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What's In This Issue—A Message From The Editor

This issue of the *JACF* addresses questions of capital structure planning: Is there such a thing as optimal capital structure, a division of the firm's total capital into debt and equity that maximizes its current market value? What are the principal costs and benefits of debt financing? What role do the rating agencies play in corporate financial decision-making? And given their use of rating criteria that both academics and practitioners tend to view as "static" if not outmoded, what role *should* the rating agencies play? Do the shareholders of the many large U.S. companies that maintain single-A or higher ratings benefit from the financing "flexibility" provided by such high ratings? Or are such companies leaving value on the table by volunteering to pay more corporate income taxes and raise their own cost of capital?

A second, related set of questions examined in this issue has to do with the corporate use of excess capital. That is, given that a company generates more cash flow than it can profitably reinvest in the business, what is the value-maximizing use of that cash? Should it be kept on the firm's balance sheet for a rainy day? Or should it be paid out to the firm's shareholders? And if the latter, should the payout take the form of a dividend increase or a repurchase of stock? During the 1990s, the annual growth rate of stock buybacks by U.S. companies approached 30% while dividends continued to grow at their historical rate of 2-3%. What is driving the recent explosion in stock repurchases?

This issue opens with a "*Stern Stewart Roundtable*" in which a small group of finance academics and practitioners discuss first the theory and then the practice of corporate capital structure and stock repurchase decisions. The University of Rochester's Clifford Smith sets the stage with an overview of the theory and supporting evidence. Smith provides a broad theoretical framework in which companies set their leverage targets by weighing tax and other benefits of debt against potential costs of financial distress, particularly in the form of underinvestment. According to this theory, mature companies with stable cash flows and few promising investment opportunities should make extensive use of debt, both to shield their income from corporate taxes and to guard against their managers' natural tendency to spend free cash flow on value-reducing acquisitions or other forms of corporate empire building. (And stock repurchases, together with high dividends, are also expected to play an important role in limiting this "free cash flow" problem faced by mature companies.) At the other end of the spectrum, companies whose current value consists largely of growth opportunities tend to make limited use of debt (and repurchases), mainly to ensure their continuing ability to invest in such opportunities. And for those high-tech startups with no current earnings or cash flow, it typically makes sense to have "negative leverage"—cash on the balance sheet well in excess of any outstanding debt.

But, as becomes clear in the case study of PepsiCo that follows the opening discussion, putting the theory into practice can be far from straightforward. Consistent with the theory, Pepsi does have a target leverage ratio—and, as described by Assistant Treasurer Rick Thevenet, the company attempts to adhere to that target mainly by paying out much of its substantial free cash flow in the form of dividends and stock buybacks. But if the company's decision-making process appears broadly consistent with the theory, it also relies on conventional rating-agency criteria to an extent that surprises some of the panelists. After an unsuccessful attempt in the early '90s to persuade the agencies that a leverage target of 25% debt to (market) total capital was consistent with the company's desired single-A rating, Pepsi's management ended up adopting a policy of operating with "zero excess cash" while using the maximum leverage allowable under the agencies' guidelines for single-A companies.

Not surprisingly (at least for regular readers of this journal), Pepsi's policy of maintaining a single-A credit rating sets off a debate about the value of preserving access to capital markets "under all conditions." For example, Stern Stewart's Dennis Soter challenges the popular argument that a single-A rating is necessary to enable companies to fund large growth opportunities. In making his case, he cites the example of SPX Corporation, a double-B-rated company that, just 15 months after a large, leveraged Dutch-auction repurchase, acquired a company twice its size in a highly leveraged transaction. But the last word on this matter is provided by Tim Opler, a former academic who now advises corporate clients for Credit Suisse First Boston. As Opler suggests, Pepsi and SPX have very different business models. When those differences are taken into account, both the "intelligent use of

financial engineering" in the SPX case and the relative financial conservatism of Pepsi are likely to be value-adding strategies.

In the second part of the discussion, Rice University's David Ikenberry begins by offering four main corporate motives for stock repurchases: (1) to increase (or at least maintain) the target corporate leverage ratio; (2) to distribute excess capital and so prevent managers from destroying value by reinvesting in low-return projects (the free cash flow problem mentioned above); (3) to provide a more flexible and tax-efficient substitute for dividends; and (4) to "signal," and possibly to profit from, undervaluation of the firm's shares.

As in the first part of the discussion, the case of Pepsi largely supports the theory. Thevenet notes that, in the year 2000, the company generated free cash flow of almost $3 billion, of which $800 million was paid out in dividends and another $1.4 billion in stock buybacks. And each of the four motives cited above appears to have played a role in the design or execution of Pepsi's buyback policy.

There is also some discussion of a fifth motive for buybacks: the desire to boost earnings per share. Although this motive is perhaps the most widely cited by corporate managers, the idea that EPS considerations should be driving corporate buyback programs is shown to rest on flawed reasoning. First of all, as Thevenet points out, if one considers the return on the cash that companies would have otherwise earned had they not used it to buy back shares (something sellside analysts routinely fail to do), stock repurchases are "accretive" in the first year or so only for companies with very low P/E ratios. Even in cases where buybacks do end up increasing EPS, the real source of the gains, as Ikenberry points out, is the previously low return on the assets used to fund the buyback. That is to say, the source of the gain is not some magical EPS effect, but rather the simple fact that corporate assets have been reallocated from low-return to higher-return uses. Or, to put the same thought in different words, holding excess cash on the corporate balance sheet tends to be a value-reducing investment.

The roundtable also raises questions about the most popular form of stock buybacks—namely, open market programs—and the lack of disclosure that surrounds such programs in the U.S. (though Pepsi's disclosure policy is an exception—one that is held up as a model of best practice). The lack of transparency surrounding buybacks is linked to what appears to be one of the tacit goals of many if not most open market programs: to buy back shares at the lowest price possible. A number of panelists suggest that this kind of corporate "opportunism," while increasing EPS, could also end up discouraging trading and reducing liquidity. And in his closing comments, Soter goes so far as to argue that corporate buyback policy should be designed not to transfer wealth from selling to remaining shareholders, but to "share the gains from value-creating transactions." The basic premise of Soter's argument is that by providing more and better disclosure of their financing and governance policies, companies are likely to establish greater credibility with investors, thereby increasing the liquidity and long-run value of their shares.

Following the roundtable is a series of articles that elaborate on issues raised in the discussion. For example, in "*Estimating the Tax Benefits of Debt*," John Graham provides a new method that begins by estimating a company's *effective* marginal tax rate. Based on his estimates, the tax shields from interest deductions accounted for as much as 10% of corporate values during the 1980s and '90s. Even more intriguing is Graham's finding that many of the companies with the greatest ability to service debt make very little use of it.

In "*Corporate Cash Holdings*," the authors provide evidence on corporate holdings of liquid assets as a percentage of total assets that is remarkably consistent with the capital structure framework presented by Smith in the roundtable. Those companies that are most likely to shun debt—smaller, riskier, and high-growth firms—also tend to hold large cash balances. And as Eugene Fama and Ken French show in their article on "*Disappearing Dividends*," the growing presence of such companies in the U.S. economy is one important reason why the percentage of U.S. companies that pay dividends has fallen so rapidly. The other reason is what the authors refer to as a declining "propensity to pay" by firms that would have paid dividends in the past.

The next four issues of this journal will be devoted to the following: (1) the valuation and management of real options; (2) international corporate governance; (3) corporate risk management; and (4) capital structure once again. Manuscripts are welcomed and should be sent to me.

DHC

EXECUTIVE SUMMARIES

STERN STEWART ROUNDTABLE ON CAPITAL STRUCTURE AND STOCK REPURCHASE

Panelists: Clifford Smith, Erik Sirri, Tim Opler, Richard Thevenet, David Ikenberry, and Dennis Soter. Moderated by Donald Chew.

This roundtable brings together a small group of finance theorists and practitioners to discuss two important—and in most companies closely related—financial policy decisions: (1) the optimal mix of debt and equity and (2) the amount (and form) of cash distributions to shareholders. The result is an interesting set of comments and exchanges that show current theory and corporate practice to be consistent in some respects, but at odds in others.

In the first part of this two-part discussion, the University of Rochester's Clifford Smith presents a broad theoretical framework in which companies set leverage targets by weighing tax and other benefits of debt against potential costs of financial distress, particularly in the form of underinvestment. According to this theory, mature companies with stable cash flows and limited investment opportunities should make extensive use of debt, while growth companies should be funded primarily (if not entirely) with equity.

But, as becomes clear in the case study of PepsiCo that follows the opening discussion, putting theory into practice is far from straightforward. Consistent with the theory, Pepsi does have a target leverage ratio, and management has attempted to adhere to that target through a policy of regular stock repurchase. But if the company's decision-making process appears consistent with the framework mentioned above, it also relies on conventional rating-agency criteria to an extent that surprises some of the panelists. Moreover, Pepsi's policy of maintaining a single-A credit rating sets off an interesting debate about the value of preserving access to capital markets "under all conditions."

In the second part of the discussion, Rice University's David Ikenberry begins by offering four main corporate motives for stock repurchases: (1) to increase (or at least maintain) the target corporate leverage ratio; (2) to distribute excess capital and so prevent managers from destroying value by reinvesting in low-return projects; (3) to substitute for dividends, thereby providing a more flexible and tax-efficient means of distributing excess capital; and (4) to "signal" and, in some cases, profit from undervaluation of the firm's shares.

As in the first part of the discussion, the case of Pepsi largely supports the theory. Assistant Treasurer Rick Thevenet notes that, in 2000, the company generated free cash flow of $3 billion, of which $800 million was paid out in dividends and another $1.4 billion in stock buybacks. And each of the four motives cited above appears to have been at work in the design or execution of Pepsi's buyback policy.

There is also some discussion of a fifth motive for buybacks—the desire to boost earnings per share. Although this motive is perhaps the most widely cited by corporate managers, the idea that EPS considerations should be driving corporate buyback programs is shown to rest on flawed reasoning. Moreover, questions are raised about what appears to be an EPS-driven phenomenon: the corporate practice of attempting to buy back as many shares at the lowest price possible—and the lack of disclosure that often surrounds such a practice. In closing, Dennis Soter offers the novel suggestion that corporate buyback policy should not be designed to transfer wealth from selling to remaining shareholders, but rather to "share the gains from value-creating transactions." Through more and better disclosure about their repurchase activities (and Pepsi's policy appears to be a model worth emulating), companies are likely to establish greater credibility with investors, thereby increasing the liquidity and long run value of their shares.

STERN STEWART ROUNDTABLE ON

CAPITAL STRUCTURE AND STOCK REPURCHASE

FEBRUARY 27, 2001 ■ NEW YORK CITY

DONALD CHEW: Good morning, and welcome to Stern Stewart & Company and to this discussion of corporate capital structure. I'm Don Chew, one of the founding partners of Stern Stewart as well as editor of the *Journal of Applied Corporate Finance,* and I will be serving as moderator.

Our discussion will fall into two parts. The first will focus on questions of capital structure planning: Is there such a thing as an optimal capital structure? That is, given a level of total capital necessary to support a company's activities, is there a way of dividing up that capital into debt and equity that maximizes *current* firm value? And, if so, what are the critical factors in setting the leverage ratio for a given company? What are the most important benefits and costs of debt financing? Should a company's capital structure be designed to maintain at least an investment-grade rating, or does such a financing strategy end up leaving substantial value on the table?

The second part of the discussion will focus on what has become an increasingly popular method of returning excess capital to shareholders—stock repurchases. In 1998, for the first time ever, the total dollars spent by U.S. companies in buying back their stock exceeded their total dividend payments. We will explore the causes of this explosion of stock repurchase activity, and the extent to which distributions to buy back shares are substituting for dividend payments. I also want to raise the issue of whether many U.S. companies may be buying back their stock for what most of us around this table are likely to feel is the wrong reason—namely, to increase their near-term earnings per share. To judge from reports by the financial press and sellside analysts, boosting EPS is one of the most important corporate motives for repurchases—it's right up there with buying back undervalued stock as a corporate "investment." The focus on EPS may be largely responsible for what many observers feel is the inadequacy of current disclosure surrounding corporate repurchase activity—an issue we will take up at the end of the discussion. There we will consider the possibility that many companies, in an attempt to buy back as many shares at the lowest price possible, are actually *reducing* liquidity and share values.

PHOTOGRAPHS BY CLAY ENOS

To explore these issues, we have brought together a small but distinguished group of academics and practitioners. And I will take a moment now to introduce each of them:

To my immediate left is **CLIFFORD SMITH**, who is the Louise and Henry Epstein Professor of Business Administration at the University of Rochester's Simon School of Business. In a career at the Simon School that stretches back to 1974, Cliff has done research in the fields of corporate finance, financial institutions, and derivative securities that has resulted in 14 books and over 80 articles in leading finance and economics journals. Besides being one of the most prolific researchers in corporate finance, Cliff has received a remarkable 26 Superior Teaching Awards, 10 from MBA students and 16 from students in the Simon School's Executive Development program. And I can vouch for the quality of that teaching, since it was Cliff's corporate finance course at Rochester that served as my own introduction to the subject back in the late '70s. In the last 25 years, Cliff has done as much as any academic in finance to demonstrate how and why corporate executives can add value through capital structure, risk management, and financial policies generally.

To Cliff's left is **ERIK SIRRI**, who is currently an Associate Professor of Finance at Babson College. From 1996 to 1999, Erik was the Chief Economist of the U.S. Securities and Exchange Commission, where he served as the senior advisor to the Commission and its Chairman on major economic policy issues. During his tenure at the SEC, Erik also conducted research in areas such as the role of information and disclosure in securities markets, private securities issuance and the 144a market, and the reform of the issuance process. His current research focuses on the interaction between securities law and financial economics. Before joining the SEC, Erik was an Assistant Professor of Finance at the Harvard Business School.

Next to Erik is **TIM OPLER**, who has had an interesting career as an academic theorist and teacher and, more recently, as a practitioner of corporate finance. After earning a Ph.D. from UCLA—as did Erik Sirri, by the way—Tim taught finance at SMU and Ohio State and did research in corporate finance. Then, in 1996, he left the academy and became a corporate financial adviser to the clients of Deutsche Bank. In 1999, Tim joined W.R. Hambrecht, where he advised companies on issues of capital structure, stock repurchase, and corporate finance generally. And he has recently become Director of the Financial Strategy Group at Credit Suisse First Boston. Tim has done a considerable amount of research in corporate finance, including highly regarded studies of capital structure, corporate cash holdings, and the costs associated with financial distress.

Across the table from Tim is **DAVID IKENBERRY**, who has been Associate Professor of finance at Rice University for over ten years since getting his Ph.D. at the University of Illinois. Dave has done a lot of work on stock repurchase—so much that I would describe him as the world's foremost authority on the subject. In the Spring 2000 issue of this journal, Dave and a colleague at Rice wrote an article called "What Do We Know About Stock Repurchase?" that has received an extraordinary amount of attention, including circulation by a Swedish investment bank throughout Sweden, where stock repurchase was recently legalized. In addition to four published studies on stock repurchase, Dave has published empirical studies that address an array of corporate decisions, including proxy fights, exchange listings, and stock splits.

Next to Dave is **RICHARD THEVENET**. Rick is Assistant Treasurer at PepsiCo, Inc., where he has worked for the past eight years. And, as he will tell us, Pepsi has been quite aggressive in recent years in buying back its stock and otherwise pursuing the interests of its stockholders. After earning an MBA at the University of Chicago in 1982, Rick went to work at Mobil Oil, and then for a number of years here at Stern Stewart. He has also worked in the treasury areas at International Paper and Banker's Trust.

Last but not least is **DENNIS SOTER**, my colleague and fellow partner at Stern Stewart. Dennis runs our corporate finance advisory activity and also oversees implementations of EVA (Economic Value Added) performance measurement and incentive systems in middle market companies. In the past few years, Dennis has served as a financial adviser in three highly successful leveraged recapitalizations. Each of these deals involved borrowing substantial amounts of new debt to buy back shares—and two involved major changes in dividend policy as well. Prior to joining Stern Stewart, Dennis was National Director of Ernst & Whinney's Mergers & Acquisitions practice.

PART ONE: CAPITAL STRUCTURE

So with that as general introduction, I'm going to start things off by asking Cliff Smith to give us an overview of the theory of corporate capital structure. Cliff, what is the current thinking in the academic finance profession about optimal capital structure? Does capital structure play a major role in management's efforts to maximize shareholder value? Or is financial policy, as Modigliani and Miller suggested back in 1958, largely "irrelevant"?

The Theory

CLIFF SMITH: Well, I agree that Modigliani and Miller is the logical place to begin this discussion. Most people in my profession would date the beginning of "modern" corporate finance from the publication of the first M&M paper in 1958. That paper basically said that if you make three assumptions—(1) no taxes paid by the corporation or its investors, (2) no bankruptcy or other contracting costs, and (3) no effect of financing choices on managers' investment decisions—then the current market value of the firm should not be affected by how you structure the liability side of the firm's balance sheet. Given these three assumptions, M&M showed that the right-hand side of the balance sheet cannot have any material effect on the real source of corporate value—the operating cash flows generated by the business.

M&M's fundamental insight was that differences in leverage or in the kinds of securities the firm issues are nothing more than different ways of dividing up those cash flows and repackaging them for investors. And as long as these financial decisions don't affect the "real" decisions in any predictable way—for example, as long as the firm's managers make the same investment and operating decisions whether the leverage ratio is 10% or 90%—financial decisions are not going to affect the total value of the firm—that is, the sum of the value of its debt and equity.

Now, what does the M&M proposition have to say to corporate treasurers and CFOs, to all those people who get paid good money to make decisions that "don't matter"? There are really two messages—one negative and one positive. The negative message is that, as Stewart Myers likes to put it, there is no "magic" in leverage. Investment bankers peddling different kinds of debt instruments love to show their clients the wonderful effect of increasing leverage on pro forma earnings per share. The message of M&M is that this effect is an illusion. It certainly is true that if companies issue debt, then EPS will go up so long as the return on that incremental invested capital exceeds the after-tax corporate borrowing rate—but I don't have to tell anyone in this room that this is not an acceptable standard of profitability. The problem with this strategy, as M&M showed, is that as companies take on more financial leverage, the risk of the equity goes up along with it. And as the risk of the equity increases, stockholders raise their *required* rate of return, the P/E ratio of the firm goes down, and the net effect is that total firm value remains unchanged.

The positive message of the M&M proposition, and its main message to corporate practitioners, can best be seen by standing the proposition on its head. That is, if changes in capital structure are going to affect corporate market values, they will do so only for the following three reasons: First, the firm's choice of financing policy affects its tax liabilities. Second, how you structure the liability side of the balance sheet affects the firm's information costs, contracting costs, or transactions costs—a category that includes the costs arising from bankruptcy or financial distress. And third, how you structure the liability side of the firm's balance sheet today affects management's operating and investment decisions, either now or in the future.

Much of the work in corporate finance that has taken place since the original M&M paper in '58 has been the development of theories that elaborate on one of these three possibilities. For example, in a 1963 paper, Modigliani and Miller themselves looked at the implications of the tax deductibility of interest payments. And in the so-called "tax-adjusted" M&M proposition presented there, they argued that the value of the tax shields generated by interest payments could push the optimal capital structure to 99% debt.

But, of course, corporate leverage ratios in the real world were nowhere near those levels when M&M wrote their paper—and, despite the sharp increase in at least book leverage ratios in the 1980s, they are nowhere near 90% today (though we did see some LBOs in that territory). Clearly, something was missing from this explanation. Either the tax benefits of leverage were being overstated, or there were major offsetting costs to high leverage that were being overlooked. So, the finance profession faced a dilemma of sorts: If the tax benefits amounted to 34 cents per dollar of debt financing—and I'm using today's corporate tax rate for the sake of illustration—why were companies volunteering to pay so much in additional taxes; why were they leaving so much value on the table?

Merton Miller himself provided part of the answer to this question in

> For companies with lots of free cash flow and limited growth opportunities, it makes sense to weight the capital structure toward debt, both to shield income from taxes and to utilize managerial incentives to service free cash flow. At the other end of the spectrum, companies whose current value consists mainly of future growth opportunities will find that it generally makes sense to avoid debt financing. And in the case of high-tech companies with little or no current earnings or cash flow, it will make sense to have "negative leverage"—that is, cash on the balance sheet in excess of outstanding debt.
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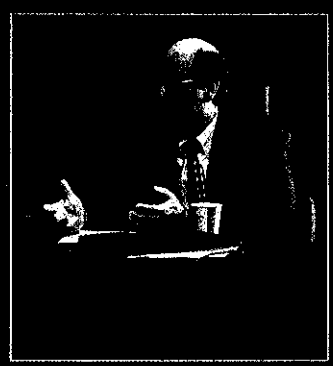
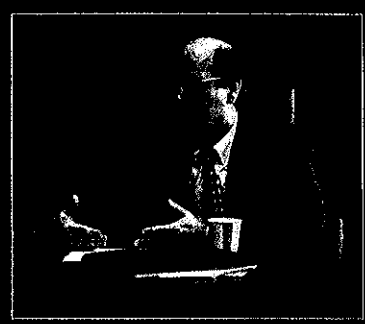
> CLIFFORD SMITH





his 1976 Presidential Address to the American Finance Association that he titled "Debt and Taxes." Miller pointed out that the tax savings of corporate debt financing were exaggerated by the failure to account for the taxes paid by the *holders* of corporate debt. Noting that equity is more tax-advantaged than debt *for investors*, Mert went on to show that the tax savings from turning equity into debt at the corporate level are at least partly offset by the higher pre-tax promised rate of return on debt that bondholders require as compensation for the taxes they pay on their interest income.

But if the tax benefits were overstated by the "tax-adjusted" M&M proposition, some recent research suggests that there continues to be a material tax advantage of debt. In fact, John Graham has a paper that concludes that, for a U.S. company with an average leverage ratio of about 25% debt to capital (in market value terms), the tax benefits of debt today amount to about 7-10% of total firm value.

Now, if you accept the idea that there is a material tax advantage to debt financing, then the main reason we don't see companies with 99% leverage ratios must have to do with the *costs* of debt financing. But it was not immediately clear to finance academics what those costs were. After all, the assets of bankrupt firms don't just vanish; they often get transferred to other firms without losing any of their value. And in 1976, my Rochester colleague Jerry Warner published a study suggesting that the direct bankruptcy costs for a sample of large railroads were quite low—no more than one percent of firm value. It was only when people began to examine what are now called the "indirect" costs of financial distress—a category that includes things like value-reducing

managerial behavior when operating under a pile of debt—that the story began to change.

One of the most important contributions to our understanding of the costs of high leverage came from a paper by Stewart Myers called "Determinants of Corporate Borrowing," which was published by the *Journal of Financial Economics* in 1977. In that paper, Stew began by viewing the values of companies as made up of two pieces: (1) "assets in place," those more or less tangible assets that are generating the firm's current cash flows; and (2) intangible "growth options," or opportunities to make future investments that arise from the firm's current capabilities. He then proceeded to demonstrate why companies whose value mainly reflects assets in place use more leverage than firms whose value comes mainly from growth options. The principal danger in using debt to finance growth companies was referred to by Myers as the "underinvestment problem." Stew's basic argument was that debt-financed companies, when faced with a downturn in operating cash flows, are more likely than firms financed with equity to pass up valuable investment opportunities because much of the gain from the investment works to shore up the bondholders' position instead of increasing shareholder value. So, the bottom line here is that firms with a lot of intangible growth options are going to find debt more expensive—both initially when raising it, and perhaps later when attempting to service it—because the debt burden can cause managers to turn down positive-NPV projects.

Now, this was the state of thinking on corporate capital structure in the late '70s and early '80s: It was a matter of weighing moderate tax benefits from debt against some potentially significant costs, particularly for growth companies. But with the wave of LBOs and other leveraged transactions in the 1980s, the academic finance profession was forced to come up with a more satisfying explanation of the *benefits* of debt. That explanation was provided in a 1986 paper by Michael Jensen called "The Agency Costs of Free Cash Flow, Corporate Finance and Takeovers." Now, the arguments in this paper were not entirely new. As early as 1976, when he was still at Rochester, Mike Jensen and our colleague Bill Meckling had pointed to another possible benefit of debt financing in their pioneering paper on "agency costs." Jensen and Meckling showed that, in a world where managers often pursue their own interests at their shareholders' expense, raising equity from outside investors can be costly because of this conflict of interest between ownership and control that ends up reducing the value of publicly traded companies. And as Mike and Bill argued in that paper, replacing equity with debt could lead to higher firm value by reducing the agency costs associated with having outside equityholders.

It was Jensen's 1986 "free cash flow" paper that provided an important application of Jensen and Meckling's theory to the events of the 1980s. In that paper, Mike defined free cash flow as that portion of a company's operating cash flow in excess of the amount necessary to fund all its available positive-NPV projects. He argued that unless such cash flow is paid out to investors, managers have a tendency to destroy value through empire-building, costly attempts to maintain market share, or just plain failure to make hard decisions to cut back when appropriate. And if you go back to the investment opportunity spectrum described by Stew Myers, firms with lots of assets in place that generate substantial cash flow but have little in the way of profitable reinvestment opportunities have a tendency to develop this kind of free cash flow problem. For such firms, high leverage is likely to add value because it *commits* the managers to pay out free cash flow to investors. And in Jensen's view, that was a major part of what was going on in the '80s: the massive substitution of debt for equity in LBOs and other highly leveraged transactions was adding value by reducing overinvestment in mature industries that had lots of cash flow but few promising investment opportunities.

Now, the interesting thing to me is that when you set Jensen's free cash flow story alongside Myers's underinvestment argument, you get a perfectly complementary set of explanations for corporate financing behavior that revolves around a single variable: the company's investment opportunities. When you combine the two stories, you're left with the following generalization: For companies with lots of free cash flow and limited growth opportunities, it makes sense to weight the capital structure toward debt, both to shield income from taxes and to reduce managerial incentives to waste free cash flow—and the fact that such firms have limited investment opportunities means that the costs of high leverage stemming from potential *under*investment are not a big concern. At the other end of the spectrum, companies whose current value consists mainly of future growth opportunities will find that it generally makes sense to avoid debt financing. And in the case of high-tech companies with little or no current earnings or cash flow, it will make sense to have "negative leverage"—that is, cash on the balance sheet in excess of outstanding debt.

CHEW: Cliff, there's one major strand in the academic capital structure literature that you haven't discussed—the so-called signaling theories that focus on the information costs associated with raising outside capital. And although you've placed considerable emphasis on Stew Myers's concept of the corporate underinvestment problem, you haven't mentioned another of Stew's major contributions to the academic debate over capital structure—the so-called "pecking order" theory of corporate financing. Could you say a word about signaling and the pecking order?

SMITH: Don, when you were setting up this roundtable, you told me to summarize everything we know about corporate finance in *five minutes.* Subject to that constraint, I decided to limit myself to presenting what is essentially a theory of *optimal* capital structure. I've started with the assumption that most corporate managers have target capital structures—targeted percentages of debt to capital that, even if companies move away from them for long periods of time, still serve as long-term guides in their financial planning process.

Now, as you suggest, there is another potentially important cost of leverage that I haven't mentioned. It's a set of costs that stem from what academics call the "information asymmetry" problem—and let's just call them "information costs" for short. The basic idea here is that because managers are in a position to know more about the firm's prospects than outsiders, decisions by companies to raise outside capital—particularly equity capital—may cause investors to suspect that management thinks the firm is overvalued, at least based on their view of the firm's near-term prospects. In terms of "signaling" theory, the company's decision to raise new equity sends a negative signal to investors, who rationally respond by reducing the firm's share price—by about 3%, in the average case. Now, for those companies that feel they are fairly valued at the time of the announcement of the new offering (and this is not the average case, by the way; the average firm issuing equity *is* overvalued by about 3%), that negative stock price reaction represents a cost to the firm, a dilution of the value of existing stockholders' claims.

And this brings me to Stew Myers's pecking order model. Building on this signaling argument, Stew suggested that corporate capital structures are simply the cumulative result of individual financing decisions in which managers systematically prefer internal funds over outside financing, and debt over equity if outside funding is required. In fact, an equity offering is typically viewed as a very expensive last resort, something to be avoided if at all possible. The pecking order, then, is basically a strategy that aims to minimize "information costs" while essentially ignoring all the other costs and benefits of debt I mentioned earlier. And as I interpret the model, it says that corporate managers making financing decisions are not really thinking about an optimal capital structure—a long-run target leverage ratio they eventually want to achieve. Instead they take the path of least resistance and choose what then appears to be the lowest-cost financing vehicle—generally either internal funds or debt—with little thought about the future consequences of these choices.

Now, there is some evidence—particularly in the form of lots of highly profitable firms with low leverage ratios—that at least appears to be consistent with the predictions of this pecking order theory. That evidence suggests to me that information costs and, more generally, the desire to preserve access to capital markets are very important considerations in managerial decision-making. They are considerations that, when viewed in the context of this underinvestment problem I've been harping on, act to limit the corporate use of debt. But let me also briefly throw out one last comment about the evidence in support of the pecking order. My own belief is that companies incur some major costs, including information costs, in making sudden large adjustments in capital structure. And because of those adjustment costs, many firms find it cost-effective to deviate from what they consider to be their target leverage ratios for long periods of time. But that behavior shouldn't be allowed to obscure the fact that most firms *do* have at least implicit, if not explicitly formulated and articulated, capital structure targets.

The Evidence

CHEW: Cliff, you mentioned some empirical work that supports the pecking order story. Can you tell us a little about the recent studies that you and others have done in support of the idea of optimal capital structure?

SMITH: Well, let me start by saying that the entire field of empirical research in capital structure is still in its formative stages. It's primarily been within the last decade that the finance profession has attempted to test the different propositions, to bring standard statistical tools to bear on trying to sort out the relative importance of taxes, contracting and information costs, managerial investment incentives, and so forth. And as I just suggested about research on the pecking order, we're still early enough in the process that different

people can look at the same studies, and yet take away somewhat different things from them.

In support of the idea of an optimal capital structure, researchers have long detected definite patterns in leverage ratios across different industries. A 1967 study by Eli Schwartz and Richard Aronson showed clear differences in the average debt to (book) asset ratios of companies in different industries, along with a tendency for companies within the same industry to cluster around these averages. And as our theory would suggest, those industry debt ratios were significantly lower for industries characterized by heavy R&D spending and other proxies for corporate growth opportunities. I also would mention a 1985 study by Mike Long and Ileen Malitz that showed that the five most highly leveraged industries at the time—cement, steel, paper products, textiles, and oil refining—were all mature and asset-intensive. At the other extreme, the five industries with the lowest debt ratios—cosmetics, drugs, cameras, aircraft, and radio and TV receiving—were all growth industries with high advertising and R&D. Yet another study—a 1984 study by Mike Bradley, Greg Jarrell, and Han Kim using "cross-sectional" regression techniques—reported that book leverage ratios were negatively related both to the volatility of operating earnings and to advertising and R&D expenses. These findings are all consistent with high costs of financial distress for growth companies, which tend to have more volatile earnings as well as higher spending on R&D.

And these findings are also consistent with what two of my Rochester colleagues—Mike Barclay and Ross Watts—and I found in our more recent work. In a series of papers published in the 1990s, we looked at the leverage ratios of all the companies covered by COMPUSTAT—some 6,700 in total—over a 30-year period from 1963-1993. Like a number of studies by others, we used a company's market-to-book ratio as a proxy for the extent to which its current value consists of intangible assets or growth opportunities. The basic idea behind this assumption is that, because stock prices reflect intangible assets such as growth opportunities but accounting balance sheets generally do not, the larger a company's growth options relative to its assets in place, the higher on average will be its market value in relation to its book value.

What we found was that companies with high market-to-book ratios had significantly lower leverage ratios than companies with low market-to-book ratios. And these statistical results appear extremely robust. To make these findings a little more concrete, let me cite some industry averages we came up with. When we looked at the average ratios for eight different industries over the period 1989-1993, we found that the two industries with the highest market-to-book values, drugs and medical equipment, had average market leverage ratios of 6.6% and 11.7%, respectively. The two industries with the lowest market-to-book values, railroad equipment and lumber, had market leverage ratios of 32.5% and 28%. The average leverage ratio for the entire sample, I might add, was 25%.

Now, some people in the profession have objected that the way we set up the test—the fact that the market value of the firm appears on both the left- and right-hand sides of this regression—ended up driving our results. In response to this objection, we experimented with a bunch of different variables on both sides of the regression. In place of market-to-book ratios, we used things like R&D and advertising budgets as proxies for growth opportunities, and we used depreciation of fixed plant and equipment as a measure of assets in place. In place of market leverage ratios, we used both book debt ratios and interest coverage ratios. And whatever way we ran these tests, the results suggest a robust and consistent relation between leverage and measures of the firm's investment opportunities.

A second relation that also seems very robust is the effect of the regulatory environment on the firm's leverage ratio. Every study that I've ever seen finds that regulated firms have materially more leverage than similar unregulated firms. Our explanation is that regulation, by limiting both the extent and scope of the firm's investment opportunities, reduces managers' discretion in responding to such opportunities, which in turn reduces the underinvestment costs of debt. And because the managers of regulated firms have less latitude in changing investment policy, potential bondholders also have much stronger assurances that the firm's strategy is not about to undergo a dramatic shift after the bonds have been issued—a problem that academics refer to as "asset substitution."

More Evidence

CHEW: Thanks, Cliff. Let's turn to Tim Opler, who has not only done a good deal of research on capital structure, but also now makes a living advising companies on capital structure and other financial issues. Tim, you took part in a study of corporate cash holdings that was published just last year in the *Journal of Financial Economics*. Are your results broadly consistent with Cliff's findings?

As in Cliff's study, our results are consistent with the idea that companies attempt to balance potential agency costs associated with having too much cash against a variety of financial distress costs associated with having too little. But where Cliff's work places most of its emphasis on costs arising from the corporate underinvestment problem, we focus on other kinds of financial distress costs as well. For example, we pay a lot of attention to the negative effects of corporate overleveraging and illiquidity on the firm's customers and suppliers.

TIM OPLER

OPLER: That's a good question. I say that because corporate decisions to hold or not to hold cash should be—and in fact turn out to be—closely related to the decision to use debt. Or, to put the same thought in different words, the same company characteristics that make debt costly—notably, high risk and lots of growth opportunities—are also likely to make cash holdings advantageous. As Cliff suggested earlier when talking about high-tech companies, a company's *excess* cash—the amount over and above what it needs to handle its routine transactions—represents in effect *negative* leverage. In this sense, cash holdings are an important part of a firm's capital structure.

There are a couple of notable findings in our study. First of all, small companies in general tend to hold significantly larger cash balances as a percentage of total assets than larger companies with otherwise similar characteristics. And although Cliff didn't mention it, that finding is consistent with his own study's finding that smaller firms, all else equal, tend to have lower leverage ratios. We also find that companies with high market-to-book ratios—as well as firms with larger R&D budgets as a percent of sales—tend to hold more cash as a percentage of total assets. Again, this is consistent with Cliff's story about the incompatibility of high leverage and growth options. What's more, we find that companies with greater business risk, as measured by the standard deviation of both their operating and stock returns, tend to hold more cash as a percentage of firm assets. By contrast, companies with investment-grade credit ratings tend to have lower cash balances—and this should come as no surprise, since such companies tend to be larger and less risky, and

thus have better access to capital, than firms without investment-grade ratings.

So I would say that, yes, our results are broadly consistent with Cliff's study and with his general argument. But there are some differences worth mentioning. For one thing, we find that companies that generate large operating cash flows as a percentage of assets—firms that Cliff earlier characterized as having mainly "assets in place"—also tend to have large cash balances. Cliff's model would suggest that these firms should have relatively high leverage ratios, both to reduce taxes and control the free cash flow problem. And to be consistent with that model, such firms should also probably have fairly low cash holdings instead of the high balances that we find. Now Cliff may be right to suggest that such firms may be in the middle of a gradual adjustment process toward higher leverage and lower cash holdings—because our study does find that companies that generate a lot of cash flow also make large distributions to stockholders in the form of dividends and stock repurchases. But if we consider cash as negative leverage, this tendency of cash-generating companies to retain a significant part of their surplus cash rather than paying it out immediately provides support for the pecking order theory. It suggests that many companies, if they have any leverage target at all, aren't in a great hurry to get there.

There is also another part of our study that works somewhat against the grain of Cliff's argument. After looking for patterns in cash holdings, we then attempted to see whether cash-rich companies have a tendency to waste much of that cash by "overinvesting." Using regression analysis, we came up with a model that estimates a company's *expected* cash holdings as a function of several firm characteristics, including size, risk, market-to-book ratio, and R&D spending. And by calculating a firm's actual cash holdings against the predicted level, we estimated its *excess* cash. But when we then examined the spending behavior of firms with excess cash, we found little evidence of the free cash flow problem that Cliff described earlier. It's true that companies with excess cash made more acquisitions than their cash-poor counterparts. But capital expenditures—excluding acquisitions—as a percentage of total assets for both kinds of firms were about the same. And as I mentioned earlier, we found that cash-laden companies tend to make larger distributions to their shareholders than firms with moderate or low cash holdings—a finding that suggests that if these cash-rich firms do have a free cash flow problem, their managers are at least trying to do something about it. So, while there may be some evidence of a free cash flow problem in our study, my reading of the evidence is that most companies make fairly judicious use of their cash. They don't allow it to burn a hole in their pockets, as agency theory suggests they might.

And let me make one last comment about our study. As in Cliff's study, our results are consistent with the idea that companies attempt to balance potential agency costs associated with having too much cash against a variety of financial distress costs associated with having too little. But where Cliff's work places most of its emphasis on costs arising from the corporate underinvestment problem, we focus on other kinds of financial distress costs as well. For example, we pay a lot of attention to the negative effects of corporate overleveraging and illiquidity on the firm's customers and on its suppliers. Our general sense is that those costs are quite significant in driving corporate decisions both to hold more cash and to limit their leverage ratios.

CHEW: Tim, you've also done a study of financial distress costs that focuses on retailing, as well as a number of other specific industries. Can you briefly summarize what you found?

OPLER: In a paper I did with Sheridan Titman, we looked at a large group of companies that were in industries that subsequently experienced financial difficulty. What we found is that those companies that went into a downturn with higher leverage tended to perform substantially worse—both in terms of EBITDA and stock returns—than less levered firms in the same situation. And we were not at all surprised by that result. After all, think about how the customers of a car manufacturer would respond if the company got into financial difficulty.

CHEW: Okay, so you're saying that a major cost of leverage takes the form of a negative customer response. It's not just a matter of leveraged companies cutting back on vital investment—of, say, overleveraged retailers failing to refurbish their stores. It's also a matter of customers shying away from financially troubled companies.

OPLER: There are several factors that I think contributed to our findings. Certainly some companies facing financial stress have cut back on investments they should have made. And there's no question that customers often avoid buying goods from companies that are in financial difficulty. But another cause of problems is the response of suppliers that worry about getting paid. There are many examples in the retailing industry of suppliers refusing to extend credit to financially troubled retailers.

CHEW: Retailing is an industry that may not fit neatly into these categories that Cliff has set up. On the one hand, it seems to be an industry that generates lots of cash flow. And the fact that there were a number of LBOs and other leveraged transactions in the industry during the '80s—Campeau and Macy's, two failed deals, come to mind—suggests that there was a big free cash flow problem. That is, like so many U.S. industries during this period, retailing was suffering from huge excess capacity; there was clearly too much capital chasing too few investment opportunities—and leverage can help add value in such cases. But, Tim, your study seems to reach a different conclusion—namely, that some retailers, by *over*leveraging, made themselves more vulnerable to a downturn, whether because they were less able to respond to price competition, their financial problems scared away their customers or suppliers, or they were unable to reinvest in their stores.

So my question is, where does that put retailing? Do retailers in general have lots of profitable growth opportunities that require investment—or at least lots of investments that have to be made in order for them to remain competitive? Or are they cash cows waiting to be milked?

OPLER: Retailing in general has not been a high-growth industry, although there are exceptions, of course, like Wal-Mart. What we do know about retailers is that they tend on average to have debt-to-capital ratios that are in the middle of the pack. But there is a lot of variation. If you look at the distribution of capital structures in the retailing industry, you'll find that the newer, more risky retailers tend to be less leveraged, while the more established firms tend to operate with more debt.

DENNIS SOTER: Tim, when you look at retailers, do you factor the off-balance-sheet leases into the calculation of leverage?

OPLER: Yes, definitely.

SOTER: And you still find them to be in the middle of the pack with respect to leverage?

OPLER: In general, yes. The reason that's true is that some of the largest retailers in this country tend to be relatively unlevered in relation to their actual cash flow and ability to service debt. For example, I suspect that companies like Wal-Mart operate with low leverage because they have major expansion plans that may require significant funding in the future.

CHEW: On balance, then, is the lesson from your study that retailers have overleveraged themselves? Or are they instead using what appears to be an optimal amount of leverage, at least at the time of issuance—and the leverage then has the effect of weeding out less competitive players when overcapacity sets in? If the latter is correct, then the capital markets can almost be seen as *pushing* the companies to lever up in order to correct the industry's free cash flow and overcapacity problems.

OPLER: In general I would say that the retailers have not used too much leverage—and your point about leverage and excess capacity is well taken in the sense that most retailers would find it very difficult to raise equity on anything but punitive terms. But there are enough differences among retailers and their strategies that it makes no sense to talk about an optimal leverage ratio for the entire industry.

On the other hand, there are industries that seem clearly to me to operate with too little leverage. The oil and gas industry—the one that Jensen focused on when developing his free cash flow argument—clearly comes to mind.

SMITH: Let me go back for a moment to this issue about where retailing fits into the asset categories I set up earlier. I don't have any difficulty with saying that most retailers have more assets in place than growth opportunities. But let me also say that, although our study was set up to learn as much as we could from looking at just one variable, the capital structure problem clearly has more than just this one dimension. I agree with Tim that leverage can create problems in companies because there are other parties to the collection of contracts that make up the firm than just the stockholders and the bondholders. As Tim said, the CFO's choice of leverage could have major effects on the firm's relationship with its customers. But I would also point out that the relationship is going to be very different if the firm's product is one whose quality can be readily observed before purchase as opposed to a product whose quality cannot really be determined until after the dust settles on the whole transaction. Imagine that I'm the fellow at Eastman Kodak who buys the silver used in producing film. If somebody arrives with a truckload of silver, even if he's never done business with Kodak before, I can have the silver assayed and determine the quality of the product to any degree of certitude I'm willing to pay for, *before* the transaction takes place. But now let's take the case of air travel. If you buy a plane ticket, you can't tell the quality of that plane ticket until you've landed, gotten off the plane, and picked up your baggage.

Excess Cash and the Case of Chrysler

DAVID IKENBERRY: Another issue to consider in setting capital structure is the durability of the firm's products. I'm not too worried about the capital structure of my local grocer because I'm going to consume that head of lettuce by the end of the week. But if I go to Chrysler to buy a K Car, I will be fairly concerned about the longer-run viability of that company. When Lee Iacocca went to the government to get a federal guarantee of Chrysler's debt, the biggest benefit to Chrysler's shareholders was not the reduction in interest payments, but rather the resulting increase in sales—because consumers were convinced that Chrysler was now too big to fail.

SMITH: And the first thing Chrysler did after receiving that government guarantee of their debt was to increase their warranty from twelve months and 12,000 miles to five years and 50,000 miles. By changing that contract with the customer, they materially increased the demand for the product. (And in making the warranty more valuable to its customers, by the way, Chrysler enlarged the value of the government's guarantee to the company itself—all at the expense of U.S. taxpayers.) So the lesson here is that your financial structure and how you structure these details of your product may not be independent decisions.

CHEW: Tim, is that why Chrysler found it necessary to have some $10 billion in cash on its balance sheet before being acquired by Daimler? To reassure the firm's customers? And in your study of corporate cash holdings, was Chrysler's $10 billion an "outlier," or was it pretty much in the middle of the pack?

OPLER: As a percentage of total assets, Chrysler's cash holdings were actually a fairly representative case, at least when you take into account the cyclicality or high risk of the business. In 1995, Bob Eaton told the investment community that Chrysler needed $7 billion in cash to ensure its ability to get through the next recession. And if you recall, Chrysler stockholders Kerk Kerkorian and Jerry Ork responded by saying, "That's way too much; probably $3 billion would be enough." But guess what? Here we are in the year 2001, and it's now Daimler Chrysler. And not long ago, Daimler Chrysler's cash position got as high as $22 billion. At the moment, the company is losing cash at a rate of $3-4 billion per quarter. And I think we will now see just how much cash the car companies really need to weather a downturn. As Bob Eaton said at the time, "When it rains in the car industry, it's not just a regular storm; it's a monsoon." My guess is that in retrospect the arguments made at the time by Chrysler were right on the money.

CHEW: But you might also recall that when Chrysler said that it needed the $7 billion to weather the recession, Kerkorian said that, as a major holder of Chrysler's stock, it was the presence of that $7 billion cushion that troubled him the most. And in that sense, I *could* offer a completely different interpretation of the same events. The fact that Chrysler is losing so much money today might be taken to imply that having that huge cash cushion blunted the drive for efficiency inside the firm. All that cash may have insulated management from capital market pressures that would have forced the company to make the necessary improvements to become really efficient.

OPLER: I have to disagree. The auto industry has always been one that's extremely cyclical, with periods of boom followed by bust. And when there's a bust, the companies cannot and should not expect the banks or the capital markets to bail them out.

CHEW: Well, you may be right. But I would also argue that the severity of the boom-and-bust cycle is in large part a consequence of chronic overcapacity in the industry. And the overcapacity itself may in fact be a fairly predictable result of all this cash and capital sitting on the balance sheets of all these players.

SOTER: Tim, how much did Chrysler spend when it bought its stake in Mitsubishi? It's very hard to argue that Chrysler's shareholders benefited from that acquisition. And I find it hard to believe that Chrysler's willingness to do the deal had nothing to do with the fact that they had all this liquidity on their balance sheet.

OPLER: I don't know enough about the Mitsubishi deal to comment on that. But let me come back and address the broader question: Was Chrysler, before the purchase by Daimler, wasting money? Was it an inefficient company? I don't doubt that there were dollars that were disbursed from the treasury that shouldn't have been. But I think many people would agree that Chrysler was a very well-run company. It created terrific products like the Jeep Cherokee and the minivans, and it gained significant market share relative to the other car companies.

So I don't personally believe that Chrysler's management ran the company more inefficiently because they had excess cash. Of course, there were probably a few occasions when having the extra cash encouraged them to make what turned out to be negative-NPV investments. But I would be hard pressed to say that the company's behavior was driven by an inefficient, growth-at-all-costs mentality.

Capital Structure in Practice: The Case of Pepsi

CHEW: Okay, let's now turn to Rick Thevenet. As a member of Pepsi's treasury group, Rick is the only bona fide practitioner of corporate finance in the room. In recent years, Pepsi has acquired a reputation for managing its capital very efficiently. Rick, would you tell us a little about the role of capital structure in Pepsi's overall business strategy and in its drive for efficiency?

THEVENET: One of our financial aims at Pepsi is to minimize the amount of cash on our books. More precisely, our objective is to have zero *excess* cash on the books—that is, cash in excess of our normal intra-day float and whatever is trapped offshore for tax reasons. At the same time, we try to have the maximum amount of debt that we can while still maintaining our single-A credit rating.

So, we do have a capital structure or leverage target. And we arrive at that target by determining the largest leverage ratio consistent with our desired credit rating. Once we get to that leverage target, we try to stay there. How do we stay there? Mainly by using our excess cash to buy back stock.

CHEW: Why do you operate with so little cash?

THEVENET: Well, one reason is that we have very good access to commercial paper. If we really need to raise cash, we just go out and issue commercial paper. On occasion, we've issued as much as $3 billion in commercial paper on 15 minutes' notice. So, again, our cash management objective is to have zero in the checking account at eleven o'clock in the morning. It's a very easy objective to measure and, given our access to commercial paper, it's easy to achieve.

CHEW: So the key calculation is how much money you can raise in the commercial paper market without lowering your rating?

THEVENET: Right. As I said, we aim to maintain a single-A credit rating. We want to be single-A because that gives us immediate access, under almost any conditions, to large amounts of cash at the best rates from all the commercial paper markets in the U.S., Europe, and Japan.

Now, while our financial policies are aimed at maintaining that single-A rating, we also have an investment policy that forces us to look carefully at all of our major investments and expenditures. When viewed together, our financial and investment policies have the effect of putting constraints on the amount of cash we're willing to invest back in the business. The most important constraint is whether or not the project is expected to yield a positive net present value. Having that kind of discipline in evaluating investments is important to Pepsi, in large part because the company now generates almost $3 billion in cash more than it spends on new projects. In Cliff's terms, that's about $3 billion of free cash flow that might be wasted by a less financially disciplined management team. To avoid that problem, we pay out much of that cash to our stockholders. Last year Pepsi paid out $800 million in dividends while also spending $1.4 billion to buy back its stock.

We attempt to keep our cash to a minimum because we share the investment community's concern that if we have $3 billion in excess cash sitting on our balance sheet, management will be tempted to spend the money unwisely. And by "unwisely" I mean, for example, acquiring brands where the purchase price is at such a premium that we cannot possibly earn an adequate rate of return on our investment.

CHEW: Is there a past history of that kind of behavior in the organization?

THEVENET: In the '80s we had high hopes for growth and large returns from buying back restaurant franchises. With 20-20 hindsight, some of these individual purchases didn't pan out. On a small number of the restaurants we bought, we earned less than our cost of capital. But when we adopted our new financial and investment policies in the late '80s, we shut off the investment spigot.

At the same time, we discovered that we could create significant value simply by divesting assets that we already owned. For example, in some instances we found that we could sell restaurants for more than they were worth to Pepsi. Then, in a more dramatic step, we spun off the restaurants into a separate company called Tricon. Pepsi's stock rose nearly 15% on the announcement of the spinoff, and Tricon has appreciated more than 50% since the spin. Part of the gains in this case came from leverage; whereas Pepsi then had only 7% (market) leverage, Tricon was levered at 50%. Thus, one of the things we accomplished by getting rid of our excess cash was to force management to examine more carefully not only acquisition candidates, but existing assets too—to ensure that they would provide us with a fair return of capital. And having done that, we discovered that we suddenly had a lot more cash to buy back stock. Historically we have used stock buybacks to manage our leverage. But with the Quaker transaction being recorded as a "pooling of interests," our buyback is on hold.

So, our decision to minimize our cash levels and maintain maximum leverage—again, while still being

consistent with a single-A rating—helped to reinforce our new strategy of more disciplined, value-based management. Prior to making this change in strategy, Pepsi was a more or less conventional "growth" company. Management's main concerns then were top-line growth and bottom-line growth. As a result, capital was never a concern for us. If the company wanted to make a major investment—say, a big acquisition—it had a lot of internal cash. And if the company didn't have enough cash, it could always issue debt.

As a general rule, then, if there is a lot of excess cash or unused debt capacity, companies will generally find a way to spend it. For example, if you have an M&A department whose sole function is to go out and buy other companies, and you also have lots of excess cash, then you're likely to end up buying some companies that don't add value.

But the value-based approach at Pepsi differs greatly from that of most growth companies. Today all investments have to show that they are likely to add value, to earn more than the cost of capital. And our cash and capital structure policies reinforce that message. As I said earlier, we use our excess cash to buy back stock and to keep our leverage ratio at the top of the single-A range. With less cash on the books, there is less temptation for us to overpay to acquire other corporations, or make uneconomic investments in our core businesses.

CHEW: Has your target leverage ratio increased during that time?

THEVENET: In 1991, which was a year or two before I joined the company, we had a target leverage ratio of 25% debt in relation to the *market* value of total capital. Our rationale for using market values—and the rationale used by many academic studies of capital structure, including Cliff's—was that the stock price is a forward-looking measure of the company's ability to service debt. And to the extent the market was expecting an increase in the company's future cash profits, the company could support a higher debt ratio than was implied in the use of book values.

But if we were successful in convincing ourselves that this was the right approach, the rating agencies didn't buy it. We had an ongoing battle to get them to accept that our target was consistent with a single-A rating. As we kept telling them, by using conventional book leverage and historical coverage ratios, you're effectively looking at this year's debt in relation to last year's cash flows. But they were not persuaded. One factor that complicated the discussion was the volatility of our P/E multiple, which has increased in the past ten years from about 20 to as high as 35 in the past few months. According to the rating agencies, if we had adhered to that same 25% market leverage target with a P/E of 35, we would have almost doubled our book leverage ratio and become dramatically overleveraged.

So, we have given up our attempt to convert the rating agencies to our market-based way of thinking about leverage ratios. On the plus side, they no longer look at us on a book leverage basis. We now target cash flows and, in particular, earnings coverage ratios when looking at our ratings.

CHEW: So earnings coverage ratios are a key variable?

THEVENET: They seem to be *the* key variable for the rating agencies.

IKENBERRY: Just a quick question, Rick. Cliff started out this discussion by telling us what M&M and other academics think are the most important considerations in arriving at optimal capital structure. Then you started out by suggesting that when Pepsi went through a similar thought process guided by most of the same considerations, the company came up with an optimal leverage ratio of 25% of total market cap. But now you tell us that the determining factor in this capital structure decision is the need to maintain a single-A rating.

Now, I have to say that although I hear this story from corporate treasurers all the time, I still find it pretty extraordinary. Why, given what I think is a pretty compelling theory, do companies keep coming back to what appear to us to be these outmoded rating-agency criteria? Why not follow the theory if the theory would lead you down a more sensible path?

THEVENET: I guess the best way to respond to your question is to tell you what happens if you fail to maintain your credit rating. And let me illustrate my point using the commercial paper market. The CP markets for A1/P1 credits like Pepsi have about $1.2 trillion outstanding. But if you fall into the A2/P2 category—a category that is roughly equivalent to a triple-B rating on corporate bonds—the market size shrinks to about $180 billion. On top of that, whereas the largest corporate CP programs for individual A1/P1 issuers run from $60 to $80 billion, the largest programs for A2/P2 firms are only around $2 billion. So, the amount that you can have outstanding as an A2/P2 is dramatically restricted. You can't get immediate access and the rates are considerably higher. And if there's a default in A2/P2, the markets often shut down completely, and you just cannot get access to cash.

IKENBERRY: But why do you need this instant access to such large amounts of cash? Does Pepsi have

Bringing the discipline of value-based management to bear on its investment decisions is important to Pepsi, in large part because the company now generates almost $3 billion in cash more than it spends on new projects. That's $3 billion of free cash flow that might be wasted by a less financially disciplined management team. To avoid that possibility, we pay out much of that cash to our stockholders. Last year Pepsi paid out $800 million in dividends while also spending $1.4 billion to buy back its stock.

RICK THEVENET

incredibly perishable growth options—the kind that, if you don't exercise them by five o'clock, they're gone?

THEVENET: Our concern at Pepsi is that if we didn't have access to the A1/P1 commercial paper market, we wouldn't be able to buy brands like the Quaker Oats brand that we're now looking to buy. Now, in that case, we are using stock to make the acquisition. But let's take the case of South Beach, or SoBe. Other people were "in the hunt" for SoBe, and we ended up paying about $300 million dollars in cash. If we were in A2/P2 commercial paper, we could not have made that acquisition because of the lead time required to lock up financing in the A2/P2 markets.

ERIK SIRRI: So, what you're saying, then, is that commercial paper is a substitute for cash. That's your critical source of financial flexibility, and that's why you want to maintain your single-A rating.

THEVENET: That's right. If we were an A2/P2 commercial paper issuer, we would have to keep loads of cash on the books to handle those periods when we wouldn't be able to access the debt market. In that case, we would have a capital structure with $4 or $5 billion in debt and as much as $1 billion of cash. Under our current structure, we have $7 billion of debt and no cash—and our feeling is that our current structure is much more efficient for us.

Another important reason for maintaining our access to cash is to respond to possible competitive threats. We face some pretty formidable competitors, and if one of them should mount a major attack in one of our key markets, a double-B credit rating could drastically limit our range of responses. But, as a single-A, we feel pretty confident in our ability to deal with our competition.

When Investment Grade May Not Be Optimal: The Case of SPX

CHEW: This is probably a good time to turn the floor over to my colleague, Dennis Soter, who, as I said earlier, is in charge of Stern Stewart's corporate finance advisory practice. Dennis, you have achieved a certain fame—or "notoriety" is probably a better word—for suggesting that most U.S. companies are underleveraged, and that the optimal capital structure for most firms is below investment grade. How do you respond to Rick's argument?

SOTER: Well, I can see where the prospect of intense competition might cause you to want to maintain a single-A rating. But I do want to question the idea that such a rating is necessary for most companies to capitalize on their investment opportunities or growth options.

There is a wealth of evidence on leveraged acquirers doing deals where they take their case "to the market," so to speak, by raising capital for a specific transaction. In this kind of financing, the acquirer puts in anywhere from 10% to 25% equity and then, in effect, subjects the wisdom of the investment to the scrutiny of investors. In the 1980s, the source of financing would have been the junk bond market. In the '90s, it was more likely to be the syndicated bank market. In either event, the transactions had to stand on their own merits to get done. They did not have the benefit of a single-A bond rating.

CHEW: Dennis, would you give us an example of such a transaction?

SOTER: Well, the best example that I've been involved with was an acquisition by a company in Muskegon, Michigan called SPX Corporation. In 1997, SPX did a leveraged restructuring where it bought back 18% of its shares using a Dutch auction self-tender. Just prior to the transaction, the company had one issue of rated debt outstanding, and it was rated single-B—although if you adjust for the fact that the issue was deeply subordinated, that would suggest a double-B-minus as SPX's corporate credit rating. In order to do the stock repurchase, SPX first had to do a tender offer to retire that debt issue, because the repurchase itself would otherwise have caused the company to violate a covenant.

As a result of completing both transactions—first retiring the old debt issue and then issuing new debt to finance the stock repurchase—the company's book debt-to-capital ratio went above 100%. In fact, it went to about 115%, which means that the company now had a significantly *negative* accounting net worth. But, far from being a cause of concern to the market, the transaction apparently had a favorable impact on the investment community's expectations for future profitability. The fact that management was prepared to add to the leverage of an already highly leveraged company appeared to send a very positive signal to the market. During the eight to ten weeks following the announcement of the transaction, SPX's stock price went from the mid-$40s to about $70 per share—and it stayed there.

But that's not the most interesting part of the SPX story. Under the new leadership of the company, which effectively came into place late in 1995, the company had restructured its operations to place less emphasis on the auto parts supply business and more on what it perceived to be a higher-growth segment, specialty service tools. This meant that management was willing to take on high leverage even when it saw the company as having significant investment opportunities. And the high leverage did not end up interfering with these plans. About 15 months after its leveraged stock repurchase, SPX announced that it had reached an agreement to acquire General Signal, a company that was approximately twice its size, for $2 billion.

Now, given that this was just 15 months after it had gone through a major leveraging, SPX was clearly not going to write a check or draw down a line of credit for $2 billion. To do this deal, which also involved the assumption of $400 million of General Signal's debt, SPX ended up putting together a syndicated loan package for $1.65 billion. It was difficult to do, but it got done. And that acquisition has been a major contributor to SPX's remarkable increase in value since then.

Besides illustrating the ability of our capital markets to provide funding for promising investments, the SPX case also shows what can be accomplished by an aggressive and highly motivated management team. Before these transactions took place, John Blystone and his management team were granted a significant number of well-out-of-the-money stock options. And with the help of a bonus plan tied to EVA, management has added a lot of value in a fairly short time.

CHEW: But, Dennis, the basic business strategy of SPX seems considerably different from that of a company like Pepsi. SPX has basically chosen to discard its old business model, to move away from its traditional auto supply business and become what I see as a kind of industrial counterpart of KKR. Management is effectively saying that it's getting into the business of buying underperforming businesses and fixing them. Like KKR, they don't mind using financial leverage to get control. But I would also be

The point of my story about SPX is to question this idea—and it's one that I hear all the time—that you need a single-A rating to have access to capital markets. My general feeling is that the managers of large public companies tend to use too little debt. For every company that thinks about debt as a means of reducing taxes or controlling agency costs, we seem to run across two or three firms that just follow the pecking order and take the path of least resistance.

DENNIS SOTER

surprised if SPX didn't attempt, like most LBO firms, to pay down a lot of that debt fairly quickly. And, as Cliff pointed out in a roundtable that we ran over 15 years ago, I'm not sure the LBO model can serve as a reliable guide to optimal capital structure for companies that are not in the business of buying and fixing other companies.

SOTER: That may be true. But the point of my story is to question this idea—and it's one that I hear all the time—that you need a single-A rating to have access to capital markets. The business risk of SPX, in terms of the volatility and predictability of cash flows, is arguably significantly greater than the business risk of a company like Pepsi. I haven't looked at the stability of your cash flows, Rick. But we've worked with a number of successful consumer products companies, and they tend to generate very stable cash flows. For example, we worked with Quaker Oats a few years ago and found they had very high and stable free cash flow. And, in my mind, that's the perfect candidate to use a lot of leverage. In fact, it's not inconceivable that Pepsi could have borrowed $13 or $14 billion and acquired Quaker in an all-cash deal.

CHEW: But could they have done that today, given the depressed state of the junk bond market?

SOTER: That might have been tough in the current environment. But not that long ago, borrowing $13 billion at an interest rate of, say, 10%—or, say, five percentage points over the ten-year Treasury rate—would have involved only another $130 million in annual interest payments. The interest coverage would have been tight, but I'm sure Pepsi could have done that. And with the free cash flows generated in the future, it could then have paid down the debt within some reasonable period of

time. I'm not suggesting, by the way, that that would necessarily be the value-maximizing strategy for Pepsi. It's quite possible, as you said, that a competitor might respond by going after you in the product markets.

But I don't know whether a single-A rating is necessary to take advantage of the growth options that you perceive. And my general feeling is that the managers of large public companies tend to use too little debt. For every company that thinks about debt as a means of reducing taxes or controlling agency costs, we seem to run across two or three firms that just follow Stew Myers's pecking order and take the path of least resistance.

THEVENET: I would argue that Pepsi has good investment opportunities and that substantial value would be lost if we were unable to finance them. Our earnings have been growing at 15% percent a year, and we fully expect that to continue. We also estimate that our returns on incremental invested capital have averaged—and will continue to average—between 15% and 25%.

Dennis mentioned earlier that our businesses produce fairly stable cash flow. After all, how cyclical can the snack chip business be? But we do occasionally run into roll-out and timing problems in our international markets, and there are a number of other risks that show up in our business operations from time to time. And a big part of our ongoing strategy is to invest heavily in brand-building and value-creating acquisitions.

It's also important to keep in mind that our capital structure policy is part of the company's comprehensive risk management program. We have an overall risk management approach that says that because the company faces risks on the operating side, and from foreign exchange fluctuations as well, we've decided to limit the risk arising from financial leverage.

What could we accomplish by increasing our leverage? We estimate that our weighted average cost of capital right now is about 9%. If we doubled our leverage, my own estimate suggests that our cost of capital would fall by at most 50 basis points. There's not much value added from that. Now, would higher leverage stop our management from making a lot of bad investments? We don't think so. We think our value-based management approach, combined with our zero cash and stock repurchase programs, prevent that. As a firm with one of the highest P/E multiples in our industry, we think we're performing significantly better than most of our competitors. And the potential value added from levering up appears fairly insignificant when set against the potential loss in value from reduced financing and operating flexibility.

So, Pepsi today has lots of valuable growth opportunities. And when we compare ourselves to companies in other industries with similar P/E ratios, we think of ourselves as a "pseudo-pharmaceutical," a company with high potential returns and good growth prospects. Most of the current value of the company rests on our ability to make those investments, and we don't want to jeopardize that future by taking on too much financial risk.

OPLER: I think to some degree both Dennis and Rick are right. The SPX case study provides a good illustration of what the intelligent use of financial engineering and leverage can do for a company in the value-creation process. But I also think PepsiCo is probably not wrong to have the leverage policy that it has. While I agree with Dennis that Pepsi could add substantially more debt to its balance sheet and probably avoid most of the costs associated with debt that have been discussed in the academic community, I think Rick's argument about the company's potential loss of access to the CP market, and to capital markets in general, is one that has to be taken very seriously.

One of my main reasons for saying this has to do with the ongoing trend toward global consolidation in many industries. If you're a large global multinational in the food business, you have to be prepared to respond to global consolidation. There are players out there like Unilever that have very stable cash flows but are nonetheless operating with very conservative balance sheets. And although Unilever has been criticized for being too conservative, the company's goal is to continue to grow through consolidation—and, in so doing, to take advantage of the tremendous economies of scale that exist in a world that's getting bigger and more efficient all the time. For example, Unilever was recently able to buy BestFoods on a leveraged basis. They were able to go to the market in a very tough time and do a $7 billion deal.

CHEW: Tim, wouldn't that argument also apply to the telecom industry, where a number of companies seem to have wound up with more leverage than they want?

OPLER: That's right. Four or five years ago, there was large rush of competitors into the telecom and wireless industries. Many of these new companies chose to fund themselves with junk bonds—mainly, it seems to me, because the capital was available on such favorable terms. But now there is enormous overcapacity in these businesses. And as investors have gotten wind of this overcapacity in the last year or so, the value of most of those bonds has dropped pretty sharply,

the cost of borrowing has gone up, and the companies themselves are struggling to raise new capital. And so even though some of these firms might have a solid strategy for competing against the incumbent telecoms, they're now in a position where their growth potential is severely restricted.

At the same time, some of the bigger players in the industry seem to have clearly benefited from their decisions not to use leverage. For example, some of the RBOCs in the U.S. like Bell South, Verizon, and SBC are relatively unlevered compared to the rest of the industry. And they will tell you that being conservatively financed is part of their strategy because, like companies in the food industry, they are facing global consolidation. Now, I'm not at all suggesting that these conservatively leveraged companies have the *optimal* capital structure. But they have certainly managed to avoid the problems now faced by many of their would-be competitors.

CHEW: One of Mike Milken's first great successes was the MCI deal in the early 1980s, which was funded with convertible bonds. The argument in that case was that although the company had these great growth opportunities, and though they might have needed financing flexibility to take on ATT, equity was just too expensive. The story is that every time the CFO gave any indication of an intent to raise equity, the stock price would drop 10% to 20%. So they decided to issue lower-coupon convertibles with equity kickers attached. Would that financing strategy have helped some of the current telecom companies by reducing their current coupon rates?

OPLER: MCI did a brilliant job of financing themselves in markets that were not as deep as they are today. And a lot of today's telcos have been using converts. But the question that one has to ask is, "Let's suppose that you were back at MCI in 1983, but there were 20 other MCIs out there trying to do the same thing. Would you then have wanted to be as aggressive as MCI in putting leverage on the balance sheet?"

I would argue that the answer is no. Now, I agree with you that if you can't issue equity in those circumstances, then converts are better than straight debt; they help preserve financial flexibility to some degree. But when you see very heavy entry and potential overcapacity in your industry, then you want to be cautious about leverage if you're a company that really has something to add to an industry and wants to have staying power.

To me the important message here is that if you're a financial officer of a company, you need to think through these issues and not make decisions about financial strategy through inertia. It's important to go through the thought process that we're talking about today, and to evaluate and even quantify the tradeoffs between different financial strategies as carefully as you can.

PART TWO: STOCK REPURCHASE

CHEW: Let's turn now to the second major topic of this discussion, corporate stock repurchases. I earlier introduced David Ikenberry as the world's foremost authority on the subject, and I've asked Dave to start us off by providing an overview of the different methods companies have been using to buy back their stock, along with a brief discussion of their motives.

IKENBERRY: The U.S. corporate experience with share repurchases is relatively recent, at least in the grand scheme of things. While the transaction has been around for many decades, the history of buybacks as a popular transaction is confined to the last 20 years—to the period following the enactment by the SEC of Rule 10b-18 in the early 1980s. That rule, by providing a legal safe harbor against the possibility of investor litigation, really opened the door to all the repurchase activity that we see today.

There are three basic methods a company can use to buy back its stock. Probably the most dramatic approach, the one that really grabs the headlines, is the fixed-price tender offer. In this case, the manager shouts out a price and a quantity and then waits for the market to respond. A second, in some ways equally showy, approach is the Dutch-auction process. In this case, the manager shouts a quantity and a range of possible prices, and the market responds with a demand schedule. As in the fixed-price offer, the company ends up repurchasing all shares tendered at the same price. But in the Dutch-auction process, the price is the minimum level that brings in the desired quantity—or if that quantity is not forthcoming, the price becomes the top of the range.

It is important to keep in mind, however, that these two flashy mechanisms—the fixed-price offer and Dutch auctions—together account for only about 5% of the total transaction volume. Over 90% of repurchases are accomplished using the third mechanism, the open market repurchase. Here the company trades basically like any investor in the open marketplace—although corporate activity is limited to a slight degree by some SEC "guidelines" that we can discuss later. The companies establish brokerage accounts with one or more brokers, though they generally use only one

on any given day. And the brokers are given varying degrees of decision-making authority, ranging from programs where the company itself makes almost all trading decisions to cases in which the repurchases are entrusted completely to outside agents operating under general guidelines.

In addition to these three basic methods, some companies are using what I call "derivative layover" strategies. Such strategies typically involve the company buying call options on its own stock, selling put options, or some variation of these strategies. These options generally have the effect of "locking in" repurchases at certain price levels. They also fall outside the jurisdiction of Rule 10b-18.

Why do companies repurchase their shares? When we talk to CFOs and practitioners, we hear a variety of stories and motivations. But underlying all this variety, there are clearly some common themes, and I've come up with a classification scheme that groups them into four major categories. As you will see, the four explanations are not mutually exclusive. In fact, some companies at any point in time might be buying shares for all four of these reasons.

One common explanation for stock buybacks is that they provide companies with a means of adjusting their capital structure. If a company feels it has too little debt and more equity than it needs, a stock repurchase can restore the proper debt-equity balance. And for companies looking to make very rapid and dramatic changes in leverage ratios, both fixed-price offers and Dutch auctions financed by new debt offerings are appealing choices.

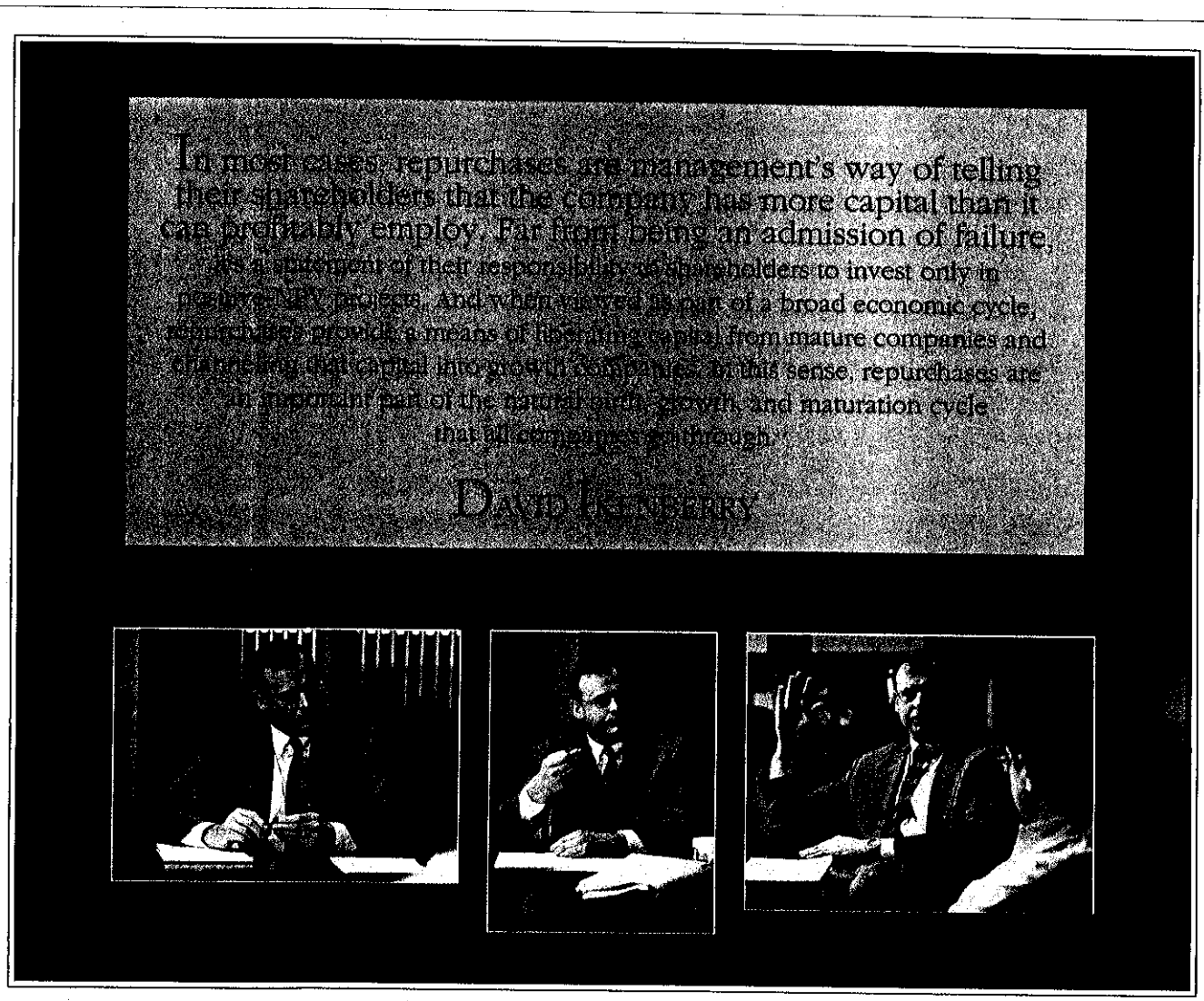
But changes in capital structure can also take a more subtle form. What I have in mind here are corporate repurchases of shares for use in executive stock option programs. To me, this is really quite similar in spirit to thinking about a capital structure problem. For example, the typical U.S. firm is said to experience "equity dilution" from stock option programs of about 2-3% a year—and for many high-tech firms, this run-rate can be substantially higher. If you cumulate that 2-3% over a five-year period, you are talking about a 10-20% expansion of the share base. So, for companies that make significant stock option grants each year, it's not unreasonable to think that they are going to need repurchases, perhaps on an ongoing basis, to keep the firm's leverage ratio from falling over time.

A second major motivation that I see for repurchases is one that we've already discussed—namely, to get rid of a company's free cash flow, the excess cash that cannot be profitably reinvested in the business and that is likely to be wasted if left on the balance sheet. You can even extend this free cash flow model a little bit further to an idea that I refer to as "abandonment." Take the case of an industry where all growth options have just completely evaporated, and the company's only value-preserving strategy is to exit the industry. In such cases, harvesting the cash flows or borrowing money to buy back shares can be an effective way of returning assets or resources back to the capital markets.

Now, you often hear analysts and other commentators criticize stock repurchases as a managerial admission of failure, a sign of management's lack of imagination. But while such criticism may be appropriate in a handful of cases, it generally completely misses the point of a repurchase. In most cases, repurchases are management's way of telling their shareholders that the company has more capital than it can profitably employ. Far from being an admission of failure, it's a statement of their responsibility to shareholders to invest only in positive-NPV projects. And when viewed as part of a broad economic cycle, repurchases provide a means of liberating capital from mature, though perhaps still quite profitable, companies and channeling that capital into growth companies. In this sense, repurchases are an important part of the natural birth, growth, and maturation cycle that all companies go through. They're a key way of moving capital from the old economy into the new economy.

Repurchases represent an act of managerial humility as opposed to managerial hubris. It's a way of managers saying to the capital markets, "Here is my excess cash, take it; you have better opportunities for it than we do." And when this happens, despite the objections of some analysts, the markets generally applaud.

A third major motive for repurchases is that they provide a more flexible and tax-advantaged substitute for dividend payments—which, of course, are the more conventional way of returning excess capital to shareholders. Finance academics have been struggling for years to try to understand why companies pay dividends in the first place, given their tax treatment. But once you accept the idea that companies are sometimes prone to wasting excess capital, repurchases provide a more tax-efficient approach to paying it out. And besides reducing investor taxes, repurchases also give management a great deal more financing flexibility than dividends. Whereas dividends are expected to be paid every quarter, buybacks can be accelerated or deferred in response to changes in the firm's profitability or investment requirements.



Consistent with this motive of dividend substitution, there are a number of academic studies that provide clear evidence that traditional cash dividends as a percentage of total corporate distributions have declined sharply while the fraction accounted for by repurchases has grown. And, as Don mentioned earlier, 1998 was the first year in U.S. history that more cash flow was returned to shareholders in the form of repurchases than through dividends.

But my sense, however, is that dividends are not going away completely. Most companies that have paid dividends in the past are not eliminating or phasing them out. What we're really seeing is a phenomenon that I would call dividend "capitation"; that is, most dividend-paying companies seem to be providing fairly modest increases, while the amounts of capital they return to investors through stock repurchase are growing at much higher rates.

The fourth common motive for stock buybacks is to "signal"—and, in many cases, to profit from—a perceived undervaluation of the firm. I like to refer to this idea as "market mispricing." When you read all these corporate press releases describing the company's stock as a "bargain," you get a sense that mispricing is a big factor in these decisions. And some research that I've been involved in—and I'm sure we'll come back to this—provides suggestive evidence of this mispricing or undervaluation.

Now such underpricing, to the extent it exists, presents a bit of a puzzle for finance scholars who are wedded to the idea of an efficient stock market. One possible interpretation is that managers have access to private or privileged information that hasn't been disclosed to the market. And according to the signaling argument that Cliff mentioned

earlier, managers may be using stock repurchases to transmit a signal to the market about the firm's future, to communicate to investors their confidence in the firm's prospects. In this interpretation, although the company's stock would not be undervalued based on *publicly available* information, it is mispriced on the basis of managers' private information.

The other possible interpretation of such mispricing is what might be called temporary market "inefficiencies"—occasional deviations of a company's traded market value from its intrinsic value. As I've already mentioned, a great many corporate managers use this argument—in many cases in public press releases—to justify their repurchases. That is, after the investor relations department has failed to convince the market that the firm deserves a higher valuation through other means—analyst presentations and the like—managers then "put their money where their mouth is" and buy back what they perceive to be undervalued shares. So, in many of these cases, I see repurchases functioning as last-ditch efforts to communicate a message to the market that the stock is undervalued. In other words, the problem isn't so much how to reveal hidden value; rather it's a disagreement about how the market is evaluating information that is already publicly available.

And I think that finance scholars need to take this idea of temporary inefficiency fairly seriously. In my own work on buybacks, I continually run across statements where companies will say, "We are repurchasing shares because we view ourselves as *extremely* undervalued." In a society as litigious as ours, that's really stepping out on a limb. It certainly serves to provoke those lawyers who make a living pushing lawsuits for unhappy investors. And I think there's considerable evidence in this repurchase area—particularly in the form of the abnormally high stock returns of companies *after* buying back their stock—of undervaluation due to a simple failure of the market to process publicly available information.

Some Evidence on Stock Buybacks

CHEW: I agree with you, Dave, that the market does occasionally appear to get out of whack—and that a stock repurchase is an effective managerial device for getting it back in line. For example, think about what happened about two years ago when so many old-economy companies were trading at less than six times earnings. They started lining up to buy back their stock. And, as you suggest, this was probably their last resort, the only way they could signal to the market that they weren't going to fall off the earth.

But are the abnormal returns that you're finding necessarily evidence of a *market* inefficiency? The more stories I read in the business press in which the market is "surprised" by corporate earnings, the more I'm convinced of the importance of this information asymmetry problem that Cliff talked about earlier. My sense is that, even in large, widely followed companies, there is a big barrier between the people on the inside and the investors on the outside trying to find out what's really going on. And for that reason, conveying the confidence of insiders to the investment community, especially in difficult economic times, is a big challenge. So, what you are labeling a market inefficiency may just be a reflection of very high "information costs."

IKENBERRY: Well, on the one hand, I find this idea of an information barrier between insiders and outsiders a very plausible one. If companies' prospects were really that transparent, money managers could make a lot of easy money just by stepping in to correct some pretty obvious discrepancies between stock prices and fair value.

But if this were the case, the undervaluation should be a fairly short-lived phenomenon, and that's not what the research seems to say. The findings of studies that I have been involved in—and this has been confirmed by other studies as well—show that by simply buying and holding a portfolio of companies repurchasing their shares, investors earn abnormal returns year after year for as long as a four-year period. As a group, these companies don't have unusually high levels of risk. They are not growth companies, but rather fairly steady cash generators. But their stock returns over a multi-year period are really quite extraordinary. And this suggests that the market has simply made a mistake in valuing these companies—and the managers have responded to the mispricing by buying back the shares.

CHEW: But when the industrial firms were all trading at six times earnings, my sense was that the market was almost waiting for *the companies* to announce that they were going to buy back stock. That is, investors were experiencing great uncertainty; and until the companies stepped forward and announced the buybacks, the investors were going to stay on the sidelines. The market was saying in effect, "Well, they're trading at only six times earnings, but management doesn't seem very confident; they're letting the price sit there without doing anything about it." So maybe there's kind of a market equilibrium at work in which stock repurchases are now *expected* to play an important role in communicating insider information.

IKENBERRY: I would agree. A classic example of that is what happened after the crash of 1987. In one day, we saw the stock prices of large-cap companies drop about 20% and smaller-cap firms lost almost 30%. That crash happened on a Monday. That evening there were several thousand corporate board meetings held telephonically. And about 750 repurchase programs were authorized and reported in the newspapers the following morning.

Now, the really fascinating thing to me was the difference between the subsequent performance of the companies that announced their intent to buy back stock and those that did not. The companies that bellied up to the bar and said, "We don't agree with this 20% rollback of our value and we're ready to commit resources to back our beliefs"—those were the companies that, by and large, recovered during the fourth quarter of 1987. But the other companies did not. What's more, a study of the '87 crash by Jeff Netter and Mark Mitchell reported that those companies that said they were willing to buy back their stock ended up not doing so. Why? Because they never had to. The market woke up and said, "Well, we may have gone a little bit too far."

So, this tells me that stock repurchases, especially in times of great investor uncertainty, can provide a credible signal of management's confidence. And the failure to announce a buyback, at least in some circumstances, can signal lack of confidence.

The EPS Effect

CHEW: Dave, you've mentioned four reasons to buy back stock. But isn't there a fifth motive—namely, to increase earnings per share? That's one we tend to hear quite often both from corporate managers and sellside analysts.

IKENBERRY: As financial academics, we tend to dismiss the possibility that managers are really doing this. A lot of managers may believe that they are buying back shares mainly to increase EPS—and surveys confirm that this is a dominant motive—but as academics we try to understand the more fundamental forces that are driving this behavior. We attempt to find something real underlying the accounting cosmetics that are often used to justify corporate decisions.

Now, when you look a little more closely at what happens in these share repurchases, you often do find some real economic benefits behind this increase in EPS. If a company repurchases shares and then gets an earnings per share pop, that tells me that the company had an inefficient allocation of assets *before* it bought back the shares. For example, a company with lots of "idle" cash on its balance sheet may get a boost in EPS from buying its shares; but I would argue that the real underlying benefit is not the EPS effect per se, but the improvement in the allocation of capital and the resulting increase in return on capital. So, the EPS benefits of stock buybacks are really a matter of reallocating assets on the left-hand side of the balance sheet to higher-valued uses. Or, as I suggested earlier, it's about returning a company's excess capital to investors and so increasing the overall rate of return.

THEVENET: The size of any EPS increase depends on the algebraic relationship between the firm's E/P ratio—the inverse of its P/E—and the return on its cash. If you earn 5% after taxes on your cash, then buybacks are accretive only if your P/E is less than 20—that is, only if your E/P is above 5%. There is no information content in the accretion, no value creation; it's just simple algebra. And since the S&P 500 has an average P/E of 27, the average S&P 500 company would actually suffer dilution from stock buybacks in the first year or two.

Now, a lot of sellside analysts talk about earnings pick-up. But when they do their analysis, they almost always fail to consider that the cash used to repurchase stock would otherwise have been used to pay down debt or to generate interest income. The conventional analysis effectively assumes that the companies found some money on the sidewalk and used it to buy back stock. But if you do the analysis properly, the majority of U.S. firms get no pick-up their first or second year. It's only the low P/E companies that get any pick-up at all in the first year. And even their pick-up is usually less than a tenth of a cent per share.

So, this great EPS effect is mainly an illusion. If you do the math right, it just doesn't exist. And in those few cases where it exists, it couldn't possibly drive the share price. After all, how much of a stock price move can you get if your EPS goes up by only one or two tenths of a cent? But having said that, there are cumulative effects by buybacks, over a five- or six-year period, that can amount to much more.

CHEW: In the case of a company like IBM, the analysts always seem to dwell on how much the stock buyback contributed to the past year's earnings. But, given that IBM's P/E is over 20, you're saying that it doesn't really contribute at all to IBM's EPS?

THEVENET: Not if you take into account IBM's alternative uses for the cash. And I think this is a real blind spot in sellside analysts. Many of them fail to do the math properly, to consider the interest income that is forgone when a company buys back stock.

OPLER: IBM is a great example of a company that has been criticized by some analysts for using share buybacks to increase its EPS. As Dave said earlier, a lot of critics view the buybacks as a sign of management failure. And I agree with Dave that that view really misses the mark. In most cases, the announcement of a stock buyback is a managerial statement about the firm's discipline in using shareholder capital.

SMITH: I'd like to make one quick comment about this EPS business. While it may be true that there is no near-term EPS benefit for many firms from buying back their stock, EPS considerations still affect a company's buyback strategy in the following sense: Any manager whose main goal is to report higher EPS—if not in the next quarter, then in the next couple of quarters down the road—is going to want to buy back shares at the lowest price possible.

What Kinds of Companies Buy Back Their Stock?

CHEW: Dave, you've done some work on the characteristics of companies that buy back stock. Do they tend to be mainly value companies with low P/Es? Or are there also lots of growth companies with high P/E ratios?

IKENBERRY: We have looked at repurchasing companies mainly in terms of their price-to-book ratios, which, as Cliff said earlier, are often used as a proxy for a company's growth opportunities. When I first started research in the area of stock repurchase about ten years ago, my initial thought was that undervaluation was a big driver of this activity, and that therefore we should expect to see a clear tilt towards the value side of the spectrum. But we found almost no evidence of such a tilt in the buybacks of the 1980s. We basically found a uniform distribution; that is, companies from all parts of the price-to-book and P/E continuum were buying back stock. And it was this initial finding that led me to my current view that companies are not buying back shares for just one reason. A CFO might have two or three major motivations pushing him or her down the buyback path.

But even though we saw repurchase activity by all kinds of companies, the very high stockholder returns came from the companies at the low price-to-book or value end of the spectrum. Our findings can be summed up as follows: If you had bought all the U.S. companies ranked in the bottom price-to-book quintile (relative to their market cap) that announced stock repurchases in the 1980s and then held the stocks for four years, you would have outperformed value stocks in general by about 45% during that period.

SMITH: Dave, what can you tell us about the market's initial reaction to the repurchase announcements? Was the response to announcements by high price-to-book firms any different from the response to low price-to-book firms?

IKENBERRY: What we found in our work on stock repurchases in the '80s—and we haven't checked this in the '90s—is that the typical price reaction to announcements of open market repurchases by value companies was virtually identical to the reaction to growth companies. It was a positive 3.5% for growth companies, and it was also 3.5% for value companies. At the same time, we found substantially larger positive reactions in the case of smaller firms—about 7-8%, on average—as compared to only 1-2% for large firms like GM and Pepsi. What this finding may be suggesting is that small firms have greater information problems and hence bigger mispricing problems.

SMITH: I'm frankly a little surprised at your findings, and for the following reason: When a firm whose value comes primarily from assets in place announces that it is making a major stock repurchase, you've got a pretty clear message there. Because the firm is volunteering to increase its payout, investors' interpretation of that announcement logically should be that the firm's ability to generate cash from those assets in place has improved. But in the case of companies whose values come primarily from growth opportunities, there's the potential for a mixed message. On the one hand, it could be that their ability to generate cash has improved. On the other hand, they may also be telling investors that they don't have as many profitable reinvestment opportunities as they once had.

IKENBERRY: Let's consider the case of Internet companies about two years ago. Companies with negative cash flow and extraordinary growth opportunities are the last firms that we would expect to be volunteering to buy back shares. But when growth companies begin to make share repurchase announcements, they are likely to be signaling that they are moving from a very high to a somewhat lower growth trajectory. And I think there is a lot of evidence that is consistent with that idea, particularly in terms of the slowing of growth rates of companies after they begin to buy back stock. But we don't seem to see this showing up in the market reactions to share repurchase announcements.

CHEW: Well, there is some evidence that the market is making this kind of distinction in the case of changes in dividend policy. A study by Kose John and Larry Lang found that when low-growth or value firms increase

their dividend, there is a highly significant positive reaction. But when growth companies increase their dividends, there's not much of a market reaction—which is consistent with Cliff's point about larger distributions sending mixed messages for growth companies.

And isn't it also true, Dave, that the growth companies in your own studies are much less likely than the value firms to carry out their announced repurchase programs and actually buy back the stock? If so, that makes a lot of sense because growth companies in general are much less likely to have large amounts of excess capital. It seems to me that such companies—provided they really have the growth opportunities that seem to be reflected in their stock prices—would much prefer that the buyback announcement have the effect of raising their prices so they will not actually have to use their capital to buy back their stock.

IKENBERRY: We have looked at completion rates for Canadian companies—the amount of stock actually repurchased as a percentage of the amount the firm said it planned to repurchase. The reason we chose Canada is because the disclosure of actual buybacks there is relatively transparent, and much more extensive than in the U.S. What we found is that completion rates for Canadian value firms tend to be significantly higher than for growth firms. And this finding is consistent with the idea that although value firms may be using repurchases at least in part to get rid of their free cash flow, growth firms are not.

But let me come back to this issue of how to interpret the market's reaction to these announcements. My overall feeling is that while the initial market reaction is helpful for understanding the motives for transactions, there's increasing evidence that the initial reaction is not complete. For example, in the case of share repurchases by value companies, although the initial market reaction was only 3.5%, the abnormal return for that transaction over the next four years was an additional 45%! That's a big number.

CHEW: What were the abnormal returns for the growth companies that bought back stock?

IKENBERRY: We found no evidence of abnormal returns for U.S. growth firms in the 1980s. That suggests to me that growth companies are repurchasing shares for some other reason than to signal their undervaluation.

SOTER: One possibility, as you suggested earlier, Dave, is that growth companies are buying back more shares to offset dilution from stock option programs.

IKENBERRY: We do see companies like Microsoft and Intel with extraordinary growth opportunities repurchasing large amounts of their own stock. Now, why would corporations like that be using their capital to buy back stock instead of investing in growth opportunities? Well, part of the answer is that such companies use stock options in place of salary or cash bonuses. And if companies are not repurchasing shares at the same time they grant options, they're essentially raising new equity from the capital markets as a way of supplementing salaries and funding total compensation. Viewed in this light, a policy of regular stock buybacks and stock option grants can be seen as a way of avoiding going to the capital markets to raise expensive equity capital.

SOTER: But if that's your intention, wouldn't it be simpler just to use stock appreciation rights, which are funded out of treasury? This way the companies can avoid the dilution and transaction costs of issuing new shares and use the cash to fund long-term incentive plans.

IKENBERRY: That's true, and some companies do that. But let me come back to Cliff's suggestion that managers might be conveying through stock repurchases their conviction that cash flows in the future are going to increase. When we actually looked at the growth in year-over-year earnings of companies buying back their stock, the numbers were not very impressive.

CHEW: What if I looked at just the value repurchasers? Do their announcements portend future increases in earnings?

IKENBERRY: No, not as best as we can find. What our results suggest is that the market is simply mispricing the firms on the basis of publicly available information. After all, we built our sample of value firms using just publicly available information. And, as I said, that strategy produced a 45% abnormal return.

CHEW: So, you're saying these companies outperformed the market by 45% over a four-year period without *any* increase in their earnings or cash flow?

IKENBERRY: Well, there is a modest increase in earnings, but we're not talking about blowout earnings performance.

SMITH: If you had bought other firms in the same industry, would you have gotten different results, either in terms of earnings or stock returns?

IKENBERRY: That's a good question, because our findings do not use industry controls or benchmarks. When you compare the stock returns of companies that buy back shares to other firms in the same industry that don't repurchase shares, part of the abnormal performance goes away. And although we haven't put this theory in print, this evidence

provides support for an investment strategy known as "sector rotation"—the idea that you concentrate your investment in sectors where companies are buying back stock and sell short sectors in which the firms are net issuers of stock.

Sector rotation seems to work in part because of the tendency of brokerage firms and their sellside analysts to downgrade entire sectors—say, airlines or pharmaceuticals—while upgrading others. It also reflects the operation of industry-wide factors that are beyond management's control. For example, in 1992 and '93, when we had a transition from the Bush administration to the Clinton administration, the prospects for the healthcare industry suddenly became very uncertain. The stock prices of the ethical drug industry fell dramatically. And in response to those price drops, there was an explosion in repurchases across the entire industry. Essentially every single company in the industry was repurchasing shares.

CHEW: But you wouldn't classify drug companies as value stocks, would you?

IKENBERRY: No, but they represent cases where managers could say to themselves, "We have a strong pipeline of projects, and this seems to be an incredible opportunity to invest in our own stock." And while some of this apparent mispricing may be attributable to managers' better information, such an investment opportunity could also suggest a temporary market inefficiency, if you will.

SMITH: Well, I for one would be very reluctant to conclude that this was evidence of a market inefficiency. It seems to me that if Hillary Clinton's task force had worked out differently, even the strongest pipelines would have been worth a lot less than they were before. The possibility of price controls on drugs in the U.S. seems to me to be a very good reason for reducing my estimates of these firms' ability to generate cash flow in the future. So, this is just a special case of the problems we run into when trying to generalize from case studies.

IKENBERRY: That's right—we're talking about a sample size of one. On the other hand, we're also talking about a case in which the management of every firm in that industry chose to make the same repurchase decision during that period of time.

The Link Between Payout Policy and How Managers Are Paid

OPLER: Well, let's talk about another example; let's fight an anecdote with another anecdote. We earlier mentioned IBM, and I think IBM is a very good example of a stock repurchase success story. When Lou Gerstner came on board in the early 1990s, one of the first things the company did was to cut the dividend very sharply. But, in 1996, after IBM had returned to profitability, Gerstner announced that the company was going to hold the line on dividend increases. Instead they were going to distribute excess capital by increasing their stock repurchase program. And in every year for the last five or six years, IBM has bought back about $5 billion worth of stock. The argument the company used when they initiated this program was that their own stock is one of their best investments. And their stock price has, of course, performed very well in the past five years.

SMITH: What has happened to IBM's executive compensation plan during that period?

OPLER: Well, I'm sure it's heavy on stock options, and I'm sure IBM's managers have been amply rewarded by the price increases.

SMITH: I'm not surprised to hear that. If I had to offer one single explanation for the sharp rise of repurchases relative to dividends in the last decade, I would point to a change in the U.S. tax code in the early '90s—and it's a tax change that has nothing to do with the tax treatment of repurchases or dividends themselves. The tax change I have in mind is the one that made it harder for companies to pay senior managers more than $1 million in a given year and still get a tax deduction. That tax change undoubtedly helped convince a lot of companies that stock options were a more tax-efficient way to compensate top management. And if you're a manager who owns a lot of stock options relative to shares of stock, you have an incentive to substitute stock repurchases for dividends.

In talking about capital structure policy earlier, we spent a lot of time discussing the linkage between corporate investment policy and financing policy, and between investment policy and payout policy. But I want to suggest that when thinking about these issues, it's also important to consider the role of compensation policy. As a general proposition, changes in a company's internal structure—things like how much decision-making authority line managers are given, and the details of the performance measurement and reward system—need to be coordinated with changes in its financial policies. And a company's payout policy needs to be coordinated with how it compensates its managers and employees. If there are good reasons for companies to use more incentive compensation in the form of stock options or restricted stock or stock appreciation rights, one of the ways to make those programs more effective and more valuable to the managers is to make distributions to

stockholders in the form of share repurchase programs rather than quarterly checks in the mail. Because unless you combine that stock option or stock appreciation right program with dividend units, the option holder is going to get a claim only on the expected capital gain, not on the total return.

THEVENET: Pepsi makes extensive use of stock options for incentive compensation. And in making our decision to shift cash from dividends to stock buyback programs, we took care to align managers' interests with those of shareholders. For instance, if a firm has $1 billion of extra cash and a billion shares outstanding, it has two choices. It could pay out the cash in a special $1 dividend and watch the stock fall by $1 on the ex-dividend date. If it does that, the value of all the managers' options would also fall by $1. We would then be punishing the managers for taking the right action and paying out the excess cash! Alternatively, we could use the cash to buy back $1 billion of stock. And if the buyback is viewed by the market as NPV neutral or better, we have at least not punished our managers, and may in fact have rewarded them for returning excess cash to the shareholders.

SOTER: The issue of stock options and payout policy also came up in the SPX case I cited earlier. As I said, the company's aggressive use of leverage to finance growth could be attributed in large part to the use of out-of-the-money options to motivate top management. What I failed to mention was that, as part of the financial restructuring, the board also voted to discontinue the payment of cash dividends. Now, this policy change actually had two major benefits. First, as Cliff suggested, it increased the value to management and hence the effectiveness of the company's stock option program. Second, it helped increase the company's ability to service its higher debt load. In fact, the annual savings from the elimination of dividend payments was roughly equal to the after-tax interest expense on the new debt used to fund the stock buyback—a benefit that was not reflected, by the way, in the coverage ratios used by the rating agencies.

Buybacks and Corporate Disclosure

SIRRI: There's a bit of evidence in the organizational behavior literature that might shed light on an issue that Dave mentioned earlier—namely, companies' failure to carry out authorized stock repurchase programs. A paper by two organizational behavior professors, James Westphall and Ed Zajac, attempted to provide an explanation for why some companies announce repurchase programs and end up never purchasing a single share, or buying back only a fraction of the specified number of shares. According to this study, there are two important explanatory variables: one is the power of the CEO in relation to the board and the second is the presence of interlocking directorates.

What does this tell us? Well, I interpret it essentially as confirmation of the free cash flow story. That is, although the company would like to get the signaling benefits from announcing a buyback—the pop in the stock price—the CEO really doesn't want to disgorge the resources; he or she wants to keep them for use internally. And the interlocking directorates in this story function as a kind of information network that lets the CEO know that other firms have done this, and therefore he can do it, too.

What I also find especially interesting about this study—what lends credence to the story—is its finding that the same companies that fail to carry out their repurchase programs also show a similar tendency to back off from announced executive compensation programs. So, what we have here is an agency cost story, evidence of a corporate governance problem. And although stock buybacks are potentially a mechanism for solving one agency problem—the tendency of managers to waste free cash flow—the ability of companies to announce buybacks without any real intention of following through suggests that the solution may be flawed or incomplete.

IKENBERRY: In Canada especially, this issue has received a good deal of attention. When doing stock repurchases, Canadian companies not only have to get their boards to authorize the repurchase, as they do in the U.S., they also have to get a stamp of approval from the Toronto Stock Exchange. And in conversations with people at the TSE, I have been told that the exchange is very concerned about the possibility that companies are using repurchase announcements to mislead investors.

In a study I co-authored with Josef Lakonishok and Theo Vermaelen last year, we checked to see how widespread this "bait and switch" tactic is and how it affects the stockholders. We looked at all the Canadian firms that announced their intent to buy back stock, and then we grouped them into three categories: (1) those cases where they bought back a lot of stock; (2) those where they bought back a modest amount; and (3) those where they bought back not a single share. What we found is that those companies that didn't buy a single share were the stocks that actually performed the best! In Canada, authorized repurchase

programs are good for only 12 months and then expire. And during the one-year period their programs were in force, the abnormal performance of those companies that bought no shares at all was a full ten percentage points above the market. The one-year returns of the most aggressive buyers were lower, although still significant.

Now one way of interpreting these findings is that, in the case of the firms that bought back no shares, the market woke up in response to the announcement—and management accordingly saw no need to buy the shares. And in those cases where management did buy lots of shares, the market failed to respond. And so management either really did intend to buy back shares, perhaps to get rid of their free cash flow—or they saw this huge amount of value lying on the table and kept right on buying. Or maybe both factors were at work at the same time.

So, our study suggests that most managers came into these transactions with a conviction that their shares were undervalued and with a genuine intent to buy back the shares. But when the market raised the values, the managers changed their minds. I should also tell you that, in those same cases, the abnormal returns were limited to the first year. There was no evidence of abnormal returns in the second and third years—that is, after the programs had ceased.

SOTER: But, Dave, if you really thought your stock was undervalued, wouldn't a more persuasive signaling device be to use a tender offer as opposed to an open market program?

IKENBERRY: I agree completely. For example, if you've got private information that you want to convey to public markets, why not just shout a price and shout a quantity? This way you're slapping the market on the side of the face. And since you're openly declaring your intention, you don't have to worry about any disclosure issues that can arise in open market programs.

The big concern with tender offers, however, is the possibility of a large wealth transfer from your existing stockholders to selling stockholders. If you're buying back at $50 when your true value turns out to be $30, you've transferred $20 of wealth to shareholders who have left the firm. The possibility of such wealth transfers is greatly reduced in open market programs, where the repurchases are spread over time and made at different prices.

THEVENET: Echoing Dave's point, we have looked at stock buyback tender offers from an execution standpoint, and our analysis shows that although the stock price tends to go up in response to the announcement, in many cases it falls back after the buyback to where it started or even farther. So our feeling is that we're better off spending the same billion dollars buying back aggressively in the open market rather than going out and tendering for the shares. If you have a temporary pop in your price, the gains end up going to outsiders.

We also think open market repurchases can be used to build credibility. Once you have developed a reputation for announcing programs and then carrying them through, there's no need to do a tender offer. You've created a covenant with your shareholders that says, "When we have more cash than we can profitably invest, we're going to give it back in the form of stock repurchases." And for companies that have established this kind of credibility, a tender offer is unnecessary. You don't have to stand in front of the press and beat your chest and make promises.

CHEW: What do you tell your stockholders? Do you have an investor relations program that discusses the details of your open market programs?

THEVENET: In Canada, as Dave will tell you, companies make monthly announcements of how many shares they've bought back, and how much they've spent doing it. We release that same information in our quarterly statements. And until the recent passage of Reg FD, we would tell stock analysts in our monthly meetings how much we had bought back during the latest month and quarter.

CHEW: Do you tell the analysts what your decision criteria are when buying back the stock? For example, do you say you will buy only if the price falls below a certain level?

THEVENET: We don't get that specific. When we launched our most recent program, we said that ours would be an "opportunistic" program in which we plan to buy $4.5 billion worth of our stock over the next three years. Now, since we're currently involved in a purchase of Quaker Oats that will be accounted for as a pooling of interest, we have been forced to suspend our buyback program. But in our programs in the past, we have always delivered on what we promised to do. And in cases where we have announced two- or three-year programs, we have ended up buying back the stock from six months to a year ahead of schedule.

So we've now built up a lot of credibility. And our shareholders know that if we have cash in excess of our positive-NPV projects, we will return it in an orderly fashion to our investors. We don't wait until we have $50 or $100 million of cash on the books; we do it every day of the week.

CHEW: How does the level of your stock price affect your decision to

buy back stock? Do you buy it back whenever you have excess cash, regardless of the price? Or do you instead have a trading rule that says buy if the price falls below X?

THEVENET: I give an average of six talks a year on stock repurchase, and during the coffee breaks the people from different companies compare notes. Based on these conversations, there seems to be two schools of thought on this question. One is the kind of program in which the chairman thinks he's got a hot hand, and he will say, "Today our stock's undervalued; go out and buy a $100 million." The other approach is to have a trading rule that allows the decision-making to be delegated to somebody in treasury, or to an outside broker.

Other firms tell us that when the chairman gets involved, those stock buyback programs invariably turn out to be the worst-performing ones. Why? The story I hear time and time again is that when the chairman gets involved, he gets cold feet when the stock is at bargain prices. He says, "Oh my God, the world is coming to an end," and he doesn't buy it back. Instead he buys it back when the stock's not far off its high and he's feeling reasonably comfortable. He buys high, he doesn't buy low.

At Pepsi we have a different process. We have a simple metric or trading rule that is based on our P/E multiple, and where our stock price is relative to our industry peers and to the S&P 500. Now, in each quarter that one of our repurchase programs is in effect, there is a minimum and a maximum amount of our stock that we commit ourselves to buying. And when our stock looks expensive in terms of our trading rule—what we refer to as the top quartile of relative value—then we scale back our repurchases to the minimum level. But when our stock is in the inexpensive range, or the bottom quartile, we buy like gangbusters; we buy the maximum amount.

And this procedure has worked well in the following sense: During the past five years, Pepsi has bought back over $9 billion of stock. In the year 2000, the average price of our repurchases ended up being $3 below our volume-weighted average price for the year. The worst year we ever had was 50 cents lower than the volume-weighted average.

Liquidity and Stock Repurchases

CHEW: Is there any obvious downside to this kind of corporate "opportunism," to having a program whose basic aim is to buy stock from public investors at prices that turn out to be below average? Cliff, you wrote a paper in the late '80s that suggested that the liquidity of a company's stock might decline in the wake of an open market stock repurchase program. Can you tell us what you were thinking about then?

SMITH: In that paper, Mike Barclay and I were struggling with a very basic question about payout policy. Given that stock repurchases have a definite tax advantage over dividends, and that open market repurchases also give companies more financing flexibility, why don't repurchases completely dominate dividends as a way of distributing cash to stockholders? And one possibility that we wanted to explore was that the very flexibility on the part of the firm's management team could operate as something of a two-edged sword. That is, if I'm an outside investor and I know that I'm going to be trading with people who ought to have substantially more information about the firm's prospects, what effect is that likely to have on the bid-ask spread and the liquidity of the stock? And we found some evidence that in fact bid-ask spreads widened.

Why is liquidity a matter of concern? We have pretty good evidence that wider bid-ask spreads tend to be associated with a higher cost of capital, and hence lower stock prices. And if I take this argument to its logical next step, corporate stock buyback plans that attempt to increase EPS by buying back stock at the lowest possible prices could actually end up reducing firm value by discouraging people from trading and so reducing liquidity.

CHEW: Dave, in your article on buybacks in this journal, you argued that stock buybacks may actually *increase* liquidity for certain kinds of firms. What's your take on this issue?

IKENBERRY: Well, there have actually been a number of papers in this area, Cliff's being the first. And as Cliff said, the big concern of these papers was that liquidity could be reduced by repurchases. The basic argument was that the presence of a "well-informed" trader might cause less-informed players—that is, most of the investing public—to avoid trading.

But, as best we can tell, more recent evidence using different measures of liquidity than the bid-ask spread suggests that repurchase activity does not reduce liquidity. And, in fact, there are certain kinds of companies where the repurchase activity may be beneficial. For firms with volatile and highly illiquid stocks, where liquidity is defined in terms of market price impact or shares traded per day, there's some evidence that when companies are buying back stock, their trading activity actually serves to dampen volatility and the price impacts associated with selling.

CHEW: This is true mainly for small and riskier firms?

IKENBERRY: Yes, that's essentially the story. There's a Ph.D. dissertation by Jaemin Kim at the University of Washington that reports that while conventional metrics of liquidity like trading volume don't improve, some of the non-conventional metrics of liquidity, such as overall volatility and price impact, do tend to improve for those companies that score lowest on these metrics. Now, based on this evidence, a company like PepsiCo is not likely to see much of a change in its liquidity. But when we look at firms where liquidity may be on the low side, stock repurchase can actually have a beneficial impact.

SOTER: We had an interesting experience along those lines three or four years ago. We were advising a company in Grand Rapids, Michigan called Knape & Vogt. It's a small Nasdaq company with very low float. It has two classes of stock, one of which is owned by the family and doesn't trade. So, it's a typical closely held company. And we were faced with the following problem: We wanted to recapitalize the company to a higher degree of leverage, and the only way to do it quickly was to do a tender offer. If we had done it in the public market subject to the safe harbor, it would have taken too long. The dilemma we faced was this: How do you tender for your shares when you have so little float?

But our concern proved to be groundless. The tender offer, rather than reducing the float, actually had the effect of increasing liquidity. What happened was that we created a "liquidity event" by virtue of the fact that we went to the marketplace and bought back nearly 20% of the shares. In so doing, we gave institutions with positions in the shares an opportunity to get out without having a significant downward impact on the stock price.

Our initial concern was that our offer would not get any takers. But the outcome was quite the opposite: We were able to buy the shares back at a very modest premium over the stock price—and the company realized a significant increase in the trading volume of its shares in the year or so after the tender offer.

And let me make one last point about this case: I'm not saying that buying back the shares at a small premium is necessarily a good or bad thing in and of itself. In fact, my advice to companies is that, provided you don't overpay, the price you pay to buy back shares doesn't matter. In our view, managers have a fiduciary duty to selling shareholders as well as remaining shareholders; and it seems to me that the sellers are entitled to part of the gains from a value-increasing transaction.

Back to Disclosure

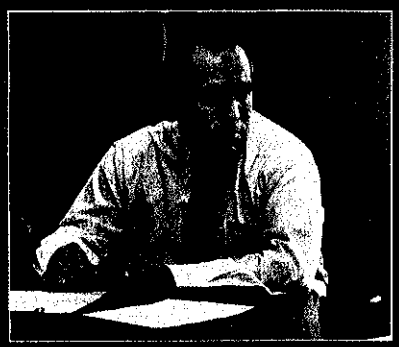
SMITH: Well, let me turn the discussion back to the issue of corporate disclosure that we touched on earlier—because I think most people would agree that these issues are closely related in the sense that the effect of stock repurchases on liquidity is likely to be determined in part by the amount of information the company provides investors about its own trading activity. And, as a general proposition, the more information the market has about the firm's trading procedures, the more liquid the stock should be.

Now, there are some SEC-mandated disclosures for companies that plan to buy back stock. But it would also seem to me that a corporate management team intent on maximizing firm value has incentives, quite apart from complying with regulations, to convince outside investors that stock buybacks are not a game they're playing that ends up making management better off at the expense of their selling stockholders.

And since we've got the former Chief Economist of the SEC in our midst, let me ask him that question. Erik, what kinds of disclosures are, first of all, mandated by the SEC? Second, what kinds of corporate disclosures over and above those regulatory mandated minimums have you seen and would you recommend to others? And related to this question, what are the costs associated with going the extra step and voluntarily providing some of the information that the Canadian firms provide? Is that a sensible thing to do, or is that stepping in front of a beartrap?

SIRRI: Well, let me start by focusing on what is mandated by the SEC, because I think that has a lot to do with the currently low level of disclosure surrounding stock buybacks in the U.S. My feeling is that the main reason we see so little information produced can be stated very simply: The body of securities law is aimed primarily at the companies that are issuing stock, not at those who are buying it. There are really only two provisions in U.S. securities law that apply to repurchases. The first says that if a company is going to repurchase shares, the board of directors has to approve the plan. And if the repurchase is deemed to be "material," then you've got to make a statement to the public of the number of shares the firm intends to repurchase and the time period over which it may be conducting such operations. If the repurchases are not deemed to be material, you don't even have to volunteer that information.

Now, as Dave mentioned, SEC Rule 10b-18 provides a safe harbor for repurchasing companies. It's essentially an anti-manipulation rule that says if you follow a set of four or five rules—for example, use only



> Why don't companies disclose more about their repurchases? My answer to this question is simple: all things equal, the managers of most companies would rather not disclose things if they don't have to. They don't want you to see exactly what they're doing, to see the little bets they are taking. If things turn out well, they can choose to reveal their strategy; and if things don't work out well, they bury the losses. So obfuscation serves their interests; it gives them another degree of freedom in producing results that are acceptable to stockholders.
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> ERIK SIRRI

one broker at a given time, don't buy at the opening price, and don't buy too much in any given day—then you will qualify for the safe harbor protecting the firm against charges of stock manipulation.

In fact, there is nothing in the securities law that says that companies have to follow those safe harbor guidelines. And a recent study by Krigman and Leach reported that the trading practices of only 6 out of 24 repurchasing firms in their sample were consistent with the safe harbor.

IKENBERRY: That study also reports that the repurchase programs of the vast majority of Nasdaq firms violate one or more of the safe-harbor guidelines.

SIRRI: That's right. And the guideline that most firms tended to violate was the limit on daily volume. The main reason companies ignore this limit is pretty well captured in Dennis's story about Knape & Vogt's tender offer. That is, it just isn't efficient to repurchase in very small quantities over long periods of time. If you want to buy the stuff, you've got to buy the stuff.

But let me return to a point that Dave made earlier. He said he found it remarkable that corporate announcements of stock repurchases regularly describe the company's stock as "significantly undervalued" because such statements might provide grounds for lawsuits by disappointed investors. But, considered from just a legal point of view, corporate repurchases actually create an obligation for firms to say *something*. After all, they're taking the unusual step of going out into the market and buying their own stock. And if they don't say anything about why they're buying, and it can later be demonstrated that management had private information that suggested they were undervalued, then they can

get caught for fraud. For example, if a gold mining firm has struck gold and it buys back its stock before revealing that information, it can be sued for fraud. So, if you as a manager of a repurchasing company really feel the firm is undervalued, then you have to say so.

IKENBERRY: It sounds to me like a Catch-22. Look at a case like Samsonite, where the company's management said that it was "grossly undervalued" when buying back the stock. Today the price is a fraction of where they bought back the stock, and the ambulance chasers are just out in droves. You're damned if you do and damned if you don't.

SIRRI: Well, it's a question of degree. Under normal circumstances, if a firm is not attempting to access capital markets or buy back shares and management gets news that leads it to believe the firm is undervalued, it is under no obligation to say anything. But if you're repurchasing, that triggers an obligation to disclose good news immediately; you can't wait.

Disclosure and Equity Derivatives

SMITH: Okay, you've told us about the *mandated* disclosures. But all that does is put a floor on things; it's not a statement about best practice. So let's take the next step: What advice would you offer managers? What is likely to be the *value-maximizing* disclosure strategy?

SIRRI: Well, there's nothing that stops you from putting objective information in your financial statements. And I like Pepsi's approach—that is, announcing your broad intent and then giving the analysts regular updates on how many shares you've repurchased and at what price.

SMITH: Dave just mentioned ambulance-chasing lawyers. What kinds of litigation possibilities arise from making statements about a company's buyback plan?

SIRRI: As long as you're reporting factual information, you're pretty much clear. But you want to stay away from saying what you intend to do. So, for instance, when companies announce repurchases, they will say things like "the board has authorized" and "the company *may* purchase up to x amount of shares." But they will almost always avoid binding themselves to do something.

IKENBERRY: Cliff raises an interesting question: That is, given that the level of U.S. disclosure surrounding buybacks is so low, why aren't we seeing companies volunteering to create higher standards of disclosure? I think there is a move by the Fortune 100 or 200 companies toward quarterly disclosures of buyback activity. But in my experience, even those disclosures are communicated in a rather indirect, informal process. You know, if you're in on the call, you get to hear the number. But if you're not in on the call, or if you're acting as a historian like me, it's almost impossible to tell how many shares were actually repurchased by a given company in a given period. For example, if you asked me to find out how many shares were actually bought back by IBM in 1997, there's no way I could get that information from publicly revealed documents. And why we haven't moved to some low-cost, but uniform standard is beyond me.

SMITH: Well, let's imagine we were all sitting around the board table at the New York Stock Exchange trying to decide what the disclosure requirements should be for listing on the exchange. The NYSE has a big interest in seeing that its companies provide investors with the right amount of information, not too much and not too little. This way of thinking about the issue is a useful one given that, in the past century or so, there have been a number of cases where the NYSE has chosen to impose higher disclosure requirements on its members than the SEC.

IKENBERRY: I think an interesting model in that setting would be to turn to Canada and look at what they're doing. Every month the exchange collects data on the repurchase activities of all companies and then makes it available on one big spreadsheet.

SMITH: Well, the academic in me says that there are no obvious externalities in this disclosure process, no obvious material costs associated with providing more disclosure. And if the benefits of disclosing something exceed the costs of disclosing it, normal market forces should see to it that the information gets disclosed. But we don't see this disclosure occurring. So, my question is: What are the benefits to greater disclosure? And what are the costs that seem to be getting in the way of more disclosure?

CHEW: Let me ask what is essentially the same question in a slightly different way: What effect would greater corporate disclosure about repurchase programs have on longer-term values? Would it increase them, reduce them, or have little effect either way? I raise this question because it seems to me that most companies buying back their shares—even those whose basic aim is to distribute excess capital in the most tax-efficient way—are *executing* their buyback programs in ways that aim to boost their EPS. As Cliff said earlier, the company that ends up buying more of its shares with fewer dollars ends up reporting higher EPS than it otherwise would. And mainly for this reason, it appears to me, many repurchasing companies want their repurchase activity to be a secretive process. They think this helps them buy more of their stock at lower prices.

Even in large, widely followed companies, there seems to be a big barrier between the people on the inside and the investors on the outside trying to find out what's really going on. And for that reason, conveying the confidence of insiders to the investment community, especially in difficult economic times, is a big challenge.

When the industrial firms were all trading at six times earnings, my sense was that the market was almost waiting for the companies to announce that they were going to buy back stock. Investors were experiencing great uncertainty, and until the companies stepped forward and announced the buybacks, the investors were going to stay on the sidelines. So maybe there's kind of a market equilibrium at work in which stock repurchases are now *expected* to play an important role in communicating insider information.

DON CHEW

So, there seems to be a lot of EPS-driven behavior in this share buyback area—and it also seems likely that at least some of this behavior is going to end up reducing the values of companies, if not at the end of the next quarter, then over the longer term. As Dave told us earlier, some companies are even writing put options on their own stock. Although put writing doesn't affect reported earnings, it appears to me to be an essentially speculative activity. It's also an activity that actually brings cash *into the firm*—and that works against the idea that repurchases are designed mainly to get rid of excess cash.

Tim, you advise companies on repurchases. Do these concerns have any basis in what you see in your work?

OPLER: I'm not sure I would go as far as you do, Don. But I agree that companies sometimes seem to want to cloak their buyback activity. Moreover, I think that one reason to have more voluntary or mandatory disclosure is that it helps to reduce the problem of companies announcing buybacks that don't follow through. And that's why I agree with Dennis's argument about the signaling power associated with tender offers. They are completely credible promises to buy back shares. And that credibility is lacking in a world where you don't have to disclose whether you bought some stock or not until the end of the quarter. So, I think the open market programs would have a more powerful signaling effect if companies either volunteered, or were obligated, to provide more disclosure.

THEVENET: Every quarter Pepsi discloses the number of shares bought back and the average price at which we bought back the stock. What I would like to see is a lot more disclosure on the corporate use of equity derivatives. There are a lot of put-writing programs going on and

there is very little disclosure of the amounts and practices involved. The way these put-writing programs work is essentially as follows: As long as the company's stock price does not go down after the put is sold, proceeds from the put sale have the effect of reducing the average buyback price. What isn't disclosed is the amount of liquidity or financial risk the companies are taking on by having hundreds of millions of shares out there in puts. There are cases where companies with these programs have seen their stock take a 20% hit—and the net impact has been hundreds of millions of dollars of losses from being forced to buy back stock above the put prices. So, my feeling is that many of these programs are a time bomb waiting to explode. And, as I said, I'd like to see more disclosure on that.

SIRRI: In fact, there is some required disclosure for these transactions. The current market-based risk requirements require disclosures of the firm's commodity, equity, and fixed-income risks at the end of every quarter. So, companies are forced to disclose some information about these transactions at most three months after the fact.

SMITH: This is something that hasn't received a lot of academic attention—and I'm talking not about disclosure, but about the practice of writing puts on the company's own stock. If I sell puts as part of a buyback program, that means I've introduced a new element of volatility into the firm's market leverage ratio. As we all know, a company's market leverage ratio rises when its stock price falls, and vice versa. But once you introduce these puts, a drop in the stock price results in a disproportionately large increase in leverage. Selling puts means that you're greasing the skids just when things start going downhill. And if you're worried about underinvestment problems from conventional forms of leverage, then these put programs really ought to scare you.

THEVENET: That's right. Using these puts means that you're likely to be creating financial losses at precisely the same time you've got operating cash flow problems—that is, when your stock price is falling. It forces you to buy back stock just when you have the least ability to finance such repurchases.

CHEW: Tim, is it your impression that the kinds of companies that use these put programs are mainly firms like Microsoft and Intel, where financial distress is not really a conceivable problem?

OPLER: There's no question that some of the major users have been high-tech companies with fairly modest amounts of leverage.

SMITH: Well, if Xerox had been doing this 12 months ago, would you have said Xerox is a firm that could wind up in financial trouble? Or take half of the Nasdaq, and look at them 18 months ago and ask yourself, "Were these firms facing any real possibility of financial distress?"

IKENBERRY: Three years ago I asked the treasurer of a large high-tech firm the same question. There had been a big *Wall Street Journal* story about the problems from selling puts. And when I asked him about this issue, his response was, "Well, we've been writing puts all the way up." So I said, "What if your stock now goes down? Are you in a position to buy them back all the way down? Aren't you going to have some long conversations with the board about this?" And his response was, "I would love to be in a position where I had to buy them back. I have a voracious appetite for shares; I couldn't fill my appetite for shares unless the puts were there."

So it's not as if the companies are unaware of these issues and have walked into these positions blindly. But I would generally agree with you, Cliff, that these things can be very dangerous.

THEVENET: We frequently get pitches for these put programs by investment bankers. And we've been to a number of conferences where corporate treasury people will talk about their strategies. In virtually every case, some guy whose stock has gone up for 18 straight months thinks that he's invincible; people like that think they're the next Dell or Microsoft. They almost never point out that these put programs can lose substantial sums of money. And there is a tremendous amount of career risk if these companies get it wrong.

OPLER: I would make two comments on this issue of puts. One of them is that the quality of disclosure is not what it should be. Companies do have a lot of discretion when disclosing their derivatives positions, and some of them do these transactions in significant size. When you read what companies say in the footnotes about their put-writing programs, you can't tell much about things like the maturities and strike prices of the puts. So it's tough for someone on the outside to understand what the companies are doing.

The second thing I would say is that the securities analysts ought to be paying more attention to this. Many are either not aware of, or choose to ignore, the fact that companies are using these programs and the problems they can cause. It's important because, as Cliff said, it effectively increases the firm's leverage.

But I don't want to make a blanket condemnation of the practice. Put writing can be valuable in some circumstances. As Dave said earlier, they can be used to "lock in" the price at which the firm buys back its shares.

In Closing

SIRRI: Let me come back to this issue Cliff posed earlier: Why don't companies disclose more about their repurchases, whether they use derivatives or not? Why is it so difficult to determine how much of a company's earnings arise from repurchase activity, or covering options positions, as opposed to normal business operations?

My answer to this question is simple: all things equal, the managers of most companies would rather not disclose things if they don't have to. They don't want you to see exactly what they're doing, to see the little bets they are taking. If things turn out well, they can choose to reveal their strategy; and if things don't work out well, they bury the losses. So obfuscation serves their interests; it gives them another degree of freedom in producing results that are acceptable to stockholders.

At least that was certainly the feeling I got while working at the SEC. We were always trying to get better risk disclosure, but the issuers always seemed to be stonewalling. The firms were saying, "We don't want to disclose information on how we're hedging equity risk. We don't want to tell you what we're doing with derivatives for interest rate risk management."

CHEW: But I was always taught that the market assigns a discount for uncertainty, not a premium. And if this is true, what you seem to be suggesting is that most managers are really not attempting to maximize value.

SIRRI: I frankly don't think most managers buy your premise—or if they do, their main interest is in meeting short-term earnings targets. The long term is made up of a series of short terms, and anything that helps them make it through the next quarter effectively gives them an option to get to the next period where bad bets may work out. And as I said, obfuscation serves their interests in doing this.

SOTER: Well, I think the short-sighted behavior resulting from this focus on quarterly EPS can really end up hurting companies. It can destroy their credibility with investors. If a company were to make an investment or an acquisition and not disclose anything about it, management would be strongly criticized by the investment community.

And I think the same thinking ought to apply in the case of stock repurchases. When CEOs and CFOs ask me if I think stock buybacks are a good idea, my answer is always, "I don't know; it depends on the company and on the circumstances." As Cliff was saying earlier, a stock repurchase decision, whether it's in the open market or whether it's a tender offer, is just one component of the company's overall financial strategy; it's part of an entire package of financial policies. And a company's financial strategy has to be designed in the larger context of the company's investment or business strategy, taking account of both its funding needs and the risks of the business.

Now, when we help companies think through their financial strategies, if we do reach a decision to buy back shares, the last phase of the engagement always deals with communication of that decision to the investment community. And whether the company chooses to work through the open market or through a tender offer or Dutch auction, we feel it is very important that investors understand both the underlying reasons for and the goals of the repurchases. Buying out the largest number of shareholders at the lowest price is not the goal of a repurchase. For example, in the case of the SPX Dutch auction I cited earlier, we actually failed to buy back the desired amount of stock because not enough stockholders tendered their shares. The announcement of the Dutch auction drove the price above the high end of the range. And when the Dutch auction was completed, the company then launched an open market program to complete the recapitalization. Also important, when management announced the repurchases, it took great pains to show how the substitution of stock repurchases for dividends was going to increase the financing flexibility of the firm, as well as saving taxes for investors.

So I strongly recommend that companies volunteer as much information as they can about why they're buying back their stock, and how they plan to do it. I have never recommended, by the way, that a company say in a press release that it believes its stock is undervalued. I think it's much more credible to address that issue in terms of what management perceives to be the business's prospects and what the investment community should expect going forward in terms of the company's investment and financing policies. I would also argue that it even makes sense to talk about a company's compensation policies. I can tell you from experience that if management's bonuses are tied to EPS growth, it may be in their interest to take short-sighted actions and use all kinds of accounting machinations to manufacture earnings and mislead investors. We see a big difference in behavior between those leadership teams that are under EVA incentive plans versus those that are designed to increase GAAP earnings.

CHEW: Dennis, I didn't think we'd be able to get out of this meeting without at least one commercial for EVA. Now that's behind us, I think we can adjourn. Thank you all for taking part in this discussion.