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Let's Make a Deal

A Practical Framework for Assessing M&A Activity

Volume 4

Introduction

"Some years back, a CEO friend of mine . . . was explaining to his directors why he wanted to acquire a certain life insurance company. After droning rather unpersuasively through the economics and strategic rationale for the acquisition, he abruptly abandoned the script. With an impish look, he simply said: 'Aw, fellas, all the other kids have one.'"

—Warren Buffett, Berkshire Hathaway letter to shareholders, 1994

Mergers and acquisitions are taking place at a staggering pace. In 1997 alone, global announced transactions grew to nearly $1.7 trillion, eclipsing by almost 50% the record set in 1996. Virtually no company is immune from the trend, as deals have been initiated across industries, borders, and unfriendly negotiating tables. The stakes have never been higher, and the cost of misallocating capital has never been dearer.

For an economic standpoint, dynamic M&A activity is good as it indicates that capital is flowing freely. An active market for corporate control helps ensure that businesses employ assets to their most productive use. Further, academic research suggests that deals benefit multiple constituencies, including selling shareholders and the IRS, even when the transaction is perceived to have "victims."[1]

In spite of the rising importance of M&A in determining shareholder returns, the analysis of deals by the financial community is often lacking. It is clear that widely invoked rules of thumb—like the virtue of announcing a deal that adds to earnings per share—often fail to explain why stocks go up and down. The stock market must be taking its cues from other factors, including the cash economics and strategic fit of a target, which may not be captured in superficial M&A analysis.

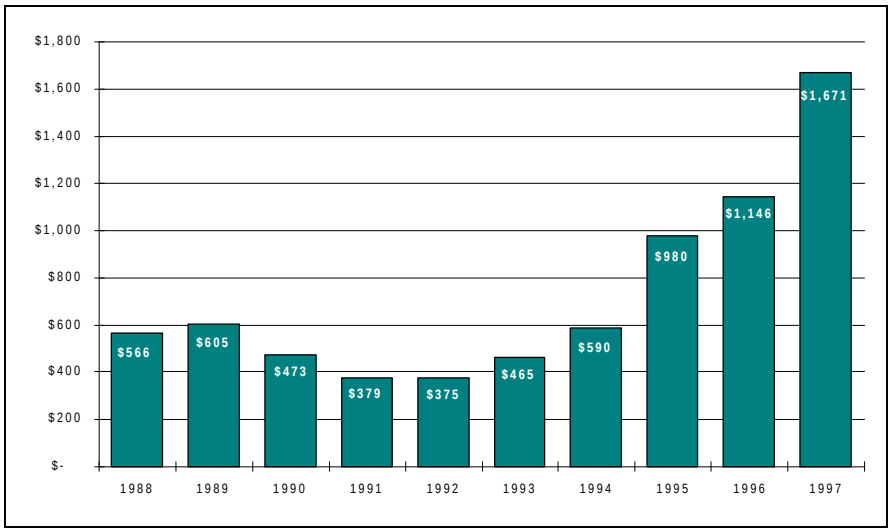
Ultimately, there is only one test of the success or failure of a merger or acquisition: whether or not the per-share value of the acquiring company rises after the deal is done. We believe that astute companies can use the current M&A wave to deliver substantial value for their shareholders. This report seeks to lay out an economically sound framework for assessing such value-creating programs.

We will approach this task in three parts. First, we will review the evidence on deals, outline some potential pitfalls, and explore how accounting issues can obscure economic reality. Second, we will outline the mechanics for a proper M&A analysis. Finally, we offer two case studies. The first is a deal that misfired—the Snapple purchase by Quaker Oats—and the second is a successful transaction—Gillette's acquisition of Duracell.

The Evidence

The M&A market is booming. Deal volume in 1997 was better than two times what it averaged in the late 1980s. Activity in the U.S. paved the way, with the $750 billion in announced domestic deals representing roughly one-half of the world's total. The financial services sector was particularly active, with announced transactions totaling about one-quarter trillion dollars.

Chart 1
Global Announced Transactions
$ in billions



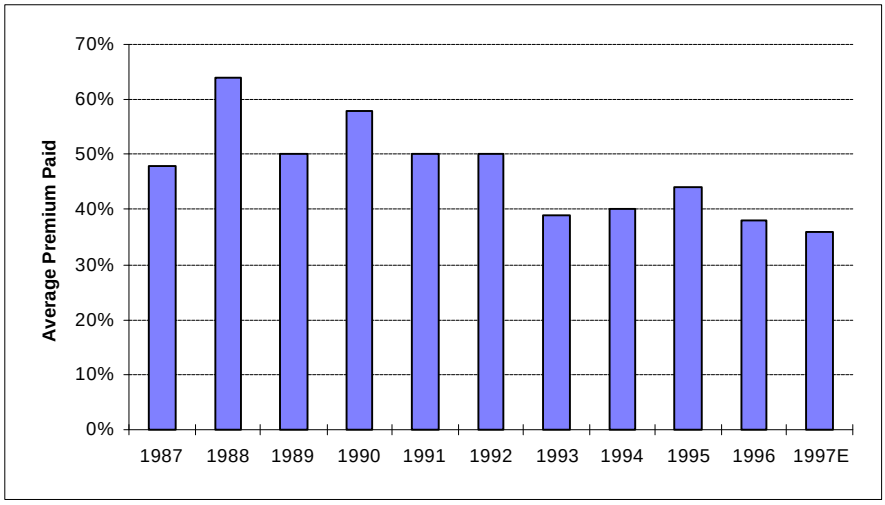
Source: Security Data Corp.

But despite the record volume, the evidence on acquisitions should give pause to potential buyers. On balance, the empirical facts based on academic research show that companies trying to create value through acquisitions face some challenges.[2] However, deals with financial and strategic merit are still well greeted by the stock market. Some key academic findings from the study of transactions are as follows:

- *Roughly two-third of all acquisitions are not immediately value-accretive for the acquiring company.* By using a so-called event study to calculate "cumulative abnormal returns," the impact of an M&A deal on share price performance can be isolated. Using this technique, Professor Mark Sirower documents that two-thirds of announced transactions have resulted in the buyer's stock price underperforming the market.[3] Corporate managers and investors often argue that short-term price performance is an unreliable barometer for determining the merit of a transaction. The reality is that the market is an unbiased measure of expectations—where investors place their collective best bet on the present value of future cash flows. That roughly one-third of all transactions are deemed value-creating for the acquiring company demonstrates that shareholder-friendly deals can be done.

- *The higher the price paid for the target, the greater the synergy must be to add value*. Recent work done by Sirower found that the magnitude of the premium is the primary determinant of value change. When a company overpays in a deal—by paying a premium over stand-alone value greater than the present value of anticipated synergies—the market quickly reacts by transferring wealth from the acquiring company's shareholders to the buyer's. Notably, Sirower found that factors such as deal size and degree of diversification were less explanatory in the buyer's price performance than the premium paid. Chart 2 shows the average premiums paid over the past decade. Potential buyers should be encouraged by the fact that average premiums have declined in recent years.

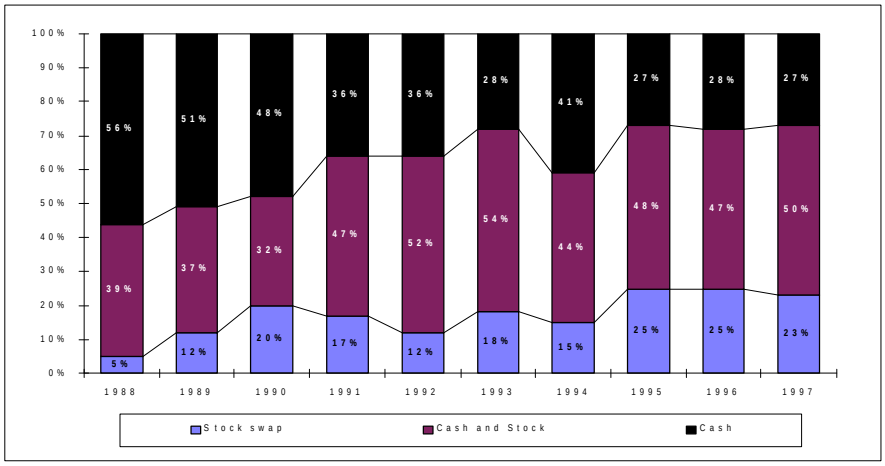
Chart 2
Average Premium Paid
versus 4-week average price



Source: Securities Data Company, Credit Suisse First Boston estimates.

- *Cash deals are better than stock deals.*[4] This evidence is consistent with the hypothesis that managers generally issue stock for acquisitions when they perceive their shares to be overvalued. Interestingly, stock swaps have become much more prevalent than in the recent past.[5] (See Chart 3.) This may imply that managers increasingly believe their stock is overvalued, given the tremendous performance of the equity markets in the past decade.

Chart 3
Types of Consideration in Announced Domestic Deals



Source: Securities Data Company.

- *Goodwill amortization lowers reported EPS, not value.* Professor Michael Davis found that there is no benefit to using the pooling method of accounting for deals versus the purchase, even when the latter results in the recognition and amortization of goodwill, diluting reported earnings per share. In fact, he shows that the market positively values goodwill.[6] However, there is evidence that some companies perceive the income statement benefit of pooling so favorably that they are willing to pay a significant price to achieve it. For example, AT&T incurred about $500 million in incremental costs—including expense associated with satisfying pooling accounting criteria and a boost in the premium paid—in its purchase of NCR.[7]

Why Deals Fail

Given that the majority of announced deals result in a lower share price for the acquiring company, it is worth exploring the major reasons that deals fail.[8] Some of the major missteps include:

- *Overoptimistic appraisal of market potential*. Managers often assume one of two potentially dangerous scenarios: either that a poor performing sector will turn around and improve, or that a growing business will continue to sustain lofty historical growth rates. Quaker's 1994 purchase of Snapple is a good illustration of the latter point. Rather than objectively weigh the competitive threat of beverage giants Coca-Cola and PepsiCo in the alternative beverage business, Quaker's management assumed that rapid growth rates would be sustainable well into the future. As it turned out, Snapple's growth fell shy of expected targets because of the competitive onslaught of rival brands. It is important that management bases its expectations on plausible business scenarios.

- *Overestimation of synergies*. In order to justify paying heady premiums over market prices, managers often count on significant operating and financial synergies. Managers tend to make two kinds of mistakes. First, they tend to overestimate the magnitude of financial improvement—so that goals for anticipated growth or cost reductions cannot be met. Second, managers count on synergies to materialize too soon. This reduces the present value of the synergies and leads to overestimation.

- *Overbidding*. It is not unusual for executives engaged in bidding wars to leave the world of rational economic goals and enter into the realm of psychological objectives. Frequently, the result of a bidding war is that the ultimate winner overpays for the asset. Professor Max Bazerman finds that the "winner's curse" is the result of the "failure to consider the implications of having bid higher than many of the other bidders—all of whom are at the same information disadvantage relative to the seller."[9] The late-1980s acquisition of Federated Department Stores by Robert Campeau is a graphic illustration of how the winner's curse can destroy a company.

- *The hubris hypothesis*. This theory, proposed by Professor Richard Roll,[10] is an adjunct to the winner's curse. Essentially, the hubris hypothesis suggests that while management may *believe* that synergy exists and can be captured, individual judgment is obscured by "pride and arrogance," compelling them to overpay for acquisitions. This hypothesis is confirmed by the overconfidence generally exhibited by managers.

- *Overly optimistic appraisal of ability to integrate*. The smooth melding of two businesses can be impeded by various factors. For example, merging companies may have very different cultures, resulting in style clashes. Geographic distance between the headquarters of M&A partners can also create barriers in communication and integration. Finally, senior managers within a newly formed company often have different roles versus their prior organizations, creating tension. Deals viewed only by the numbers tend to underestimate the impact of these issues.

- *The diversification trap*. Managers sometimes cite diversification as a motivation to make acquisitions. The thinking is that a diversified portfolio reduces risk by smoothing earnings—when one business is underperforming, another one may be doing well, offsetting the weakness. This logic is fatally flawed for a simple reason: portfolio managers can similarly diversify their portfolios for a lot less money. After all, it's a lot cheaper to pay a broker a few pennies of commission than to ante up a hefty control premium. Diversification does lead to greater size, which many managers perceive to enhance reputation. However, size is not well correlated with value creation. This is not to say that managers are making suboptimal decisions. After all, larger girth is well correlated with greater executive compensation.

- *Misplaced financial objectives*. In spite of voluminous evidence to the contrary, some managers persist in the view that any action that adds to accounting earnings per share will add to shareholder value. This misperception can be compounded by poorly conceived incentive compensation programs, many of which remain linked to accounting earnings. As the following section will demonstrate, the earnings per share impact should be considered largely as a residual of proper M&A analysis. The prime goal remains value creation, which requires that the value imparted—in cash, stock, or a combination—be less than the present value of the future stream of cash flow acquired, including the benefit of synergy. To the extent that earnings per share are a proxy for cash flow they are instructive, but investors must dig behind the numbers to determine the economics.

Accounting Issues

Evaluating the merit of a merger or acquisition based solely on its impact on reported earnings per share is one of the greatest investment errors that can be made. The reason for this is simple: accrual accounting earnings do not necessarily reflect the economic reality of cash-on-cash returns. Further, companies can chose various accounting techniques, all acceptable under GAAP, that yield various earnings per share outcomes.

To illustrate the point, we turn to the so-called "high-low fallacy." This simple exercise shows the impact of combining two "businesses"—one with a high price/earnings multiple (P/E) and one with a low P/E—in a stock-for-stock deal. Assuming no acquisition premium or synergy between the operations, it can be demonstrated that management can either increase earnings—High buys Low—or increase the P/E—Low buys High. (See Table 1.) As there is no change in the value of the businesses, the earnings or multiple improvement must clearly be offset by a contra-effect. In fact, this is the case. When High buys Low, the earnings per share rise but the "correct" P/E tumbles. Similarly, when Low buys High the P/E expands but at the expense of earnings per share dilution. There is still no free lunch.

Table 1
The High-Low Fallacy

	High	Low	Get EPS Up! High buys Low	Get P/E Up! Low buys High
Earnings	$5,000	$5,000	$10,000	$10,000
Shares	5,000	5,000	8,333	12,500
Stock price	$30	$20	$30	$20
EPS	$1.00	$1.00	$1.20	$0.80
P/E	30X	20X	25X	25X

Note: Adapted from *The Quest for Value*, G. Bennett Stewart, HarperCollins, 1991.

The high-low fallacy highlights another important issue. P/E multiples are a *function* of value, not a *determinant* of value. This causality is often implicitly reversed when investors and managers use investment rules of thumb. More directly, it is never enough to figure out what impact a deal has on earnings per share without contemplating what effect the same transaction will have on the P/E. A correct approach would be to determine the economics of a deal, as defined by net present value analysis, and to appreciate that the earnings and P/E impact will fall out of those economics.

Often, the earnings impact of a merger or acquisition hinges on the method of financing a company chooses to fund the deal. A fundamental tenet of corporate finance, however, is that projects should not be associated with specific funding sources.[11] This is true for a few reasons.

First, the "capital structure" of the project should be the same as that for the corporation, unless the investment itself is large enough to effect an overall change in target capital structure. Second, the immediate funding source has no necessary connection to the project's hurdle rate. What matters is the project's contribution to the firm's debt capacity. Specifically, if a project is funded completely with debt, it should be clear that the borrowing power comes from the firm's *existing* assets. Finally, even if the firm were willing to significantly increase its debt-to-capital ratio, the cost of debt and equity estimates would have to rise to reflect the higher financial risk assumed by each.

Table 2 highlights this point with an example. Acquirer, Inc. agrees to purchase Target, Inc. For simplicity, we assume no operational synergies and no acquisition premium. Acquirer entertains three scenarios for funding the deal: all stock, half-stock/half-cash, and all cash.

Table 2
EPS and Value Impact of Various Financing Sources for an Acquisition
$ in millions, except per share data

	Acquirer	Target	100% Stock	50% Stock/ 50% Cash	100% Cash
Sales	654	648	1,302	1,302	1,302
EBITDA	193	97	291	291	291
EBIT	183	87	271	246	246
Interest expense	-	18	18	46	76
Pretax income	183	69	253	224	195
Tax	62	24	86	76	66
Goodwill amortization	-	-	-	25	25
Net income	121	46	167	123	104
Earnings per share	$ 6.04	$ 2.29	$ 6.24	$ 5.27	$ 5.18
P/E multiple	12.9	11.4	12.5	15.5	16.8
EV/EBITDA Multiple	8.1	7.4	7.8	8.2	8.5
Debt	-	200	200	462	724
Enterprise value	1,556	724	2,280	2,369	2,458
Market value of equity	1,556	524	2,080	1,907	1,734
Shares outstanding	20	20	27	23	20
Share price	$ 78	$ 26	$ 77.81	$ 82	$ 87

Note: Only the acquisition using 100% stock is accounted for using the pooling method without any amortization of goodwill. The other two scenarios are accounted for using the purchase method with amortization of goodwill over 15 years.

Source: CSFBC analysis.

Acquirer's board of directors might consider the following points:

- *The EPS impact varies significantly with different accounting methods and funding sources*. This is in spite of the fact that the "value imparted," or purchase price, and assumed cash flow stream from the target company are identical under each scenario. This fact alone suggests that EPS accretion/dilution is by itself an unreliable proxy for value creation. In fact, empirical evidence shows that as the percentage of executive compensation linked to accounting measures rises, the market's reaction to merger announcements becomes more adverse.[12] Indeed, in our example the scenario most beneficial to accounting earnings per share outcome delivers the least shareholder value.

- *Deals funded with debt are preferable to those funded with equity, in spite of the negative effect they may have on reported earnings*. This point, supported by the empirical data, stems from two primary considerations. First, higher debt levels—or greater use of a company's debt capacity—may help lower a company's weighted average cost of capital by combining a greater percentage of lower-cost debt versus higher-cost equity. The cost of capital improvement stems from the present value of tax savings, which can be clearly illustrated by the Adjusted Present Value (APV) technique of value estimation.[13] It should be noted, however,

that this financial benefit can be captured without an acquisition through a more aggressive use of the balance sheet. Second, there is evidence that higher debt levels impose capital allocation discipline on companies. Counterintuitively, then, higher debt levels can result in a lower risk of capital misallocation.

- *Enterprise value to EBITDA multiples, often used in M&A analysis, do not tell the complete story*. Multiples represent a shorthand for the discounting process. As such, they do not always capture key issues of value. For example, EBITDA multiples do not explicitly capture issues of risk in cash flows, capital requirements, and the sources and implications of various financing alternatives. Corporate managers and investors should recognize multiples for what they are—a convenient starting point—but should incorporate all key value drivers into their appraisals.

In sum, the use of accrual accounting measures to judge the merit of a merger or acquisition is both economically senseless and potentially very misleading. Managers should be sure that deals are judged based on sound criteria and that executive compensation schemes measure economic, rather than accounting, performance.

M&A Analysis

This section outlines the required steps to perform an economically sound analysis of a merger or acquisition. Before delving into the specifics, however, it is important to stress one point about capital allocation. Senior executives should focus on the funding of *strategies*, not *projects*. There may be circumstances under which a deal is not strictly value creating when viewed by itself, but supports an overall strategy—by providing access to a new market, for example—that creates more value than not doing the deal. Alternatively, some deals may look financially appealing but could be inconsistent with a company's strategic goals and strengths.

The mechanics of M&A analysis can be broken into four parts.[14] We outline each of them in turn:

I. Value the Acquiring Company

This step is a self-appraisal. It allows the buyer to understand a few key points. Most important, a buyer must understand the expectations embedded in its share price, including capital intensity, prospective returns on new investments, and the anticipated period of competitive advantage. A concrete understanding of market expectations can help management understand potential stock market reactions and can offer a guide for investor communication.

Second, a self appraisal can shed light on potential funding techniques. For example, if management feels its shares are overvalued, it may consider using stock to fund some or all of a deal. Very few managers, however, come to the conclusion that their stock is overvalued, even when such a conclusion is supported by an aggregation of internal operating plans. Conversely, if management believes their stock is significantly undervalued, they may consider repurchasing their own shares instead of doing a deal.

II. Value the Target Stand-Alone (i.e., without Synergy)

Here, the buyer seeks to understand the expectations built into the price of the acquisition target excluding potential synergy. This exercise is easily done with public information. It is important to stress here that stock prices often reflect expectations for free cash flow generation and investment needs well into the future. Hence, the buyer must be convinced not only that the performance implied by the public market value is achievable but that the incremental performance implied by the control premium can be exceeded. Cast in this light, it is easy to see why so many deals fail to create value.

III. Identify Synergy

Very simply, the value created in a M&A transaction represents the present value of synergy less the premium paid for control. Stated differently, an acquisition only enhances value for the buyer if the present value of the cash flow improvement *exceeds* the cost of acquiring that cash flow stream.

Logically, then, two issues must be addressed. The first is an identification of what benefits are likely to accrue through the combination of two businesses. Here it is critical to thoroughly and realistically assess synergy, with an explicit eye toward quantifying the cash flow benefits of the deal. The second issue is determining the price of acquiring control of the target company. This control premium is generally observable for deals that have been announced.

Quantifying either of these variables allows a company or an analyst to determine a "walk-away" price—the maximum price for a target that creates value. For example, if a $100 million premium is required for company to acquire a target, the present value of synergies must exceed $100 million for the deal to add value. Likewise, if a thorough estimation of the benefit of combination suggests a present value of savings of $150 million, a maximum premium could be defined.

Consistent with the approach that operating and financing issues should be treated separately, we consider operating and financial synergy merger benefits independently as well.

A checklist of potential operating benefits might include the following:

- *Sales growth*. The combination of two business may allow for accelerated top-line growth as a result of items such as a broadened product offering, expanded distribution channel opportunities, and improved geographic scope. However, there are often product redundancies in acquisitions, leading to a potential short-term sales dip.

- *Operating margin expansion.* Economies of scale in areas such as raw material procurement, manufacturing, distribution, and marketing often allow for higher margins for the combined entity than for the aggregate of the two separate businesses. Further, redundant activities such as accounting, legal, and administration can often be downsized, leading to greater profitability.

- *Capital efficiency*. Companies vary in their ability to manage the balance sheet. As a result, the combination of two companies can lead to improved balance sheet management. Specifically, working capital intensity—as measured by days outstanding of accounts receivable, inventory turnover, and days outstanding of accounts payable—and fixed capital intensity—as measured by the fixed capital

turnover ratio—can be trimmed. In addition, the melding of two companies gives rise to asset redeployment opportunities, yielding the potential for improved aggregate invested capital efficiency.

- *Skill transfer*. This occurs when the skills of one management team are beneficially applied to the business of another company. For example, the acquiring company may have technology or research and development expertise that can be applied to the products of the target company. Skill transfer can also be applied to areas such as distribution, marketing, procurement, financial management, and human resources.

Potential sources of financial synergy might include:

- *Lower taxes*. The combination of two companies may lead to greater tax efficiency. This benefit can arise from the exploitation—or accelerated exploitation—of net operating losses, a change in domicile to a lower tax jurisdiction,[15] a transformation of corporate structure to a tax-efficient vehicle, and a more favorable geographic earnings/losses mix. Any of these can lower overall taxes.

- *Lower borrowing costs*. The case for lower aggregate borrowing costs is that the combined stream of cash flows will be less risky than a single stream of cash, hence reducing both risk and expected reward for creditors. However, this does not necessarily create value for shareholders—especially in higher levered companies—as the value of their "option" to default is reduced.[16]

- *Greater debt capacity*. This benefit can come in one of two forms. The first is the utilization of the untapped debt capacity of either the buyer or the seller to fund the deal. The weakness in this argument is that debt capacity can be tapped without a merger taking place. The second case is that the combined, more stable stream of cash flows allows for greater debt capacity, holding the risk of financial distress constant. The value of financial leverage, however, is significantly influenced by personal tax rates on stocks versus bonds.[17] Under current tax laws, increasing leverage enhances corporate value until the risk of financial distress becomes meaningful.

IV. Value Synergy

The final step in the analysis is to value the anticipated synergy. The combination of the synergy and the stand-alone valuations will help determine the economic merit of the purchase price. If the cost of an acquisition is less than the stand-alone value plus the present value of synergy, the deal will create shareholder value.

"Base case" models should be complemented with ample sensitivity analysis in order to determine the impact of key drivers on value and to weigh the margin of safety. An APV-driven analysis can often prove useful in this capacity, as it distinguishes between potential operating and financial synergies. Finally, we like to see managerial compensation targets tied directly to specific performance measures of the combined companies to assure that the goals and expectations of managers are closely aligned with those of the shareholders.

Shareholder-Value-at-Risk

While the four steps above outline the *mechanics* of analysis, the potential *impact* of a deal is not always clear. In order to address this issue, we turn to "shareholder-value-at-risk," or SVAR.[18] SVAR measures the extent to which the acquiring company's management is "betting the firm" on the success, or failure, of an acquisition. In the worst-case scenario—when no synergy is realized—the control premium represents a direct wealth transfer from the shareholders of the acquiring company to those of the target company. For a cash deal, then, SVAR is simply the premium offered divided by the equity capitalization of the acquiring company. Table 3 shows SVAR percentages under varying scenarios.

Table 3
Shareholder-Value-at-Risk Under Varying Scenarios

	Value Seller/Buyer			
% Premium	**25%**	**50%**	**75%**	**100%**
30%	7.5%	15.0%	22.5%	30.0%
40	10.0	20.0	30.0	40.0
50	12.5	25.0	37.5	50.0
60	15.0	30.0	45.0	60.0

Source: *Creating Shareholder Value*, Alfred Rappaport, Free Press, 1997.

Calculating shareholder-value-at-risk is useful for at least two reasons. First, it allows executives of the acquiring company to know the magnitude of the stakes of the game. These stakes are often obscured by the fact that communication in the public market is based on per-share values instead of absolute values. Second, shareholder-value-at-risk highlights the difference between cash and stock-for-stock deals. In a cash deal, SVAR is totally assumed by the acquiring company. In a stock-for-stock deal, the risk is spread between the acquiring and target company shareholders. In turn, target company shareholders may seek higher per-share consideration in stock-for-stock deals to compensate them for their greater assumed risk.[19]

Here is a simple example. Assume that the acquiring company has a market value of $2,000 and that the target has a pre-bid value of $800. Now assume the acquiring company bids $1,000 for the target, representing a 25% premium. The SVAR for the acquiring company is 10% if it is a cash deal ($200 premium divided by a $2,000 market value). For a stock-for-stock deal, the SVAR is 6.6% ($200 premium divided by a $3,000 combined market value) as the acquirer and target share in the risk of synergy realization.

Used as part of a complete M&A analysis, as outlined above, shareholder-value-at-risk can give the board of directors, executives, and shareholders of both acquiring and target companies a more complete picture of the potential outcome of a proposed deal than can traditional tools.

Case Studies

Quaker Oats/Snapple

The transaction. On November 2, 1994, Quaker Oats announced a bid to purchase Snapple Beverage Corporation for $14 per share, or roughly $1.7 billion, in cash. Snapple stock had reached a high of about $30 per share, but had corrected to the $13-14 per share range to reflect investor concerns about inventory problems and the looming competitive threat from beverage giants Coca-Cola and PepsiCo.

Quaker had a total enterprise value of approximately $5.6 billion—$4.6 billion in equity value and $1 billion in debt—at the time of the announcement. Management viewed the potential synergy in combining Quaker's Gatorade sports beverage business and Snapple as the major strategic rationale for the deal. Further, through the sale of low-growth properties in its portfolio, Quaker management anticipated an acceleration in its growth rate. We published a detailed analysis of the transaction soon after its announcement.[20]

Self-evaluation. Given value-driver estimates similar to market consensus—free cash flow growth of 6%, a 10.7% cost of capital, and a 13-year competitive advantage period (CAP)—Quaker shares appeared fairly valued at about $70 per share.[21]

Target company valuation (stand-alone). We estimated that Snapple shares were worth approximately $8-9 per share. This appraisal was based on 15% free cash flow growth, a 13.5% cost of capital, and a CAP of 10 years. Snapple shares were trading well above this estimated value at the time; the company disclosed disappointing results concurrent with the bid that would have certainly sent the share price lower. Based on this assessment, Quaker was paying a 65-85% premium, or $700-800 million, to pre-synergy value. Shareholder-value-at-risk approximated 17%, a relatively high number. In retrospect, it is clear that even the assumptions in the "no-synergy" scenario were aggressive.

Identify synergies. Three areas of potential synergy were identified. First, Quaker could wed the different distribution strengths of Snapple and Gatorade to capture higher sales. Specifically, Gatorade was strong in supermarket channels and in the South, and Snapple was well-positioned in delicatessens and on the coasts. Second, the technological expertise of Snapple in flavor systems could aid Gatorade, while Gatorade's packaging abilities could fortify Snapple. Finally, financial management in areas such as procurement, information systems, and inventory management could improve the performance of Snapple. Further, Quaker's lower cost of borrowing could help reduce Snapple's cost of capital.

Value synergies. The anticipated synergies could be translated into an acceleration in sales growth from 15% to 18%, lower capital requirements as Quaker's supply chain initiatives were implemented, and a lower cost of capital. These benefits were valued at approximately $700 million. Clearly, however, the analysis demonstrated that Snapple would have to grow significantly for a sustained period just to be *value neutral* for Quaker shareholders. Table 4 summarizes the economics of the deal.

Table 4
Value Impact of Snapple on Quaker Oats
$ in billions

Item	Amount
Corporate value of Snapple	$1.0
Less: Snapple debt	—
Equity value of Snapple	1.0
Synergies acquired	0.7
Less: Purchase price paid	1.7
Value creation for Quaker shareholders	$0.0

Source: Credit Suisse First Boston estimates.

Postmortem. Snapple never came close to living up to its "value-driver" expectations. In fact, the business generated a loss in 1995, the first full year Quaker owned the business.[22] In the summer of 1996, Quaker management spent an incremental $20 million on advertising and promotion in an effort to stem the tide of sluggish volume trends. The business never responded. In the first quarter of 1997, Quaker sold Snapple to Triarc Beverage Holdings for an embarrassing $300 million[23] and took a $1.4 billion asset write-off. Quaker's CEO, Bill Smithburg, subsequently resigned.

Gillette/Duracell

The transaction. On September 12, 1996, Gillette agreed to acquire Duracell International for roughly $7.7 billion. Duracell is the leading alkaline battery producer in the world, and represented a new "leg" to Gillette's growth strategy. The transaction valued Duracell shares at roughly $7.2 billion, or $59 per share, about a 20% premium to its pre-bid closing price. The deal was accounted for as a pooling of interests; Duracell shareholders were to receive 0.904 Gillette share for each share they owned. Interestingly, Gillette management indicated that it preferred a pooling-of-interest deal because of its accretive impact on earnings per share, and suggested it would not have done the deal with purchase accounting.

Duracell was 34% owned by leveraged buyout group Kohlberg, Kravis and Roberts (KKR). KKR had purchased Duracell from Kraft in 1988 for $1.9 billion. Duracell went public in 1991 at $15 per share.

Self-evaluation. Gillette shares were deemed to by fairly valued, based on consensus growth rates in free cash flow (low- to midteens), a 10% cost of capital, and a 20-year CAP. Gillette's share price was roughly $65, representing a $36 billion market capitalization, at the time of the deal announcement.

Target company valuation (stand-alone). Duracell shares, trading in the $48-49 range, also appeared reasonably valued before the bid. The company's free cash

flow growth rate was estimated to be in the low teens (earnings per share growth was targeted at 15%), the cost of capital approximated 10%, and the assumed CAP was about 15 years. The share price premium offered by Gillette equated to $1.2 billion in market value. SVAR was a modest 3%, as Gillette's risk of attaining synergies was shared with Duracell shareholders.

Identify synergies. Three areas of potential synergy were identified.[24] First, Gillette's significant international sales and distribution capacity could allow for an acceleration in Duracell's international sales and earnings growth rate. Second, management anticipated $80-100 million in savings over two years as duplicative functions were eliminated. Finally, Gillette could reduce Duracell's cash tax rate roughly 250-300 basis points through effective tax management.

Value synergies. Management expected the deal to accelerate Duracell's top-line growth, boost margins, and lower the company's expected tax bill. These synergies were valued at approximately $2.4 billion, exceeding the premium Gillette paid for Duracell. Capitalizing the $100 million in cost savings alone pointed to a $1 billion increase in pretax value. Hence, these assumptions did not appear unreasonable. Table 5 summarizes the economics of the deal.

Table 5
Value Impact of Duracell on Gillette
$ in billions

Item	Amount
Corporate value of Duracell	$6.6
Less: Duracell debt	0.6
Equity value of Duracell	6.0
Synergies acquired	2.4
Less: Purchase price paid	7.2
Value creation for Gillette shareholders	$1.2

Source: Credit Suisse First Boston estimates.

Postmortem. Duracell has generally lived up to expectations. For example, in 1997 Duracell's sales and operating profit grew 10% and 17%, respectively. Operating margins for the year rose 1.2 points, to 21.1%, from 1996 levels. Recently, Gillette has extended its segmentation and branding strategy to Duracell in an effort to gain market share, further expand operating margins, and grow the total market.

KKR, which shared in the "risk" of attaining deal synergies through its 6.9% stake in Gillette, recently sold about one-third of its position—10 million shares—to the public after enjoying a 50% stock price increase.

Tyco International (TYC, $55^{1}/_{2}$, Buy)
WorldComm (WCOM, $43^{3}/_{4}$, Strong Buy)

Appendix

The Mechanics of an Economically Sound M&A Analysis

In the body of this report we outlined the four steps needed to perform an economically sound analysis of a merger or acquisition. In the appendix, we detail the mechanics of this economic analysis, contrasting it with a traditional accounting analysis.

I. Value the Acquiring Company

For our example, we created a pro forma income statement and balance sheet for hypothetical Acquirer, Inc. This company will grow sales at 9% for four years from a historical base of $600 million, after which growth moderates to an industry average of 4%. Acquirer has generous 28% EBIT margins, no debt, and a 34% tax rate.[1]

Table 1
Acquirer's Pro Forma Income Statement and Balance Sheet

Pro Forma Income Statement

Year	0	1	2	3	4	5
Sales	600	654	713	777	847	881
EBITDA		193	211	229	250	261
EBIT		183	200	218	237	247
Interest		-	-	-	-	-
EBT		183	200	218	237	247
Income tax provision		62	68	74	81	84
Net Income		121	132	144	157	163
Earnings per share		$ 6.04	$ 6.59	$ 7.18	$ 7.83	$ 8.14
Supplemental data						
Depreciation		10	11	12	13	14
Capex		10	11	12	13	14
Δ Net working Capital		18	20	21	23	11
Δ Other assets		-	-	-	-	-

Pro Forma Balance Sheet

	0	1	2	3	4	5
Assets						
Net working capital	100	118	138	159	182	194
Net fixed assets	200	200	200	200	200	200
Other assets	50	50	50	50	50	50
Total assets	350	368	388	409	432	444
Liabiltiies and equity						
Long-term debentures	-	-	-	-	-	-
Total debt	-	-	-	-	-	-
Equity	350	368	388	409	432	444
Total liabilities and equity	350	368	388	409	432	444
Supplemental data						
Interest Paid		-	-	-	-	-
Principle repaid		-	-	-	-	-
Dividends		-	-	-	-	-

Source: CSFBC analysis.

[1] We assume that Acquirer must invest a dollar for working capital for every three dollars of new sales. Also, Acquirer will depreciate 10% of its fixed asset base in the first year, after which depreciation will grow to match sales growth. Finally, Acquirer will maintain its fixed asset base by investing in capex exactly equal to depreciation in every year.

We can use these financial statements to calculate the free cash flow generated by Acquirer. Furthermore, given that investors demand an opportunity cost of capital of 12% for unlevered companies in Acquirer's industry, we can calculate Acquirer's intrinsic value.

Table 2
Present Value of Acquirer's Free Cash Flows

	Base-Case Cash Flows					
	0	1	2	3	4	5
EBITA		183	200	218	237	247
Cash operating taxes		62	68	74	81	84
Net operating profit after taxes (NOPAT)		121	132	144	157	163
Δ Net working capital		(18)	(20)	(21)	(23)	(11)
Capex		(10)	(11)	(12)	(13)	(14)
Δ Other assets		-	-	-	-	-
Gross investment		(28)	(31)	(33)	(36)	(25)
Depreciation		10	11	12	13	14
Net Investment		(18)	(20)	(21)	(23)	(11)
Free cash flow of assets		103	112	122	133	151
Terminal value					1,894	
Discount factor at opportunity cost of capital		0.89	0.80	0.71	0.64	
PV of FCF		92	89	87	1,288	
Basecase value		1,556				

Source: CSFBC analysis.

Because Acquirer has no debt, there is no additional value created from the tax benefit of interest expenses resulting from the tax-deductibility of debt. Thus, Acquirer's enterprise value is the present value of its operating free cash flow, or approximately $1.6 billion. With 20 million shares outstanding, this translates into an intrinsic value of about $78 per share.

On a more traditional multiple basis, Acquirer will trade at 12.9 times next year's earnings per share of $6.04 and 8.1 times next year's EBITDA per share of $9.66.

II. Value the Stand-Alone Target Co. without Synergies

We performed a similar analysis for a hypothetical Target, Inc., which is a rival to Acquirer in the same industry with the same $600 million in revenues. The only differences are that Target has much lower EBIT margins of 13.5% and grows revenues at a slightly slower 8% for four years before it moderates to industry average growth of 4%. In addition, Target services a constant debt load of $200 million in long-term debentures at a 9% interest rate.

Table 3
Target's Pro Forma Income Statement and Balance Sheet

Pro Forma Income Statement

Year	0	1	2	3	4	5
Sales	600	648	700	756	816	849
EBITDA		97	105	114	123	128
EBIT		87	94	102	110	115
Interest		18	18	18	18	18
EBT		69	76	84	92	97
Income tax provision		24	26	29	31	33
Net Income		46	50	55	61	64
Earnings per share		$ 2.29	$ 2.52	$ 2.77	$ 3.04	$ 3.19
Supplemental data						
Depreciation		10	11	12	13	14
Capex		10	11	12	13	14
Δ Net working Capital		16	17	19	20	11
Δ Other assets		-	-	-	-	-

Pro Forma Balance Sheet

	0	1	2	3	4	5
Assets						
Net working capital	100	116	133	152	172	183
Net fixed assets	200	200	200	200	200	200
Other assets	50	50	50	50	50	50
Total assets	350	366	383	402	422	433
Liabiltiies and equity						
Long-term debentures	200	200	200	200	200	200
Total debt	200	200	200	200	200	200
Equity	150	166	183	202	222	233
Total liabilities and equity	350	366	383	402	422	433
Supplemental data						
Interest Paid		18	18	18	18	18
Principle repaid		-	-	-	-	-
Dividends		-	-	-	-	-

Source: CSFBC analysis.

Because Target maintains a constant $200 million of debt, it is not appropriate to use a weighted average cost of capital (WACC) based discounted cash flow (DCF) analysis to calculate its intrinsic value. This is because the WACC-based DCF methodology assumes that the company maintains a constant ratio of debt to total capital by rebalancing its debt and equity levels every year. But, like many companies, Target does not maintain such an "optimal capital structure."

To circumvent this restrictive assumption, we valued Target using an Adjusted Present Value (APV) analysis. This analysis values a company in two pieces:

- the present value of a company's operating free cash flow, assuming an all-equity capital structure, plus
- the present value of the tax benefits of interest expenses resulting from Target's use of debt to shield income from income taxes.

As with WACC-based DCF, an APV analysis discounts free cash flow, as defined as net operating profit after taxes (NOPAT) minus investment net of depreciation. However, APV discounts these free cash flows at the unlevered opportunity cost of capital, instead of the weighted average cost of capital. In our example, we assume that Target faces a cash tax rate of 34% and faces the same 12% opportunity cost as its all-equity rival, Acquirer.

Table 4
Present Value of Target's Free Cash Flows

Base-Case Cash Flows	0	1	2	3	4	5
EBITA		87	94	102	110	115
Cash operating taxes		30	32	35	37	39
Net operating profit after taxes (NOPAT)		58	62	67	73	76
Δ Net working capital		(16)	(17)	(19)	(20)	(11)
Capex		(10)	(11)	(12)	(13)	(14)
Δ Other assets		-	-	-	-	-
Gross investment		(26)	(28)	(30)	(33)	(24)
Depreciation		10	11	12	13	14
Net investment		(16)	(17)	(19)	(20)	(11)
Free cash flow of assets		42	45	49	53	65
Terminal value					809	
Discount factor at opportunity cost of capital		0.89	0.80	0.71	0.64	
PV of FCF		37	36	35	548	
Basecase value		656				

Source: CSFBC analysis.

Now we need to calculate the present value of Target's tax savings arising from the tax deductibility of interest expense. Because Target plans to maintain a fixed level of debt, we know the level of its future interest payments with relative certainty. Thus, we use the 9% pretax cost of debt to calculate the present value of these savings.

Table 5
Present Value of Target's Tax Savings Resulting from Interest Expense

	0	1	2	3	4	5
Interest		18	18	18	18	18
Tax savings		6	6	6	6	6
Terminal value of tax shields					68	
Discount factor at pretax cost of debt		0.917	0.842	0.772	0.708	
PV		6	5	5	53	
ΣPV of tax shields		68				

Source: CSFBC analysis.

Target's enterprise value is equal to the sum of these two pieces, or $724 million. With $200 million in debt, the market value of Target's equity is $524 million. With 20 million shares outstanding, this results in an intrinsic value per share of $26.

On a traditional accounting basis, Target is trading at 11.4 times its next year's earnings of $2.29 and 7.4 times its next year's EBITDA of $4.87.

III. Identify Synergy

For the sake of simplicity, we assumed that there was no operational synergy realized when Acquirer purchased Target. To be fair, we also assumed that Acquirer would not have to pay a control premium for taking over Target.

We did assume one financial synergy. Specifically, we assumed that the New Acquirer, Inc. would use previously untapped debt capacity that would increase the value of tax savings resulting from higher interest expenses. We detail this assumption in the next section.

IV. Value Synergy

We analyzed three different potential scenarios for Acquirer buying Target:

1. Acquirer buys Target using its stock as currency. Acquirer accounts for the merger using the pooling method.

In this scenario, Acquirer buys all $524 million of Target's outstanding equity using its stock as currency. To do this, it issues 6.7 million new shares at $78 each. This raises its total shares outstanding to 26.7 million shares. We also assume that New Acquirer assumes and maintains Target's old debt.

2. Acquirer funds half of its purchase of Target using its stock as currency and half of its purchase with cash received from raising new debt.

In this scenario, Acquirer purchases half of Target's outstanding equity for approximately $262 million, using its stock as currency, by issuing 3.35 million new shares at $78 each. It also issues approximately $262 of new debt to raise enough cash to purchase the other half of Target's outstanding equity. As in Scenario A, Acquirer assumes and maintains Target's old debt. However, in this scenario, we assume that bondholders demand a higher interest rate of 10% on their debentures in return for assuming more risk.

3. Acquirer funds its purchase of Target solely with cash received from raising new debt. Acquirer accounts for the merger using the purchase method.

In this scenario, Acquirer buys all $524 million of Target's outstanding equity by raising that much cash with a new issue. As in Scenario A, Acquirer assumes and maintains Target's old debt. We assume that bondholders demand a even higher interest rate of 10.5% on their debentures in return for assuming more risk.

New Acquirer's pro forma financial statements for Scenarios B and C assume that all goodwill is straight-lined amortized over 15 years, shown in Table 6.

Table 6
New Acquirer's Pro Forma Income Statement and Balance Sheet

Scenario A

Pro Forma Income Statement

Year	0	1	2	3	4	5
Sales	1,200	1,302	1,413	1,533	1,663	1,730
EBITDA		291	316	343	373	389
EBITA		271	294	320	347	361
EBIT		271	294	320	347	361
Interest		18	18	18	18	18
EBTA		253	276	302	329	343
Income tax provision		86	94	103	112	117
Goodwill amortization		-	-	-	-	-
Net Income		167	182	199	217	227
Earnings per share		$ 6.24	$ 6.82	$ 7.45	$ 8.13	$ 8.47
Supplemental data						
Depreciation		20	22	24	26	28
Capex		20	22	24	26	28
Δ Net working Capital		34	37	40	43	22
Δ Other assets		-	-	-	-	-

Pro Forma Balance Sheet

	0	1	2	3	4	5
Assets						
Net working capital	200	234	271	311	354	377
Net fixed assets	400	400	400	400	400	400
Other assets	100	100	100	100	100	100
Total assets	700	734	771	811	854	877
Liabiltiies and equity						
Long-term debentures	200	200	200	200	200	200
Total debt	200	200	200	200	200	200
Equity	500	534	571	611	654	677
Total liabilities and equity	700	734	771	811	854	877
Supplemental data						
Principle repaid		-	-	-	-	-
Dividends		-	-	-	-	-

Scenario B

Pro Forma Income Statement

Year	0	1	2	3	4	5
Sales	1,200	1,302	1,413	1,533	1,663	1,730
EBITDA		291	316	343	373	389
EBITA		271	294	320	347	361
EBIT		246	271	298	327	342
Interest		46	46	46	46	46
EBTA		224	248	273	301	315
Income tax provision		76	84	93	102	107
Goodwill amortization		25	23	22	20	19
Net Income		123	140	159	179	189
Earnings per share		$ 5.27	$ 6.01	$ 6.79	$ 7.64	$ 8.09
Supplemental data						
Depreciation		20	22	24	26	28
Capex		20	22	24	26	28
Δ Net working Capital		34	37	40	43	22
Δ Other assets		-	-	-	-	-

Pro Forma Balance Sheet

	0	1	2	3	4	5
Assets						
Net working capital	200	234	271	311	354	377
Net fixed assets	400	400	400	400	400	400
Goodwill	374	349	326	304	284	265
Other assets	100	100	100	100	100	100
Total assets	1,074	1,083	1,096	1,115	1,138	1,141
Liabiltiies and equity						
Long-term debentures	462	462	462	462	462	462
Total debt	462	462	462	462	462	462
Equity	612	621	635	653	676	679
Total liabilities and equity	1,074	1,083	1,096	1,115	1,138	1,141
Supplemental data						
Principle repaid		-	-	-	-	-
Dividends		-	-	-	-	-

Scenario C

Pro Forma Income Statement

Year	0	1	2	3	4	5
Sales	1,200	1,302	1,413	1,533	1,663	1,730
EBITDA		291	316	343	373	389
EBITA		271	294	320	347	361
EBIT		246	271	298	327	342
Interest		76	76	76	76	76
EBTA		195	218	244	271	285
Income tax provision		66	74	83	92	97
Goodwill amortization		25	23	22	20	19
Net Income		104	121	139	159	169
Earnings per share		$ 5.18	$ 6.03	$ 6.95	$ 7.94	$ 8.47
Supplemental data						
Depreciation		20	22	24	26	28
Capex		20	22	24	26	28
Δ Net working Capital		34	37	40	43	22
Δ Other assets		-	-	-	-	-

Pro Forma Balance Sheet

	0	1	2	3	4	5
Assets						
Net working capital	200	234	271	311	354	377
Net fixed assets	400	400	400	400	400	400
Goodwill	374	349	326	304	284	265
Other assets	100	100	100	100	100	100
Total assets	1,074	1,083	1,096	1,115	1,138	1,141
Liabiltiies and equity						
Long-term debentures	724	724	724	724	724	724
Total debt	724	724	724	724	724	724
Equity	350	359	373	391	414	418
Total liabilities and equity	1,074	1,083	1,096	1,115	1,138	1,141
Supplemental data						
Principle repaid		-	-	-	-	-
Dividends		-	-	-	-	-

Source: CSFBC analysis.

We allocate the excess of the purchase price over the fair market value to the goodwill line item.[2] All other items on these financial statements are simply the sum of the individual line items from Acquirer's and Target's financial statements.

The present value of New Acquirer's free cash flows, assuming an all-equity capital structure, will be the same for all three scenarios, as shown in Table 7.

Table 7
Present Value of New Acquirer's Free Cash Flows

	Base-Case Cash Flows					
	0	1	2	3	4	5
EBITA		271	294	320	347	361
Cash operating taxes		92	100	109	118	123
Net operating profit after taxes (NOPAT)		179	194	211	229	238
- Δ Net working capital		(34)	(37)	(40)	(43)	(22)
- Capex		(20)	(22)	(24)	(26)	(28)
- Δ Other assets		-	-	-	-	-
Gross investment		(54)	(59)	(64)	(69)	(50)
Depreciation		20	22	24	26	28
New investment		(34)	(37)	(40)	(43)	(22)
Free cash flow of assets		145	157	171	186	216
Terminal value					2,703	
Discount factor at opportunity cost of capital		0.89	0.80	0.71	0.64	
PV of FCF		129	125	122	1,836	
Basecase value		2,212				

Source: CSFBC analysis.

However, the present value of the tax savings from interest expenses will be different for each scenario. (See Table 8.)

[2] We assume that fair market value is equal to book value.

Table 8
Present Value of New Acquirer's Tax Savings Resulting from Interest Expense

Scenario A

Present Value of Tax Shields

	0	1	2	3	4	5
Interest		18.0	18.0	18.0	18.0	18.0
Tax savings		6.1	6.1	6.1	6.1	6.1
Terminal value of tax shields					68.0	
Discount factor @ cost of debt		0.917	0.842	0.772	0.708	
PV		5.6	5.2	4.7	52.5	
ΣPV of tax shields		68.0				

Adjusted Present Value	2,280
- Premium paid for Target	-
New Enterprise Value	2,280
- Debt	200
Market value of equity	2,080
Old shares	20.0
New shares issued	6.7
Total new shares	26.7
Share price	$ 78
P/E multiple	12.5
Market value of Target's equity as standalone	524
Purchase Price	524
Amount of new debt	-
Amount of new goodwill	-
Enterprise Value to EBITDA ratio	7.85
Debt-to-capital ratio	9%

Scenario B

Present Value of Tax Shields

	0	1	2	3	4	5
Interest		46	46	46	46	46
Tax savings		16	16	16	16	16
Terminal value of tax shields					157.0	
Discount factor @ cost of debt		0.909	0.826	0.751	0.683	
PV		14.3	13.0	11.8	118.0	
ΣPV of tax shields		157.0				

Adjusted Present Value	2,369
- Premium paid for Target	-
New Enterprise Value	2,369
- Debt	462
Market value of equity	1,907
Old shares	20.0
New shares issued	3.4
Total new shares	23.4
Share price	$ 82
P/E multiple	15.5
Amount of new debt	262
Market value of Target's equity as standalone	524
Purchase Price	524
Target's book value (= "fair market value")	150
Amount of new goodwill	374
Enterprise Value to EBITDA ratio	8.15
Debt-to-capital ratio	19%

Scenario C

Present Value of Tax Shields

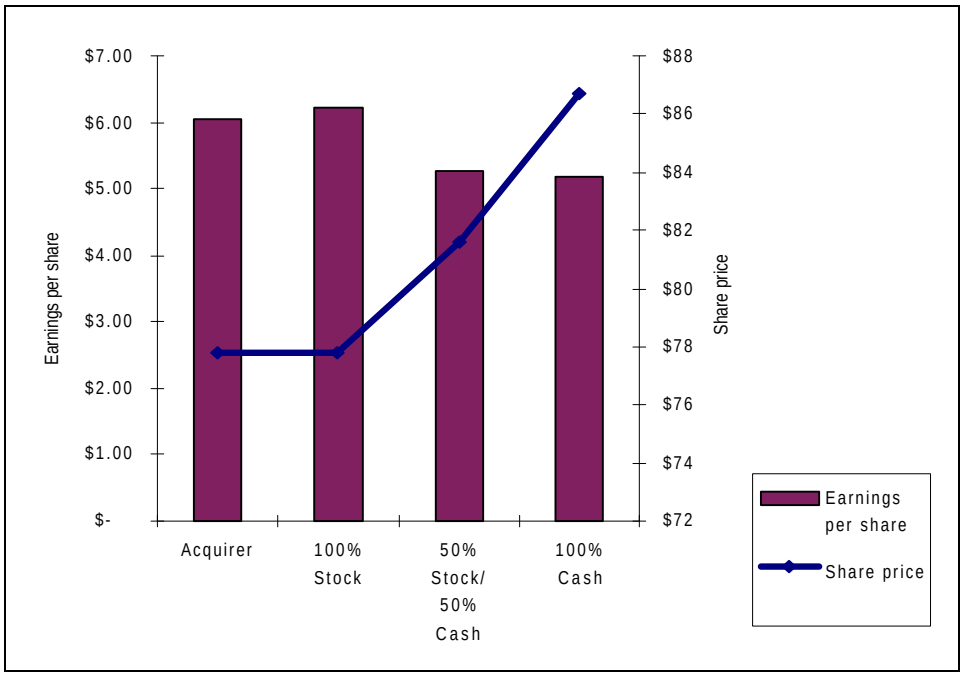
	0	1	2	3	4	5
Interest		76	76	76	76	76
Tax savings		26	26	26	26	26
Terminal value of tax shields					246.1	
Discount factor @ cost of debt		0.905	0.819	0.741	0.671	
PV		23.4	21.2	19.1	182.4	
ΣPV of tax shields		246.1				

Adjusted Present Value	2,458
- Premium paid for Target	-
New Enterprise Value	2,458
- Debt	724
Market value of equity	1,734
Old shares	20.0
New shares issued	-
Total new shares	20.0
Share price	$ 87
P/E multiple	16.8
Amount of new debt	524
Market value of Target's equity as stan	524
Purchase price	524
Target's book value (= "fair market valu	150
Amount of new goodwill	374
Enterprise value to EBITDA ratio	8.46
Debt-to-capital ratio	29%

Source: CSFBC analysis.

APV analysis highlights that even though the progressively higher interest payments and goodwill amortization in Scenario B and C dilute earnings per share, higher debt levels can increase shareholder value. (See Chart 4.) In M&A analysis, then, it is more vital than ever to reverse accounting distortions and closely examine the underlying economics of shareholder value.

Chart 4
Intrinsic Value Per Share versus Accounting Earnings Per Share



Source: CSFBC analysis.

ENDNOTES

[1] "Corporate Control and the Politics of Finance," Michael C. Jensen, *Journal of Applied Corporate Finance*, Summer 1991, pp. 13-33.

[2] This is not to say that successful acquisition strategies are not possible. For example, ConAgra executed a very fruitful string of deals in the 1980s. See *The Quest for Value*, G. Bennett Stewart III, (HarperCollins, New York), pp. 353-359.

[3] *The Synergy Trap*, Mark L. Sirower, (Free Press, New York, 1997), p.123; *Valuation: Measuring and Managing the Value of Companies*, Copeland, Koller, Murrin, (John Wiley & Sons, New York, 1991), pp. 430-435.

[4] "Do Long-Term Shareholders Benefit From Corporate Acquisitions?" Tim Loughran and Anand M. Vijh, *The Journal of Finance 52*, 1997, pp. 1765-1790.

[5] "Mergers Reached This Year Are Using The Lowest Share of Cash in 10 Years," Greg Ip, *Wall Street Journal*, April 16, 1998.

[6] "The Pooling vs. Purchase Controversy: How the Stock Market Responds to Goodwill," Michael L. Davis, *Journal of Applied Corporate Finance*, Spring 1996, pp. 50-59.

[7] "An Analysis of Value Destruction in AT&T's Acquisition of NCR," Thomas Lys and Linda Vincent, *Journal of Financial Economics* 39, 1995, pp. 353-378.

[8] See Copeland et al., pp. 436-439.

[9] *Judgment in Managerial Decision Making*, Max Bazerman, (John Wiley & Sons, New York, 1998), p. 143.

[10] "The Hubris Hypothesis of Corporate Takeovers," Richard Roll, *Journal of Business 59*, 1986, pp. 197-216.

[11] *Principles of Corporate Finance*, Brealey and Myers, (McGraw Hill, New York, 1996), p. 524.

[12] "Managerial Incentives in Mergers and Their Effect on Shareholder Wealth," *Midland Corporate Finance Journal*, Winter 1983.

[13] See Appendix A for full details and analysis of this point.

[14] *Creating Shareholder Value*, Alfred Rappaport, (Free Press, New York, 1997).

[15] A recent illustration is Tyco International's purchase of ADT.

[16] *Creating Shareholder Value*, Alfred Rappaport, (Free Press, New York, 1986), p. 255. Also Brealey and Myers, pp. 564-566.

[17] "Debt and Taxes," Merton H. Miller, *The Journal of Finance 32*, 1977.

[18] Rappaport, 1997, pp. 146-147. Also "Stock or Cash? How to Weigh Competing Merger Bids," Alfred Rappaport and Mark Sirower, *Wall Street Journal*, November 11, 1997.

[19] This is true even if the stock received can be monetized immediately, because the provider of liquidity (typically an investment bank) will also provide for the "shareholder-value-at-risk" in its bid. WorldComm's recent purchase of Compuserve from H&R Block serves as an example. H&R Block immediately monetized its WorldComm stake by selling it to Goldman Sachs at value slightly below the market price.

[20] "Quaker Oats Company," Michael J. Mauboussin, *CS First Boston Equity Research*, November 8, 1994.

[21] "Competitive Advantage Period—The Neglected Value Driver," Michael J. Mauboussin and Paul Johnson, *Credit Suisse First Boston Equity Research*, January 14, 1997.

[22] "Quaker Oats Company," Michael J. Mauboussin, *CS First Boston Equity Research*, June 28, 1996.

[23] The company also got about $200 million in tax benefits, making the aggregate shareholder consideration closer to $500 million.

[24] "Gillette," Lynne R. Hyman and Hilde N. Jenssen, *CS First Boston Equity Research*, September 13, 1996.