

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-

*Associate Professor of Business Administration, University of North Carolina.

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

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 (1.74)	\$9.84 (4.47)	6.10 (11.45)
1926–30	2032 (2.95)	\$6.12 (2.15)	1.28 (2.12)
1965–70	2931 (7.22)	\$8.91 (4.60)	0.86 (1.26)
1981–86	2929 (7.20)	\$18.38 (12.42)	0.77 (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); Beckett (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. Beckett (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 buy-outs, 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.

References

- Asquith, Paul R. 1983. "Merger Bids, Uncertainty and Stockholder Returns." *Journal of Financial Economics*, vol. 11, pp. 51–84.
- Auerbach, Alan J. and David Reishus. Forthcoming 1988. "The Effects of Taxation on the Merger Decision." In *The Economics Effects of Mergers and Acquisitions*, Alan J. Auerbach, ed., National Bureau of Economic Research.
- Bartley, Jonathan and Calvin Boardman. 1986. "The Replacement-Cost-Adjusted Valuation Ratio as a Discriminator Among Takeover Target and Non-target Firms." *Journal of Economics and Business*, vol. 38, pp. 41–55.
- Beckenstein, Alan R. 1979. "Merger Activity, and Merger Theories: An Empirical Investigation." *Antitrust Bulletin*, vol. 24, pp. 105–128.
- Beckett, Sean. 1986. "Corporate Mergers and the Business Cycle." Federal Reserve Bank of Kansas City *Economic Review* (May), pp. 13–26.
- Benston, George J. 1985. "The Validity of Profits-Structure Studies with Particular Reference to the FTC's Line of Business Data." *American Economic Review*, vol. 73, pp. 37–67.
- Bradley, Michael, Anand Desai and E. Han Kim. 1983. "The Rationale Behind Interfirm Tender Offers: Information or Synergy?" *Journal of Financial Economics*, vol. 11, pp. 183–206.
- Breasley, Richard and Stuart Myers. 1984. *Principles of Corporate Finance*, 2nd ed. New York: McGraw-Hill.
- Breen, Denis A. 1987. "The Potential For Tax Gain as a Merger Motive: A Survey of Current Knowledge and Research Opportunities." *FTC Economic Report*, July.
- DeBont, Werner and Richard Thaler. 1985. "Does the Stock Market Overreact?" *Journal of Finance*, vol. 14, pp. 793–805.
- Fisher, Alan and Richard Sciacca. 1984. "An Economic Analysis of Vertical Merger Enforcement Policy." *Research in Law and Economics*, vol. 6, pp. 1–133.
- Fisher, Franklin M. and John J. McGowan. 1983. "On the Misuse of Accounting Rates of Return to Infer Monopoly Profits." *American Economic Review*, vol. 73, pp. 82–97.
- Fox, Eleanor M. 1982. "The New Merger Guidelines: A Blueprint for Microeconomics Analysis." *Antitrust Bulletin*, vol. 27, pp. 519–91.
- Franks, Julian R., Robert S. Harris and Colin Mayer. Forthcoming 1988. "Means of Payment in Takeovers: Results for the U.K. and U.S." In *The Economics Effects of Mergers and Acquisitions*, Alan J. Auerbach, ed., National Bureau of Economic Research.
- Geroski, Paul A. 1984. "On the Relationship Between Aggregate Merger Activity and the Stock Market." *European Economic Review*, vol. 23, pp. 223–33.
- Golbe, Debra L. and Lawrence J. White. Forthcoming 1988. "A Time-Series Analysis of Mergers and Acquisitions in the U.S. Economy." In *The Economics Effects of Mergers and Acquisitions*, Alan J. Auerbach, ed., National Bureau of Economic Research.
- Harris, Robert S., John F. Stewart, David K. Guilkey and Willard T. Carleton. 1982. "Characteristics of Acquired Firms: Fixed and Random Coefficient Probit Analysis." *Southern Economic Journal*, vol. 45, pp. 164–84.
- Hasbrouck, Joel. 1985. "The Characteristics of Takeover Targets and Other Measures." *Journal of Banking and Finance*, vol. 9, pp. 351–62.
- Herman, Edward S., and Louis Lowenstein. 1987. "The Efficiency Effects of Hostile Takeovers." In *Knights, Raiders and Targets: The Impact of Hostile Takeovers*, John Coffee, Louis Lowenstein and Susan Rose-Ackerman, eds., New York: Oxford University Press.
- Hevert, Kathleen and Robert S. Harris. 1986. "Sources of Value Creation in Mergers: Conglomerate versus Non-Conglomerate Combinations." University of North Carolina at Chapel Hill, working paper.
- Hogarty, T. F. 1970. "Profits from Mergers: The Evidence of Fifty Years." *St. John's Law Review*, vol. 44, pp. 378–91.
- Jarrell, Gregg A. 1985. "The Wealth Effects of Litigation by Targets: Do Interests Diverge in a Merge?" *Journal of Law and Economics*, vol. 28, pp. 151–77.
- Jarrell, Gregg A. and Annette B. Poulsen. 1987. "Bidder Returns." University of Rochester working paper.

- Jarrell, Gregg A., James A. Brickley and Jeffry M. Netter. 1987. "The Market for Corporate Control: The Empirical Evidence Since 1980." University of Rochester working paper.
- Jensen, Michael C. 1986. "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers." *American Economic Review*, vol. 76, pp. 323-29.
- Jensen, Michael C. and Richard S. Ruback. 1983. "The Market for Corporate Control: The Scientific Evidence." *Journal of Financial Economics*, vol. 11, pp. 5-50.
- Kauper, Thomas E. 1984. "The 1982 Horizontal Merger Guidelines: Of Collusion, Efficiency, and Failure." In *Antitrust Policy in Transition: The Convergence of Law and Economics*, Eleanor M. Fox and James T. Halverson, eds., American Bar Association.
- Long, William F. and David J. Ravenscraft. 1984. "The Misuse of Accounting Rates of Return: Comment." *American Economic Review*, vol. 74, pp. 494-500.
- Lubatkin, Michael. 1987. "Merger Strategies and Stockholder Value." *Strategic Management Journal*, vol. 8, pp. 39-53.
- Magenheim, Ellen B. and Dennis C. Mueller. 1987. "On Measuring the Effects of Acquisitions on Acquiring Firm Shareholders." In *Knights, Raiders and Targets: The Impact of Hostile Takeovers*, John Coffee, Louis Lowenstein and Susan Rose-Ackerman, eds. Oxford: Oxford University Press.
- Margotta, Donald G. 1986. "Finance Theory: Its Relevance in Corporate Control." Northeastern University working paper 85-14.
- Margotta, Donald and Felicia Marston. 1987. "Long-Term Results of Defeated Tender Offers." Northeastern University working paper 87-29.
- Marshall, W. J., J. B. Yawitz, and E. Greenberg. 1984. "Incentives for Diversification and the Structure of the Conglomerate Firm." NBER Working Paper No. 1280.
- Melicher, Ronald W., Johannes Ledolter, and Louis J. D'Antonio. 1983. "A Time Series Analysis of Aggregate Merger Activity." *Review of Economics and Statistics*, vol. 65, pp. 423-30.
- Morck, Randall, Andrei Shleifer and Robert W. Vishny. 1987. "Characteristics of Hostile and Friendly Takeover Targets."
- Mueller, Dennis C., ed. 1980. *The Determinants and Effects of Mergers: An International Comparison*. Cambridge, MA: Oelgeschlager, Gunn & Hain.
- Nelson, R. L. 1959. *Merger Movements in American Industry, 1895-1956*. Princeton: Princeton University Press.
- Palepu, Krishna G. 1985. "Predicting Takeover Targets: A Methodological and Empirical Analysis." *Journal of Accounting and Economics*, vol. 8, pp. 3-35.
- Patience, John and Chris Sortwell. 1984. "Creating Economic Value Through Diversification." Paper presented at a conference on mergers and acquisitions, McKinsey and Company, New York.
- Ravenscraft, David J. and F. M. Scherer. 1987. *Mergers, Sell-Offs and Economic Efficiency*. The Brookings Institution: Washington, D.C.
- Rogowsky, Robert A. 1984. "The Justice Department's Merger Guidelines: A Study in the Application of the Rule." *Research in Law and Economics*, vol. 6, pp. 135-66.
- Scherer, F. M. 1980. *Industry Market Structure and Economic Performance*, 2nd ed. Rand McNally: Chicago.
- Scherer, F. M., W. F. Long, S. Martin, D. C. Mueller, G. Pascoe, D. Ravenscraft, J. Scott, and L. W. Weiss. 1987. "The Validity of Studies with Line of Business Data: Comment." *American Economic Review*, vol. 77, pp. 205-217.
- Shiller, Robert J. 1984. "Stock Prices and Social Dynamics." *Brookings Papers on Economic Activity*, vol. 2, pp. 457-510.
- Shleifer, Andrei. 1986. "The Efficient Markets Hypothesis and the Economic Analysis of Hostile Takeovers: A Survey of Theory and Evidence." NBER working paper, February.
- Shughart, William F. and Robert D. Tollison. 1984. "The Random Character of Merger Activity." *Rand Journal of Economics*, vol. 15, pp. 500-509.
- Singh, Harbir and Cynthia Montgomery. 1987. "Corporate Acquisition Strategies and Economic Performance." *Strategic Management Journal*, vol. 8, pp. 377-86.
- Steiner, Peter O. 1975. *Mergers: Motives, Effects, Policies*. Ann Arbor: University of Michigan Press.
- Stewart, John F., Robert S. Harris and Willard T. Carleton. 1984. "The Role of Market Structure in Merger Behavior." *Journal of Industrial Economics*, vol. 32, pp. 293-312.

- Summers, Lawrence H. 1986. "Does the Stock Market Rationally Reflect Fundamental Values?" *Journal of Finance*, vol. 41, pp. 591-602.
- Thorpe, W. L. 1941. "The Merger Movement." In Temporary National Economic Committee Monograph No. 27, Washington, D.C.: Government Printing Office.
- Wakeman, Doug and John Stewart. 1987. "Matching and Merger Behavior: The Empirical Determinants of Merger Returns." University of North Carolina, Chapel Hill, working paper.
- Wansley, James W., Rodney L. Roenfeldt and Philip L. Cooley. 1983. "Abnormal Returns from Merger Profiles." *Journal of Financial and Quantitative Analysis*, vol. 18, pp. 149-62.
- You, Victor L., Richard E. Caves, James L. Henry, and Michael M. Smith. 1986. "Mergers and Bidders' Wealth: Managerial and Strategic Factors." In *The Economics of Strategic Planning: Essays in Honor of Joel Dean*, Lacy Glen Thomas III, ed., pp. 201-21. Lexington, MA: Lexington Books.

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.

*Managing Director and Chief Economist, and Research Assistant, Morgan Stanley & Co. Incorporated. The authors are indebted to Robert S. Gay for his helpful comments.

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		(3) Change in Bilateral Merchandise Trade Balance (\$ Billions)
	(1) Local Currency Basis (Percent)	(2) U.S. Dollar Basis (Percent)	
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.

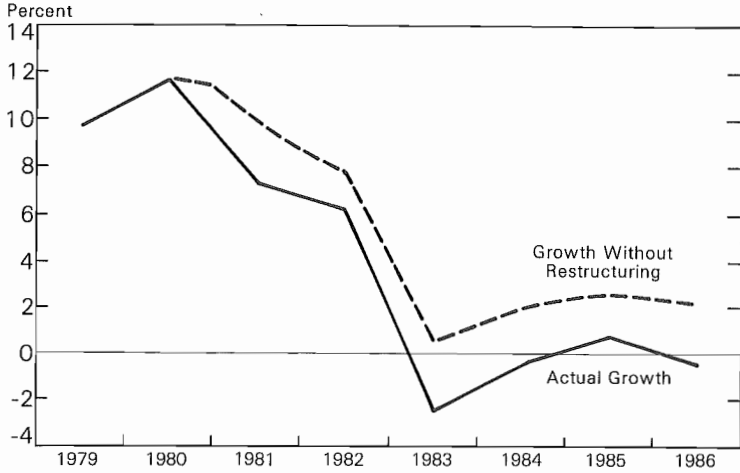
In addition to enhancing productivity, restructuring in manufacturing has in many cases depressed wage increases. Based on a standard wage model, it appears that wage gains were held down about 1 percentage point per year from 1983 to 1986.³ The results of these developments are shown in figure 1. When 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.

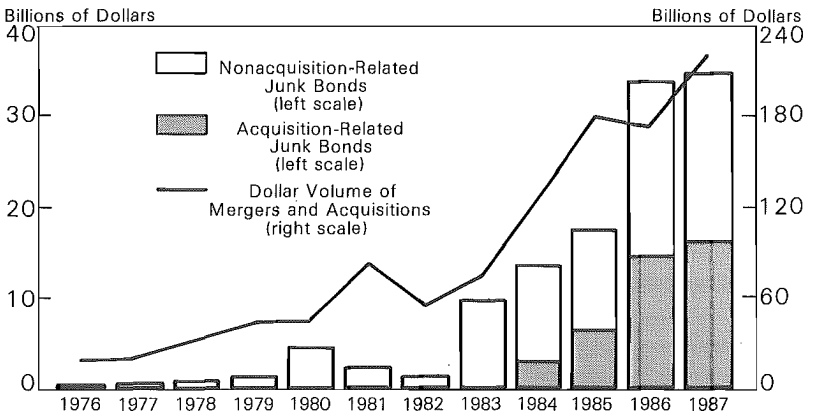
Junk Bonds and the Merger Wave

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



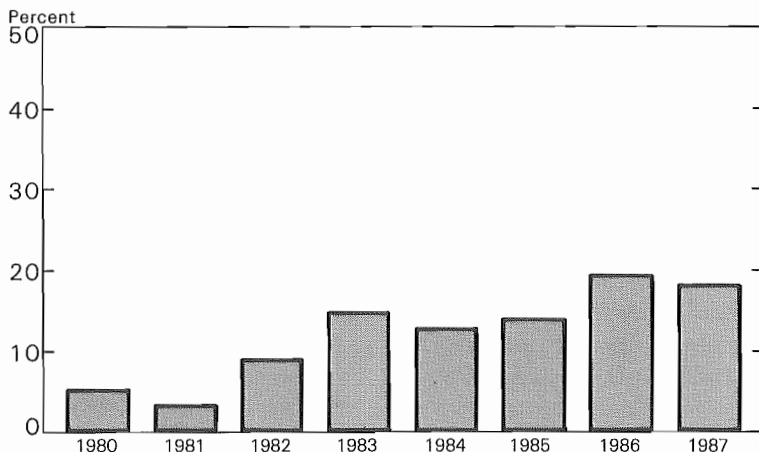
Note: For 1987, data reflect the first nine months of the year expressed at an annual rate.
Source: Morgan Stanley & Co. Incorporated and W.T. Grimm & Co.

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.

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

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.

References

- Jensen, Michael C. 1987. "The Free Cash Flow Theory of Takeovers: A Financial Perspective on Mergers and Acquisitions and the Economy." This volume.
- Paulus, John D. 1987. "After the Dollar Crashes: The World Turned Upside Down." Paper prepared for the U.S. Congressional Summit on an Economic Agenda for the 1990s. Vienna, Austria, September 2-4.
- Paulus, John D. and Robert S. Gay. 1987. "Is America Helping Herself?" *Worldwide Economic Outlook 1987*. Morgan Stanley & Co. Incorporated, January.
- Ravenscraft, David J. 1987. "The 1980s Merger Wave: An Industrial Organization Perspective." This volume.
- Roach, Stephen S. 1987a. "America's Technology Dilemma: A Profile of the Information Economy." *Economic Perspectives*. Morgan Stanley & Co. Incorporated, April 22.
- . 1987b. "Technology and the Service Sector: America's Hidden Competitive Challenge." *Economic Perspectives*. September 25.

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

* Managing Partner, Greylock Investments Limited Partnership.

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 Ravenscraft'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.