problem, as these managers would have an incentive to accept highly risky investments and policies. The result would begin to resemble a world in which the managers were selected exclusively by the firm's warrant holders. To sum up, one needs to steer a fine line between Scylla and Charybdis: the former being the fact that managers make poor risk bearers and the latter the danger of creating a moral hazard problem.

More importantly, the higher we raise managers' salaries, the more we motivate them to resist a hostile takeover, by increasing their opportunity cost. Thus, while such a compensation formula might reduce the incentive to retain free cash flow within the firm, it would motivate the target's management to resist a "synergistic" bidder who saw unique gains from combining the bidder and target firms.

Still, other possible compensation formulas have not been adequately explored. Consider then a very different form of compensation formula, one patterned after the manner in which the law has historical-

[3] See, for example, *Adam v. Smith*, 153 So. 2d 221 (Ala. 1963). Of special importance is the fact that shareholder ratification shifts the burden to the plaintiff to prove waste. See *Saxe v. Brady*, 184 A.2d 602 (Del. Ch. 1962). For a review of the case law, see Vagts (1983).

ly rewarded the successful plaintiff's attorney in class or derivative actions: namely, a "percentage of the recovery" formula. This may sound like a strange precedent to consider, but uniquely it gives the firm's managers an incentive both to accept, and to maximize, the takeover gains. Hypothetically, such a formula could be implemented by a provision in the corporate charter authorizing the board to pay to the firm's senior managers a specific percentage (say, 20 percent) of the premium paid to shareholders in a merger, acquisition or tender offer; such payment would be made by the target corporation (not the bidder), and a bylaw could commit the board to make such a payment, subject perhaps to some limited circumstances where it could be voided in the judgment of two-thirds of the board or more. This compensation would be in addition to the salary and stock option compensation the managers were otherwise paid. (Admittedly, a tendency to reduce regular compensation in light of this contingent bonus might arise.)

What would be the incentive effects of such a system? In a more focused manner than stock options, such a form of compensation should encourage target managers not only to acquiesce in a takeover, but to seek out bidders and conduct legitimate value-maximizing auctions. To be sure, some managers might still resist, but particularly for the CEO nearing retirement age, the lure of such a bonus should be considerable. Nor is this compensation costly to shareholders of firms for which no offer is made (as stock options and bonuses are).

Would there be any perverse incentives? Here, any answer must be qualified. Because such a compensation system gives the manager an interest in maximizing the margin between the firm's stock value and its higher break-up value, there could conceivably be an incentive to mismanage the firm in order to maximize this spread. This possibility seems small. A decline in corporate earnings would likely affect the manager's ordinary compensation (by reducing bonus income or the value of stock options) and would expose the manager to the threat of ouster by the board. In addition, the truly inefficient, mismanaged firm seems to escape the hostile takeover (witness the success of International Harvester, Chrysler, Continental Illinois and others in this regard), possibly because the bidder fears that it will be acquiring a "turkey" with more intractable problems than it realizes from the outside. Corporate culture is another factor that makes deliberate mismanagement an unlikely scenario.

A more realistic possibility is that such a compensation formula would give management an incentive to withhold favorable information from the stock market in order to privately reveal it only to selected bidders. Again, this conduct would maximize the spread between the stock market and break-up values, but it would not lead to any penalty in terms of reduced current earnings (because salary tends to be based

on historical reported earnings, not future discounted cash flows). Of course, to the extent one believes in the efficiency of the stock market, the ability of management to conceal material information from the market (while revealing it selectively to potential bidders) seems limited. Bidders who learn such information will logically buy the stock in the open market, and insider trading and normal information leakage may also close the gap between the two values. Thus, although there is the possibility of allocative inefficiency caused by managerial concealment of material information, the magnitude of this problem seems small.

The real problems with this proposal are, first, that it is open-ended, and, second, that it does not benefit all those who, if we believe that implicit contracts have been breached, stand to lose unfairly. The concept of a percentage-of-the-recovery fee award, as used in class actions, was always subject to a judicial scrutiny for reasonableness, and fee awards over 40 percent of the recovery have been extremely rare. Thus, although it may be in the shareholders' interest to allocate on an ex ante basis 10 or even 20 percent of the takeover premium to managers who are otherwise in a position to block it, a 50 percent allocation seems unreasonable. How likely is such a result? Much depends on how much confidence we place in the charter amendment process, where collective action problems and high information costs may make shareholders rationally apathetic. The more we doubt this process, the more we may be legitimizing extortion by managers of the takeover premium. Yet, corporate control transactions may be the unique context where investors do pay close attention to proposed charter amendments, because the expected gains are large enough to overcome their rational apathy.

Second, if we believe that takeovers invite shareholder opportunism and reneging on implicit contracts, this proposal represents only a partial answer, because it does not necessarily benefit middle management or others. The tension here is obvious: the more senior management shares that portion of the premium allocated to management with middle levels, the less will be senior management's expected return and the more it is still likely to oppose a takeover. The difficulty of this trade-off and the arguable need for a ceiling on the maximum amount so allocable suggests the need for legislative limits, possibly including nondiscrimination rules paralleling the statutory provisions regulating pension plans.

Regardless of these specific and subsidiary questions, the sharing of takeover gains that I am here suggesting goes well beyond any use that has yet been made of golden parachutes. Even in the more "liberal" cases upholding such compensation, courts have looked to the predictable loss in compensation over, typically, a three-year period and have adopted a "reasonableness" test.[4] Under such a test, a decision by the board alone to allocate 20 percent of the takeover gains to management seems

unlikely to pass such a test, absent special factors.

However, if such a provision were inserted in the corporate charter by a shareholder vote well in advance of any takeover, its prospect for judicial approval seems materially enhanced (although still not certain). The case for it now is not that it is "reasonable" in judicial eyes but that it was approved by a disinterested majority of shareholders (and possibly ratified within some reasonable "sunset" period). Only if the plaintiffs could demonstrate "waste" (a legally vague term approaching sheer irrationality) would such a provision be invalid under the Delaware case law.

To implement such a provision, changes in the federal tax laws will probably also be necessary, because "change of control" executive compensation is today subject to special and punitive taxation. Hence, federal tax reform is a precondition to any policy of securing managerial acquiescence.

Conclusion

Because of the *CTS* decision and the adoption of antitakeover statutes by a majority of the states, takeovers may yet be sharply curtailed. This prediction has proven false before, but rarely has the coalition of forces opposed to takeovers seemed so organized as today, when they have succeeded in a majority of the states in enacting legislation. The political economy of these statutes is particularly interesting. Despite their overt purpose, it takes little analysis to conclude that state takeover statutes do not benefit target shareholders. Target corporations could adopt—and to a considerable extent have adopted—charter provisions protecting their shareholders against the coercive features of partial bids and two-tier tender offers. Even in the absence of shareholder approval, boards of directors can adopt "poison pill" plans that can have a similar effect. There is thus little need for legislative efforts to protect the target shareholder, who may already be overprotected in most instances, even without governmental regulation.

But the fact that such legislation does not really help its nominal beneficiaries does not mean that there are not covert beneficiaries. Target managements, local communities, suppliers, existing creditors—all fall into this latter category. Takeover legislation, particularly at the state level, has usually amounted to a form of rent-seeking by such groups, and they have been highly effective because they are a politically cohesive and visible local force, while shareholders are dispersed nationally;

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[4] See *Koenings v. Joseph Schlitz Brewing Co.*, 377 N.W.2d 593 (Wisc. 1985); (issue is the reasonableness of the stipulated damages clause).

bidders and their allies can also be pejoratively dismissed as "arbitragers and speculators."

Against this backdrop of contending forces engaged in a rent-seeking competition—investment bankers on one side and the corporate business community largely on the other—only an incurable optimist would predict a satisfactory legislative solution. Stalemate and piecemeal compromise seem more likely. From an economic perspective, however, we can witness a familiar story in a new context: instead of railroads and cornfields, we here see shareholders and managers locked in the familiar Coasean attempt to negotiate an efficient outcome. The gains to the shareholders seem to outweigh the losses to the managers, and thus the possibility of an efficient outcome is discernible if legal barriers can be relaxed that might prevent a mutually beneficially transaction. If not, I expect that the takeover boom of recent years will gradually turn into a leveraged buyout boom, as target managements find this option to be their exclusive means of protecting their economic position. Most likely, the alternatives for the future are either new systems of managerial compensation that give managers greater incentive to accept risk or a higher rate of management buyouts, as managers acquire a controlling position in order to assure their tenure in office.

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