

CHAPTER FOURTEEN

Merger activity

Mergers

After completing all of our work on the models of the various types of markets firms can find themselves in we realized that sometimes it may not be very easy to continue to expand and realize economic gains. Well if we cannot increase our total revenues by growing larger and larger and producing more than perhaps we can continue to grow by purchasing companies that are growing. That is we can experience growth through **mergers.**

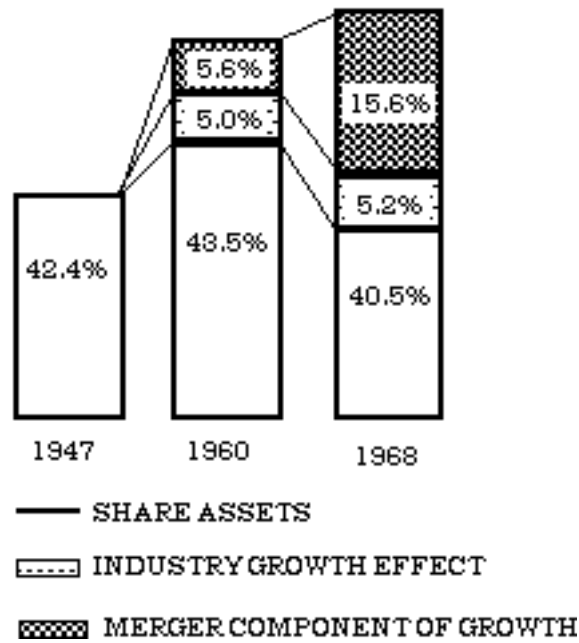
Merger = meaning combine two or more firms under a single ownership.

Mergers can be accomplished by:

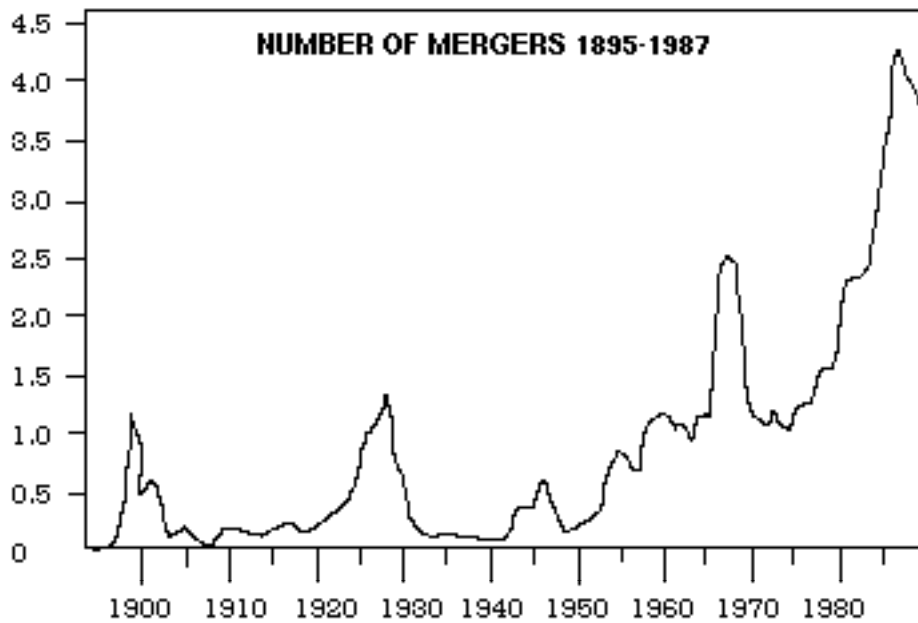
1. Complete acquisition of one company's stock by another either for cash or for stock in the acquiring company.
2. Outright purchase of the assets of another enterprise. In this case the seller can survive and use its cash for another business.

Mergers, rather than the normal expansion of a firm has been increasing in popularity for the past two decades. The following graph demonstrates the increased reliance on mergers as a form of growth.

SHARE OF ASSETS ACQUIRED BY
INTERNAL GROWTH & MERGER

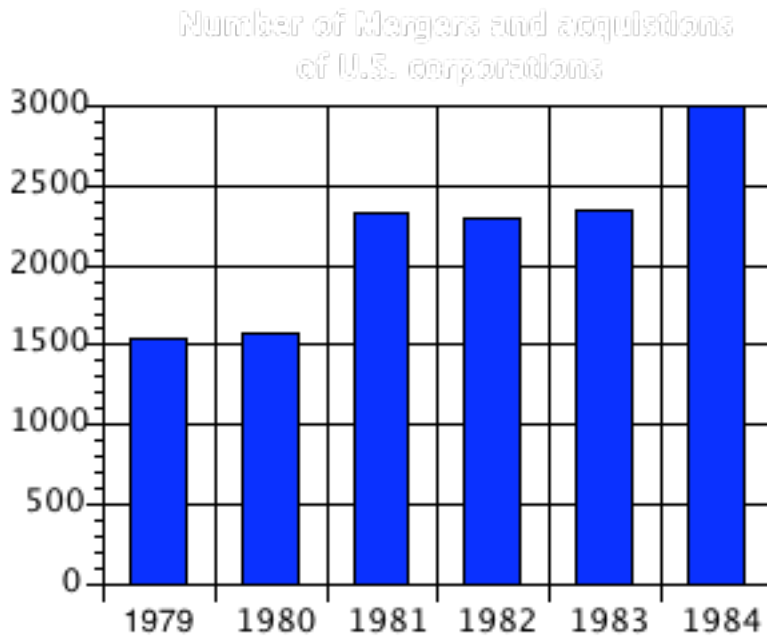


The increased frequency of merger activity is depicted below:

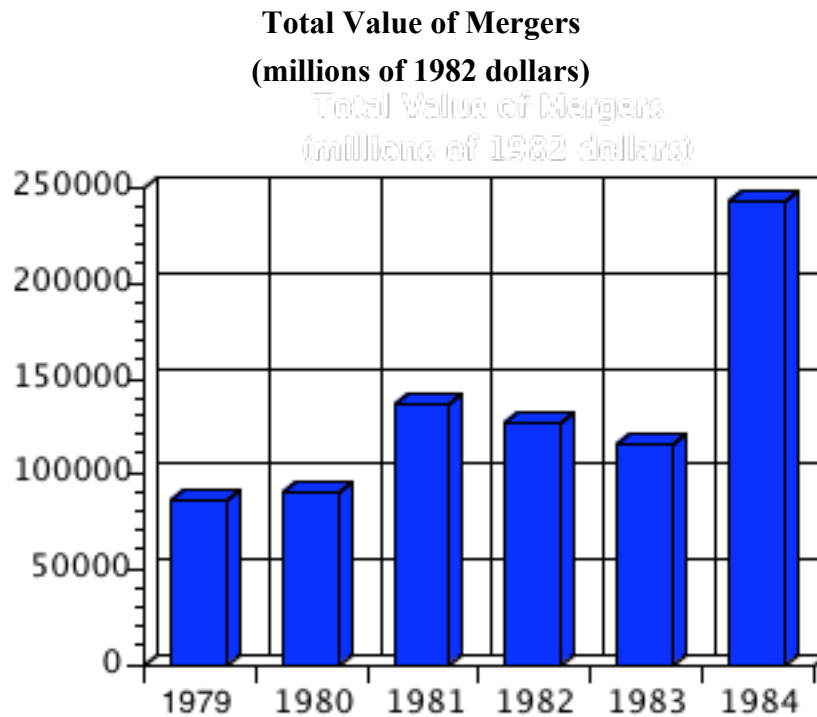


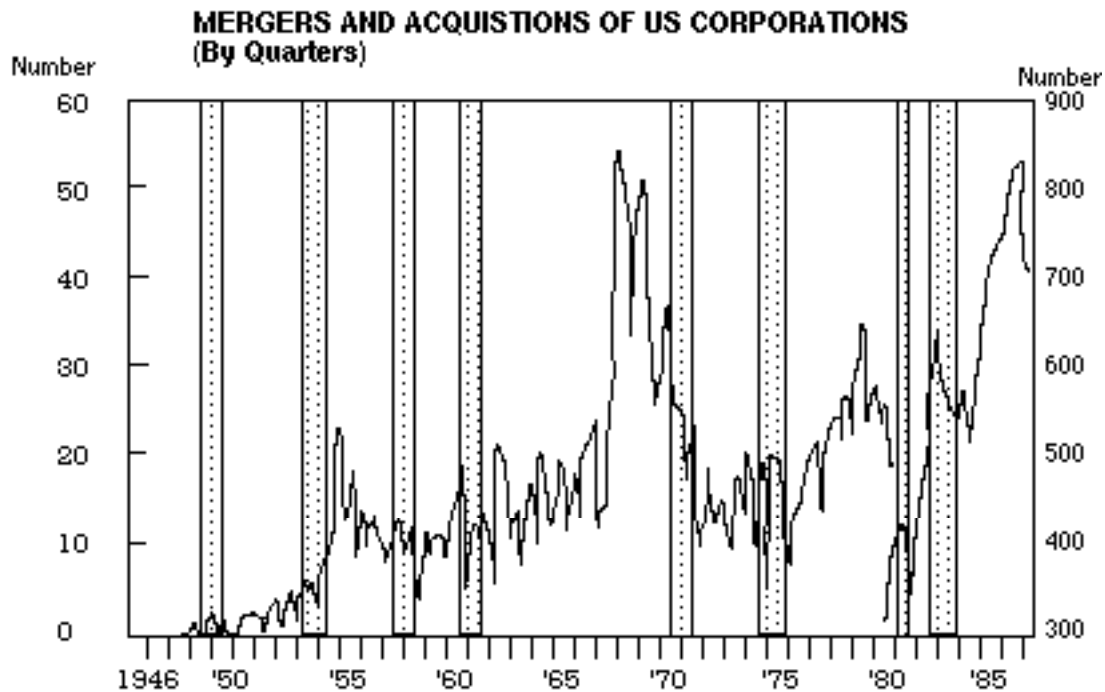
Source: Barrie A. Wigmore, "Speculation and the crash of 1987." Paper delivered at the annual meeting of the American Economic Association, New York City, December 28, 1988

Number of Mergers (1979 1984)



This merger activity involves billions of dollars and effects thousands of workers per year.





Note: The data for the years 1948-79, measured on the left scale, come from the Federal Trade Commission's tabulation of mergers of large mining and manufacturing firms reported in the FTC's Statistical Report on Mergers and Acquisitions for various years. The data for the years 1979-85, measured on the right scale, come from the database compiled by Mergers and Acquisitions magazine. This database includes many more mergers than are reported in the FTC's counts. Shaded areas indicate periods of recession.

Mergers are classified as:

1. **Horizontal** - combination of two or more firms engaged in the production of similar products.
2. **Vertical** - creation of a single firm from two firms, one of which was a supplier or customer of the other.
3. **Conglomerate** - combining two or more firms under one ownership that produce unrelated products.

This rise in merger activity has caused considerable alarm over the past few years. The fear is that corporations will increase their share of the marketplace to the extent where competition is being stifled. Therefore to measure the extent of competition that exists certain measurements have been created.

Previously, when we were examining the market models, we used both the **Lerner** and **Bain** indices to assess the extent of monopoly power. Were these indices as accurate as we first thought? Well in March of 1983, Franklin Fisher published an article in the American Economic Review, that suggests that we cannot rely solely on rates of return to infer monopoly power. By looking at depreciation Fisher indicates that the

method utilized can affect the rate of return of the firm and subsequently give the impression of monopoly power.

Fisher compared straight line, declining balance, and sum of years digits methods of depreciation calculation. The rate of return varied between 22% and 8%, depending on the assumed growth rate of the firm. The existence of different ways of cost calculation can, in the real world, lead to different conclusions about the extent of monopoly power.

Businesses tend to take into consideration interest rates, expectations of consumer demand, capacity utilization rates, and rates of return, before they invest in the expansion of their firms. We then examined some graphs of investment levels (in physical capital) between 1947 and 1988 and found that business is relying less on the traditional investment in physical capital and more on merger activity to increase the profitability of their firms.

Some traditional ways to measure the monopoly power gained after mergers is:

Concentration Ratio: The total sales of the four largest firms in an industry as a percentage of the total sales of the industry. The greater the ratio the greater the market dominance of a small number of firms.

Herfindahl Index: Measures the sum of the squares of the percentages of the four largest firms in an industry as a percentage of the total sales of the industry.

Because of the squaring process, the magnitude of the Herfindahl index is affected disproportionately more by large firms than by small ones. The index can thus be closely approximated by using the market shares of the industry's largest firms.

The Herfindahl index can range from 0 to 10,000. An index of 0 denotes pure competition - the absence of monopoly power. An index of 10,000 denotes pure monopoly. And so an index between 0 and 10,000 denotes degrees of monopoly power.

The **Herfindahl-Hirshman index** measures the sum of the squares of the percentages of all the firms in an industry as a percentage of the total sales of the industry.

Historically we have experienced 3 periods when merger activity has been quite intense. 1870's, 1925-30, 1970's. From this historical perspective, in particular the period of the 1870's, we have learned that allowing some corporations to grow (without

control) can lead to **disproportionate income distribution** i.e. Std. Oil, R.R.'s, Steel, industries.

Thomas McCraw sheds some light on the creation of "trusts" in his book entitled **Prophets of Regulation (1984)**. He writes ..."The trust movement-that is, the powerful tendency of businessmen to combine with their competitors in associations or mergers-grew out of a particular problem of industrialization. This was the problem of periodic industrial over capacity, tied to the boom-and-bust cycles of the late nineteenth century. Just as worldwide over capacity lies behind the periodic "sickness" of such contemporary industries as steel, fibers, footwear, and automobiles, so in the late nineteenth century industrial over capacity caused serious disruptions in the economies of all industrialized nations.

The underlying cause of over capacity was the industrial revolution in production and productivity. In the first phase of the industrial revolution progress in the technology of production far outran similar developments in distribution, marketing, and consumer purchasing power. Cyrus McCormick's reaper, invented in the 1830s, laid the foundation for a national and international system of commercial grain agriculture; but the new system of distribution did not develop until a national railroad network emerged for marketing the grain (there were 23 miles of track in America in 1830 and 208,152 miles by 1890). Changes occurred at uneven rates, and these different paces of change created serious periodic imbalances between nations' capacities to produce and their abilities to consume.

This revolution substituted machine tools for human craftsmen, interchangeable parts for hand-tooled components, and the energy of coal for those of wood, water, and animals. The rising productivity, in turn, often brought over capacity. **The response, among businessmen in every industrial nation, was to combine with one another in schemes designed to limit the total output of their plants, maintain the price levels of their goods, and discourage the entry of new companies into their lines of business."**

Literature about merger activity uses specific language to describe the people and actions involved in the process. The following is a list of terms most frequently encountered in the merger literature:

Crown Jewel: The most valued asset held by an acquisition target: divestiture of this asset is frequently a sufficient defense to dissuade takeover.

Fair Price Amendment: Requires super majority approval of non-uniform, or two-tier, takeover bids not approved by the board of directors; can be avoided by a uniform bid for

less than all outstanding shares (subject to pro-rationing under federal law if the offer is oversubscribed).

Going Private: The purchase of publicly owned stock of a company by the existing or another competing management group; the company is delisted and public trading in the stock ceases.

Golden Parachutes: The provisions in the employment contracts of top-level managers that provide for severance pay or other compensation should they lose their job as a result of a takeover.

Greenmail: The premium paid by a targeted company to a raider in exchange for his shares of the targeted company.

Leveraged Buyout: The purchase of publicly owned stock of a company by the existing management with a portion of the purchase price financed by outside investors; the company is delisted and public trading in the stock ceases.

Lockup Defense: gives a friendly party (see White Knight) the right to purchase assets of firm, in particular the crown jewel, thus dissuading a takeover attempt.

Maiden: A term sometimes used to refer to the company at which the takeover is directed.

Poison Pill: Gives stockholders other than those involved in a hostile takeover the right to purchase securities at a very favorable price in the event of a takeover.

Proxy Contest: The solicitation of stockholder votes generally for the purpose of electing a slate of directors in competition with the current directors.

Raider: The person(s) or corporation attempting the takeover.

Shark Repellents: Anti takeover corporate charter amendments such as staggered terms for directors, super-majority requirement for approving merger, or mandate that bidders pay the same price for all shares in a buyout.

Standstill Agreement: A contract in which a raider or firm agrees to limit its holdings in the target firm and not attempt a takeover.

Stripper: A successful raider who, once the target is acquired, sells off some of the assets of the target company.

Target: The company at which the takeover attempt is directed.

Targeted Repurchase: A repurchase of common stock from an individual holder or a tender repurchase that excludes an individual holder; the former is the most frequent form of greenmail, while the latter is a common defensive tactic.

Tender Offer: An offer made directly to shareholders to buy some or all of their shares for a specified price during a specified time.

Two-Tier Offer: A takeover offer that provides a cash price for sufficient shares to obtain control of the corporation, then a lower non-cash (securities) price for the remaining shares.

White Knight: A merger partner solicited by management of a target who offers an alternative merger plan to that offered by the raider which protects the target company from the attempted takeover.

Source: *Review*, Federal Reserve Bank of St. Louis, December 1985

The major mergers involve billions of dollars of financing. Generally, the financing is arranged by banks and other financial houses. The chart below lists some of the financial experts who have been involved in arranging merger financing.

INVESTMENT FIRMS INVOLVED IN MERGERS

Number of Deals		Value of Deals (\$billions)	
1987	1988	1987	1988

Goldman	134	158	\$63.5	\$93.4
Sachs				
First Boston	174	153	55.1	78.2
Shearson	164	211	25.6	74.1
Lehman				
Morgan	120	125	42.3	74.1
Stanley				
Merill Lynch	101	116	34.3	24.8
Drexel	126	158	22.7	39.0
Burnham				
Lambert				
Lazard	44	59	24.3	34.7
Freres				
Salomon	76	124	21.9	31.8
Brothers				
Kidder	70	73	13.5	17.7
Peabody				
Total	1,009	1,177	\$303.3	\$467.8

Acting as a financial expert for firms involved in merger activity has its own financial rewards as evidenced below:

**SELECTED MERGERS AND ADVISER FEES,
1982-1987**

Year	Merger	Adviser	Fee (\$M)
1982	US Steel	First Boston	\$17.4
	Marathon Oil	Goldman Sachs	10.0
1984	Chevron-Gulf	Salomon Bros.	\$28.2
	Oil	Merrill Lynch	
		Morgan Stanley	18.8
			16.9
1985	Philip Morris-	First Boston	\$10.1
	General Foods	Goldman Sachs	7.1
		Shearson	
		Lehman	7.1

1985	General Motors- Hughes Aircraft	Morgan Stanley	\$19.0
		First Boston	
		Salomon Bros.	15.0
			8.0
1988	Phillip Morris- Kraft	Goldman Sachs	\$30.0
		Wasserstein-	
		Perella	12.0
		Lazard Freres	
			3.5
1988	Kodak-Sterling Drug	Morgan Stanley	\$28.5
		Shearson	
		Lehman	8.0

To provide a sense of the magnitude of merger activity examine some of the more recent takeovers completed by Kolberg-Kravis-Reynolds:

KKR'S MEGA BUYOUTS

Date	Acquisition	Purchase Price (\$billions)	Amount	
				Borrowed (\$billions)
Dec. 1988	RJR-Nab.	\$20.6	\$18.6	
Oct. 1985	Beatrice	6.2	5.8	
July 1986	Safeway	4.1	3.7	
Dec. 1986	Owens-Ill.	3.7	3.5	
July 1987	Jim Walter	2.4	2.3	
Apr. 1985	Storer Commun.	2.4	2.2	
Apr. 1985	Union Texas Pet.	2.2	2.0	
June 1988	Duracell	1.8	1.5	
June 1984	Pace Industries	1.6	1.4	
March 1988	Stop&Shop	1.2	1.1	
March 1984	Womelco	1.0	0.9	

Source: Wall Street Journal, February 3, 1988, p.1; New York Times, March 7, 1989, p.33

The widespread use of Golden Parachutes in the executive suites of corporate America has attracted many critical comments about the additional costs associated with such provisions. Why should a chief executive be rewarded with additional compensation for just doing his/her job? After all, the job of a chief executive officer (CEO) is to maximize profits for the stockholders. If a merger will lead to higher profits it should be the CEO's obligation to ensure the completion of the merger.

Golden parachutes were designed to ensure that CEO's work in the best interest of the target firm in a proposed merger. CEO's and other upper level managers of targets can expect to be dismissed after the merger has been completed. The raider, and new owner, will replace them with their own management team. Generally executives who have lost their positions, as a result of mergers, find it takes about two years to secure a similar position. Given this simple observation firms realize that it is in the firm's best interest to provide golden parachutes for their executives to ensure the CEO's continue to make decisions that are in the best interest of the firm. Logically CEOs who are being well compensated for their efforts will not agree to a merger that will ultimately cause their unemployment unless such protective measures are provided.

The best paid chief executives 1990

Company/Chief executive	Total (\$000)
Time Warner/Steven Ross-----	78,133
UAL/Stephen M. Wolf-----	18,301
Apple Computer/John Scully-----	16,730
Reebok/Paul Fireman-----	14,876
Waste Management/Dean Buntrock-----	12,455
Giant Food/Israel Cohen-----	11,491
Paramount Commun/Martin Davis-----	11,299
Walt Disney/Michael Eisner-----	11,233
Genetech/G. Kirk Raab-----	8,818

**Determinants of
Corporate Merger Activity:
A Review of the Literature
(Overview of the Major Hypotheses)**

The **dominant view**, for which empirical studies have provided support, is that mergers and takeovers primarily reflect efforts to wrest corporate control from inefficient, entrenched management in order to realize the full potential of a firm's assets. In the recent period, the targets of many threatened or actual takeovers have been firms that seemed to have larger cash flows than they could profitably plow back into their basic businesses, given the long-range growth prospects of their industries. These firms in effect were forced to distribute that excess cash flow by exchanging debt for equity. In other instances, firms were forced to sell productive assets that they were unable to manage effectively. The rise in share prices after restructuring or takeover reflects the market's expectation that the actions taken will improve a firm's profitability.

The **second hypothesis focuses on tax considerations**. A merger may afford important tax advantages through a rise in the asset "basis" for depreciation allowances and other purposes, the capture of tax-loss carryovers, or enhanced leverage. As an explanation of mergers, the "tax savings" hypothesis suffers from the fact that many of these tax advantages can be achieved by alternative transactions- for example, through partial asset sales or debt-equity swaps. Tax factors may, however, contribute to the profitability of mergers, even if the choice of this transaction is motivated primarily by other considerations. Consequently, tax factors may play a significant, if largely secondary, role in the prices paid for target companies and in the number of mergers undertaken.

The **third hypothesis** maintains that mergers are motivated by the desire to limit competition and gain market power. Logic suggests that merger activity may increase when some development intensifies competition among firms and thereby enhances the desire to find relief from market pressures through combination; such developments are major deregulatory actions of the sort seen in recent years or a slowing of growth in demand for an industry's product. Alternatively, mergers will increase when antitrust restraints are eased.

The **fourth hypothesis** states that mergers and acquisitions are stimulated by inefficiencies in the financial markets that leave corporate equities undervalued relative to their intrinsic worth. In this view, which is a commonplace in popular accounts of market activity, acquirers are shopping for "bargains" - that is, buying existing physical assets more cheaply than they can be manufactured or built. Many corporate managers believe that raiders essentially "steal" corporate assets by purchasing shares at prices below their true value. Such under valuations, which are independent of managerial inefficiency, tax considerations, or the extent of market power, result from the inability of the market to value corporate assets correctly. Market under valuation is more likely

during times of economic disturbances and uncertainties, when stock market prices generally reach their trough. Distinguishing under valuations of equities resulting from inefficient markets from under valuations resulting from inefficient management is difficult; the studies on market efficiency are not conclusive, and not surprisingly, any evidence of inefficiency is disputed by those who believe the markets do a good job of valuing corporate shares.

The pace of merger activity will change under certain conditions, however. In the early 1980s, rapidly fluctuating relative prices, such as occurred in the oil industry, and shifts in market shares, owing to, say, greater foreign competition, required drastic changes in management policies in many companies to ensure that shareholder interests were preserved—changes that many managers were reluctant to make. The increase in the rate of inflation, as well as changes in the tax code, induced significant increases in asset values, providing tax-basis profits that enhanced the profitability of mergers. Changes in public policy, such as the easing of antitrust and other regulations, also improved the merger environment. Largely as a result of these influences, merger and takeover activity has increased dramatically in recent years.

The Market for Corporate Control

Corporate control may be defined as the power of management to determine the deployment of corporate resources. In the market for corporate control view of merger activity, takeover attempts represent a competition among alternative management teams for the control of corporate assets. In a well-functioning market, shareholders simply choose the team that offers the most value per share in dollar terms.

A fundamental premise underlying the corporate-control view of takeovers is the existence of a high positive correlation between managerial efficiency and the market price of a company's shares. If a company is poorly managed, the shares will be undervalued relative to the potential value of the firm's assets, and this "low" share price will encourage efforts to take over the firm. The new management team that "wins" the takeover competition profits by purchasing the corporation at a price below its potential value, improving its operating efficiency, and thereby increasing the market price of the corporation's shares.

One important implication of the control hypothesis is that takeover activity may be inhibited by any regulations that constrain the ability of a new management team to obtain financing or to profit from the purchase of target company shares. For example, it

is claimed that the 1968 amendment to the Securities Exchange Act of 1934, known as the **Williams Act**, which requires the disclosure within 10 days of a purchase of more than 5 percent of a target company's shares, cut into the ability of corporate "raiders" to realize profits and restrained takeover activity in the early 1970s. Raiders' profits per share are the difference between the price of an efficiently managed company and the average price actually paid for the shares. Because upon the disclosure of a takeover attempt have prices increase in a competitive takeover market to a level near the "efficient management" price, raiders' profits are largely constrained by their ability to purchase shares before disclosure of the transaction. By reducing the allowable period for anonymous purchase of shares, the William's act constrains the raiders' ability to profit from any takeover. Of course, if expected profits are nevertheless sufficient for a raider to attempt a takeover and the attempt is successful, the William's act enables remaining shareholders to participate in the increase in the value of the corporation, assuming the secrecy of the takeover attempt is maintained before the required disclosure. If, however, word of the takeover is leaked to individuals who trade on the basis of that information before public disclosure, long-term shareholders will not participate fully in the increase in the value of their shares.

Tax Considerations

To establish the claim that tax considerations are among the primary determinants of merger activity, two conditions must be met. **First**, a merger must cause an increase in after-tax cash flows from the combination of assets (without any necessary change in pretax cash flows) that exceeds the costs of the merger. **Second**, the tax savings in question must be best achieved by a merger, as opposed to, say, partial sales of assets or an increase in leverage without a merger.

The three principal sources of tax savings in a merger are:

1. a change in tax basis for asset depreciation,
2. the carryover of net operating losses, and
3. an increase in leverage.

To the extent that taxes are a consideration in mergers, tax reform may weaken the incentives to merger activity.

The current round of merger activity has contributed the coining of several new words such as "**Golden Parachutes and Shark Repellents**". From our reading we know that firms can merge in two different ways, either so called "**friendly**" or "**unfriendly**" mergers. In friendly mergers the merger proposal must be approved by the

target firm's board of director's before it is submitted to a shareholder vote. Not only is this mutually beneficial to shareholders of the acquiring firm and of the target, but, also to the managers of the target. Unfriendly mergers, however, reflect the fact that sometimes the tender offer is opposed by management.

"The noninvolvement of target management in a tender offer has further been argued to be a desirable feature of this form of transferring control over corporate assets, since it may provide the additional benefit of displacing poorly performing management. Indeed, the threat of a tender offer is seen as inciting managers to better performance and enriching share-holders. This argument suggests tender offers are more desirable than mergers, and that recent tender offer experience is an improvement over the previous almost complete reliance on mergers to alter control over corporate assets."

Despite this, recent activity can be viewed as attempting to discourage hostile tender offers. The **William's Act (1974)** provides federal rules regulating tender offers:

1. expand the period during which a tender offer must remain open;
2. dictate substantial disclosure as to the bidder's plans and sources of finance;
3. contain anti-fraud provisions that provide target management with the standing to sue for injunctive relief.

Some economists have suggested a fourth major wave in the 1980's, perhaps beginning at the end of the 1970's. Two explanations have been offered for the current wave of mergers. The first is the removal of antitrust rules against vertical mergers in 1982 and the relaxing of rules against horizontal mergers in 1984. The second is the deregulation of specific industries since 1978.

In 1982 the U.S. Justice Dept. repealed restrictions against vertical mergers. The view was that horizontal mergers present a greater anti-competition problem than vertical mergers. This view was criticized by economists because:

1. there are potential efficiency gains from such mergers that the new anti-merger policy may sacrifice (i.e. mismanaged firms).

In 1984 the Justice Dept. accepts the above view and relaxes its restrictions on horizontal mergers. The new test for anti competitive effects takes into account the market shares of all significant competitors, including foreign sellers. Moreover, the new guidelines consider merger related efficiencies as a positive criterion that may counter balance a rise in market concentration. Furthermore they permit failing divisions to be sold to direct competitors if the units face liquidation in the near future and a noncompetitive acquirer can't be found.

Mergers and takeovers are simply a change in the corporations ownership. Because these transactions are voluntary, they occur only if the buyer and seller expect to

profit from the transaction. The buyer believes that the firm's assets can be used to generate a greater return than they are producing under the current owners. **The increase in productivity or efficiency can arise from one of 3 sources:**

1. reorganization may permit greater output from the existing resources with no change in output prices;
2. it may exploit a change in regulatory constraints;
3. it may displace a poor managerial structure.

Other economists have argued that mergers are harmful because stockholders are harmed by:

1. Two tier offers;
2. Management Self-Interest and Golden Parachutes;
3. Shark Repellents.

There are also what is known as third party effects:

1. labor displacement - consolidation
2. adverse effects on capital markets
3. neglect of long-term planning.

I certainly do not want to leave you with the impression that everyone opposes the current merger wave. Indeed, **many influential economists favor merger because:**

1. they are more effectively competitive than the numbers indicate;
2. they permit mass production economies, at lower unit costs and prices, than would be possible with large numbers of small firms;
3. they have the financial ability to support extensive research and development.

The extensive merger activity of the past decade has sparked interest about mergers influence on our macro economy. One econometric study designed to test this influence follows:

Model I: Linkages from real and financial activity to mergers:

$$N_t = a + b_1(L)SP500_{t-1} + b_2(L)TBILL_{t-1} + b_3(L)DEBT_{t-1} + b_4(L)M1_{t-1} + b_5(L)CAPUT_{t-1} + b_6(L)GNP_{t-1} + e_t$$

$$V_t = a + b_1(L)SP500_{t-1} + b_2(L)TBILL_{t-2} + b_3(L)DEBT_{t-1} + b_4(L)M1_{t-1} + b_5(L)CAPUT_{t-1} + b_6(L)GNP_{t-1} + e_t$$

Model II: Linkages from mergers to real and financial activity

$$X_t = a + b_1(L)SP500_{t-1} + b_2(L)TBILL_{t-1} + b_3(L)DEBT_{t-1} + b_4(L)M1_{t-1} + b_5(L)CAPUT_{t-1} + b_6(L)GNP_{t-1} + b_7(L)N_{t-1} + e_t$$

N_t = Number of mergers

V_t = Value of considerations paid for acquired firms

$SP500_t$ = Standard and Poor's comprehensive index of stock prices

$TBILL_t$ = Yield on 3-month Treasury bills

$DEBT_t$ = Domestic nonfinancial debt

$M1_t$ = Measure of the money supply

$CAPUT_t$ = Capacity utilization rate

GNP_t = Gross National Product

X_t = Any one of the macroeconomic variables, i.e., any one of the following: SP500, TBILL, DEBT, M1, CAPUT, or GNP

e_t = Zero mean, finite variance error

a = Constant

$b_i(L)$ = Fourth-order unrestricted polynomial in the lag operator L

Conducting an ordinary least square regression analysis of the above yields the following:

Estimated merger equations: Model I

Explanatory Variable	Dependent Variable			
	# of mergers		Value of mergers	
	Short	Long	Short	Long
	<u>run</u>	<u>run</u>	<u>run</u>	<u>run</u>
SP500				
F-statistic	4.38	0.39	1.52	4.80
TBILL				
F-statistic	2.54*	7.53*	1.54	2.28
DEBT				
F-statistic	2.73*	2.00	0.87	3.17*
M1				
F-statistic	0.90	0.42	1.96	2.43
CAPUT				
F-statistic	2.36*	2.47	2.54*	0.17
GNP				
F-statistic	1.50	4.38*	3.82*	3.35*

* indicate relationships that are statistically significant at the 10 percent level.

Note: The figures in this table are the F-statistics for the tests of the hypotheses that each of the macroeconomic variables influences merger activity.

Estimated merger equations: Model II

(Tests for the influence of merger activity on macroeconomic variables)

Explanatory Variable	<u>Dependent Variable</u>					
	SP500	TBILL	DEBT	M1	CAPUT	GNP
Number of mergers*						
Short run	1.72	0.20	0.60	0.24	0.71	0.18
Long run	1.58	0.66	0.28	0.58	0.63	0.54
Value of mergers ^o						
Short run	0.98	1.18	0.24	0.39	0.45	0.78
Long run	0.11	0.66	0.22	0.10	1.31	0.01

*1960:Q1-1985:Q3

^o1961:Q4-1985:Q3

Note: The figures in this table are the F-statistics for the tests of the hypotheses that merger activity influences each of the macroeconomic variables. None of the F-statistics are significant at the 10 percent level.

Studies like the above have been helpful in determining the relationship between merger activity and business cycles. Three major findings were made from this study:

1. During the last four decades, merger activity has been strongly pro cyclical.
2. About one third of the variation in aggregate merger activity can be attributed to changes in macroeconomic conditions. Of these macroeconomic factors changes in real interest rates have the greatest influence on merger activity. Capacity utilization also affects merger activity in the short run, indicating that firms may choose to expand through acquisitions rather than through traditional investments in plant and equipment.
3. Macroeconomic variables seem unresponsive to any change in the volume of mergers. This indicates that mergers show no systematic impact on interest rates or debt levels.

To control the extent of merger activity in the U.S. requires legislation and a number of regulatory acts have been passed to do just that.