

Still Searching for Optimal Capital Structure

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The optimal balance between debt and equity financing has been a central issue in corporate finance ever since Modigliani and Miller (1958) showed that capital structure was irrelevant. Thirty years later their analysis is textbook fare, not in itself controversial. Yet in practice it seems that financial leverage matters more than ever. I hardly need document the aggressive use of debt in the market for corporate control, especially in leveraged buyouts, hostile takeovers, and restructurings. The notorious growth of the junk bond market means by definition that firms have aggressively levered up. In aggregate there appears to be a steady trend to more debt and less equity.

Of course none of these developments disproves Modigliani and Miller's irrelevance theorem, which is just a "no magic in leverage" proof for a taxless, frictionless world. Their practical message is this: if there is an optimal capital structure, it should reflect taxes or some specifically identified market imperfections. Thus, managers are often viewed as trading off the tax savings from debt financing against costs of financial distress, specifically the agency costs generated by issuing risky debt and the deadweight costs of possible liquidation or reorganization. I call this the "static trade-off" theory of optimal capital structure.

My purpose here is to see whether this or competing theories of optimal capital structure can explain actual behavior and current events in financial markets, particularly the aggressive use of debt in leveraged buyouts, takeovers, and restructurings. I will consider the static trade-

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off theory, a pecking order theory emphasizing problems of asymmetric information, and a rough, preliminary organizational theory that drops the assumed objective of market value maximization.

In the end, none of these theories is completely satisfactory. However, the exercise of trying to apply them forces us to take the firm's point of view and to think critically about the factors that may govern actual decisions.

I will not describe or document current events in detail here. The tendency to substitute debt for equity, at least by mature, cash-cow public firms, is evident from casual observation. The gains to investors from leveraged buyouts, restructurings, and leveraged takeovers have been summarized by Jensen (1986) and others. Taggart (1985) describes the trend to higher debt ratios for nonfinancial corporations generally.

Nor will I worry about the dividing line between debt and equity. That line is obviously important for tax or legal purposes, but it does not exist in finance theory. Every corporate debt security is part equity if there is any chance at all of default; it is (locally) equivalent to a weighted average of a default-risk-free debt and a pure equity claim on the firm's assets. The more debt the firm issues, holding assets, earnings, and future opportunities constant, the greater the equity content. Thus, "How much should the firm borrow?" is the same as asking how much implicit equity lenders should be induced to hold. When this conference's title asks, "Are distinctions between equity and debt disappearing?" finance theory answers, "Of course. Riskier debt is more like equity. Now let's get on to the real issue: Why are companies borrowing more?"

The following sections of the paper are devoted to the static trade-off, pecking order, and organizational theories.¹ The final section briefly summarizes what these theories can say about actual firm behavior and offers a few comments on "current events."

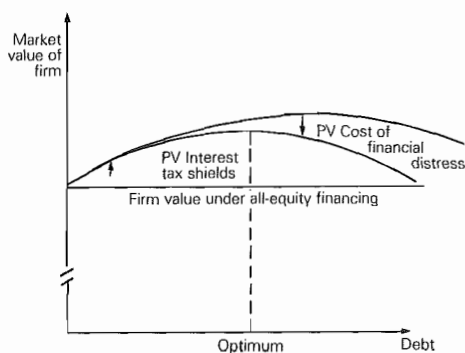
The Static Trade-off Theory

Figure 1 summarizes the static trade-off theory. The horizontal base line expresses Modigliani and Miller's idea that V , the market value of the firm—the aggregate market value of all its outstanding securities—should not depend on leverage when assets, earnings, and future investment opportunities are held constant. But the tax deductibility of

¹ Please understand that this is not a self-contained survey article. I have stated theories intuitively and have not attempted to derive them. I have attempted to cite interesting and representative research by others but have nevertheless skipped over many useful empirical and theoretical contributions. See Masulis (1988) for an extensive survey and bibliography.

Figure 1

The Static Trade-Off Theory of Capital Structure



interest payments induces the firm to borrow to the margin where the present value of interest tax shields is just offset by the value loss due to agency costs of debt and the possibility of financial distress.

The static trade-off theory has several things going for it. First, it avoids corner solutions and rationalizes moderate borrowing with a story that makes easy common sense. Most business people immediately agree that borrowing saves taxes and that too much debt can lead to costly trouble.

Second, closer analysis of costs of financial distress gives a testable prediction from the static trade-off story; since these costs should be most serious for firms with valuable intangible assets and growth opportunities, we should observe that mature firms holding mostly tangible assets should borrow more, other things constant, than growth firms or firms that depend heavily on R & D, advertising, and the like. Thus, we would expect a pharmaceutical company to borrow less than a chemical manufacturer, even if the business risks of the two firms (measured by asset beta, for example) are the same. This predicted inverse relationship between (proxies for) intangible assets and financial leverage has been confirmed by Long and Malitz (1985).

The static trade-off theory may also seem to draw support from studies of the reaction of stock prices to announcements of security

issues, retirements, or exchanges. Smith's (1986) summary of this research shows that almost all leverage-increasing transactions are good news, and leverage-decreasing transactions bad news. Thus, announcements of common stock issues drive down stock prices, but repurchases push them up; exchanges of debt for equity securities drive up stock prices, but equity-for-debt exchanges depress them. These impacts are often striking and generally strong enough to bar quibbles about statistical significance.

These "event studies" could be interpreted as proving investors' appreciation of the value of interest tax shields, thus confirming the practical importance of the static trade-off theory's chief motive for borrowing. But on balance this evidence works against the theory. First, the competing pecking order theory can explain the same facts as the market's rational response to the issue or retirement of common equity, even if investors are totally indifferent to changes in financial leverage. This point is discussed further in the next section.

Second, the simple static trade-off theory does not predict what the event studies find. If the theory were true, managers would be diligently seeking optimal capital structure, but find their firms bumped away from the optimum by random events. A couple of years of unexpectedly good operating earnings or the unanticipated cash sale of a division might leave a firm below its optimum debt ratio, for example; another firm suffering a string of operating losses might end up too highly levered.

Thus we would expect to observe some firms issuing debt and/or retiring equity to regain the optimal debt ratio; they would move to the right, up the left-hand side of Figure 1. But other firms would be reducing leverage and moving to the left, up the right-hand slope of the figure. The movement should be value-increasing in both cases, and good news if it is news at all.

It is possible, of course, that the leverage-increasing transactions reflect reductions in business risk and increases in target debt ratios. If investors cannot observe these changes directly, then a debt-for-equity exchange is good news; it demonstrates management's confidence in the level and safety of future earnings.

It is also possible that managers are not value-maximizers and do not attempt to lever up to the optimum. If most firms are sitting comfortably but inefficiently on the left of the upward-sloping "V curve" in Figure 1, then any increase in leverage is good news, and any decrease bad news. However, we cannot just explain away the event study results without thinking more carefully about how a "managerial" firm would want to arrange its financing. This too is left to a later section of the paper.

The most telling evidence against the static trade-off theory is the strong inverse correlation between profitability and financial leverage.

Within an industry, the most profitable firms borrow less, the least profitable borrow more. Kester (1986), in an extensive study of debt policy in United States and Japanese manufacturing corporations, finds that return on assets is the most significant explanatory variable for actual debt ratios. Baskin (1989) gets similar results and cites about a dozen other corroborating studies.

To repeat: high profits mean low debt. Yet the static trade-off story would predict just the opposite relationship. Higher profits mean more dollars for debt service and more taxable income to shield. They should mean higher target debt ratios.

Could the negative correlation between profitability and leverage reflect delays in firms' adjustments to their optimum debt ratios? For example, a string of unexpectedly high (low) profits could push a firm's actual debt ratio below (above) the target. If transaction costs prevent quick movements back to the optimum, a negative correlation is established—a negative correlation between profitability and deviations from target debt ratios.

This explanation is logically acceptable but not credible without some specific theory or evidence on how firms manage capital structures over time. Expositions of the static trade-off story rarely mention transaction costs;² in fact they usually start by accepting Proposition I of Modigliani and Miller (the flat base line in Figure 1), which assumes that transaction costs are second-order.

None of the evidence noted so far justifies discarding the static trade-off theory. However, it is foolish not to be skeptical. The theory sounds right to financial economists, and business people will give it lip service if asked. It may be a weak guide to average behavior. It is not much help in understanding any given firm's decisions.

The Pecking Order Theory

The pecking order theory of capital structure says that:

- (1) Dividend policy is "sticky."

² One exception is the target adjustment models used in empirical studies of capital structure choice, for example by Jalilvand and Harris (1984). In these models, random events change actual capital structures, but transaction costs force firms to work back only gradually towards actual capital structures. Actual capital structures revert toward the mean.

These models work fairly well if one assumes that the static trade-off theory holds and that each firm has a well-defined target debt ratio. Unfortunately, the models work equally well when the firm has no target and follows a pure pecking order strategy. See Shyam-Sunder (1988). In other words, the models offer no support for the static trade-off theory against that competitor.

- (2) Firms prefer internal to external financing. However, they seek external financing if necessary to finance real investments with a positive net present value (NPV).
- (3) If firms do require external financing, they will issue the safest security first; that is, they will choose debt before equity financing.³
- (4) As the firm seeks more external financing, it will work down the pecking order of securities, from safe to risky debt, perhaps to convertibles and other quasi-equity instruments, and finally to equity as a last resort.

In the pecking order theory, no well-defined target debt ratio exists. The attraction of interest tax shields and the threat of financial distress are assumed to be second-order. Debt ratios change when an imbalance of internal cash flow occurs, net of dividends, and real investment opportunities arise. Highly profitable firms with limited investment opportunities work down to a low debt ratio. Firms whose investment opportunities outrun internally generated funds are driven to borrow more and more.

This theory gives an immediate explanation for the negative intra-industry correlation between profitability and leverage. Suppose firms generally invest to keep up with industry growth. Then rates of real investment will be similar within an industry. Given sticky dividend payout, the least profitable firms in the industry will have less internal funds for new investment and will end up borrowing more.

The pecking order story is not new. There are long-standing concerns about corporations that rely too much on internal financing to avoid the "discipline of capital markets." Donaldson (1984) has observed pecking order behavior in careful case studies. But until Myers and Majluf (1984) and Myers (1984), the preference for internal financing and the aversion to new equity issues were viewed as "managerial" behavior contrary to shareholders' interests. These papers showed that managers who act solely in (existing) shareholders' interests will rationally prefer internal finance and will issue the least risky security if forced to seek outside funds.

The pecking order theory reflects problems created by asymmetric information, a fancy way of saying that managers know more about their firms than outside investors do. How do we know managers have superior information? Well, outside investors clearly think they do because stock prices react to firms' announcements of earnings, major

³ Warrants would be even lower on the pecking order. However, warrants are usually issued in a package with debt—roughly equivalent to a convertible bond.

capital expenditures, exchange offers, stock repurchases, and the like. The market learns from managers' actions because the managers are believed to have better or earlier information.

Consider the following story:

- (1) Because managers know more about their firms than outside investors do, they are reluctant to issue stock when they believe their shares are undervalued. They are more likely to issue when their shares are fairly priced or overpriced.
- (2) Investors understand that managers know more and that they try to "time" issues.
- (3) Investors therefore interpret the decision to issue as bad news; therefore, firms that issue equity can do so only at a discount.
- (4) Faced with this discount, firms that need external equity may end up passing by good investment opportunities (or accepting "excessive" leverage) because shares cannot be sold at what managers consider a fair price.

This story has three immediate implications. First, internal equity is better than external equity. (Note that the static trade-off theory makes no distinction between equity from retained earnings and equity from stock issues.) Because dividends are sticky and debt service predetermined, retention of any excess operating cash flow is more or less automatic and does not convey information to investors.

Second, financial slack is valuable. It relieves managers' fear of passing by an outlay with positive net present value (NPV) when external equity finance is required, but shares can only be issued at a substantial discount to intrinsic value.

Financial slack means cash, marketable securities, and readily saleable real assets. It also means the capacity to issue (nearly) default-risk-free debt. If a new debt issue carries no default risk, potential investors do not have to worry about whether the firm as a whole is overvalued or undervalued by the market.

Third, debt is better than equity if external financing is required, simply because debt is safer than equity. Asymmetric information drives the firm to issue the safest possible security. This establishes the pecking order.

Why are safer securities better? Not because the manager always wants to issue them. On the contrary, when the market overvalues the firm, the manager would like to issue the most overvalued security: not debt, but equity. (Warrants would be even better.) If the market undervalues the firm, the manager would like to issue debt in order to minimize the bargain handed to investors.

But no intelligent investor would let the manager play this game. Suppose you are a potential buyer of a new security issue, either debt or

equity. You know the issuer knows more than you do about the securities' true values. You know the issuer will want to offer equity only when it is overvalued—that is, when the issuer is more pessimistic than you are. Would you ever buy equity if debt were an alternative? If you do, the issuer is guaranteed to win and you to lose. Thus you will refuse equity and only accept debt. The firm will be forced to issue debt, regardless of whether the firm is overvalued or undervalued.

Issuing safer securities minimizes the manager's information advantage. Any attempt to exploit this information advantage more aggressively will fail because investors cannot be forced to buy a security they infer is overvalued. An equity issue becomes feasible in the pecking order only when leverage is already high enough to make additional debt materially expensive, for example, because of the threat of costs of financial distress. If the manager is known to have a good reason to issue equity rather than debt and is willing to do so in some cases where the equity is actually underpriced, then purchase of new equity can be a fair game for investors, and issue of new equity becomes feasible despite the manager's information advantage.

In practice, the pecking order theory cannot be wholly right. A counterexample is generated every time a firm issues equity when it could have issued investment-grade debt. Nevertheless, the theory immediately explains otherwise puzzling facts, such as the strong negative association between profitability and leverage. It also explains why almost all corporate equity financing has come from retention rather than new issues.⁴

The pecking order model also explains why stock price falls when equity is issued. Myers and Majluf show that if the firm acts in the interest of its existing shareholders, the announcement of an equity issue is always bad news. So is an equity-for-debt exchange offer—not because the exchange reduces financial leverage, but because it amounts to a new issue of common stock. The fact that investors pay for the issue with an unusual currency (the issuing firm's previously outstanding debt securities) is irrelevant.

Conversely, a debt-for-equity exchange is good news not because it increases outstanding debt, but because it amounts to a repurchase of equity. If investors believe managers have superior knowledge, then their decision to repurchase signals optimism and pushes the stock price up.

Thus the pecking order theory neatly explains why equity issues reduce stock price, but plain-vanilla debt issues do not. If the probability of default is low, then managers' information advantage is not a major

⁴ See Brealey and Myers (1988), Table 14-3, p. 313.

concern to potential buyers of a debt issue. The smaller the managers' advantage, the less information is released by the decision to issue. The pecking order theory would predict a small negative impact when a debt issue is announced (all corporate debt carries some default risk), but for most public issues the effect should be very small and likely to be lost in the noise of the market.

An Organizational Theory of Capital Structure

Both of the theories reviewed so far assume that managers act in their current stockholders' interests. This is a useful convention of modern corporate finance theory but hardly a law of nature.

Current events in the market for corporate control have revived analysis of the conflicts between managers and stockholders. Consider Jensen's "free cash flow" problem, the alleged natural tendency of firms with excess cash flow to waste it rather than pay it out to investors. "The problem," as Jensen says, "is how to motivate managers to disgorge the cash rather than investing it below the cost of capital or wasting it on organizational inefficiencies" (1986, p. 323).

Competition tends to punish such waste. We would not expect to find it in toughly competitive industries. But if product market competition does not do the job, then competition in the market for corporate control may take its place. U.S. automobile companies were forced to slim down their organizations by their Japanese competitors. However, the Japanese do not pump oil, and so U.S. oil companies were forced to diet by (actual or threatened) takeovers.

Suppose we accept for sake of argument that important divergences exist between organizations' and investors' interests. What does that say about the role financing decisions play in "current events"? Second, what help does it give us in understanding financing decisions made by corporations that are not "in play" or under threat in the market for corporate control? Let me address the second question now and return to the first in the next section. Here is a sketch of an organizational theory of capital structure.⁵

Table 1 presents an organizational balance sheet. This has no necessary, direct connection with the firm's books. It is just a way of expressing the identity between the market value of assets and liabilities.

⁵ I say "organizational" rather than "managerial" to emphasize my interest in the interests and behavior of the organization as a whole rather than the personal motives and decisions of a few people at the top of the corporate hierarchy.

Table 1
Organizational Balance Sheet
All Entries at Market Value

| | | | |
|--|--------|--------------------|---|
| Present value (PV) of existing assets, pre-tax | PVA | Existing debt | D |
| PV growth opportunities, pre-tax | PVGO | Employees' surplus | S |
| Less: PV future taxes | -PVTAX | Existing equity | E |
| After-tax value | V | After-tax value | V |
| Corporate wealth = employees' surplus + equity | | | |
| $W = S + E$ | | | |

On the left is PVA, the present value of future cash flows from existing assets, plus PVGO, the present value of growth opportunities, less the present value of the government's tax claim, PVTAX. Note that PVGO can be negative if the firm is expected to waste money on negative-NPV capital investments or to overpay for acquisitions.

On the right are D, existing debt, E, equity, plus S, the present value of "employees' surplus." This surplus reflects the present value of perks, overstaffing, and above-market wages. (Note that PVA and PVGO are defined before this surplus is subtracted.)

Treynor (1981, p. 70) suggests that "the financial objective of the corporation is to conserve, and when possible, to enhance the corporation's power to distribute cash," which depends on the net market value of the firm. For a public corporation traded in well-developed capital markets, market value is fungible. Therefore the "power to distribute cash" is strictly proportional to net corporate wealth. This is the sum of equity and employee surplus, $W = E + S$.

Donaldson concluded from extensive case studies of mature public corporations that "the financial objective that guided the top managers of the companies studied [was] maximization of corporate wealth. Corporate wealth is *that wealth over which management has effective control* and is an assured source of funds . . ." (1984, p. 22, emphasis in original).

Of course standard corporate finance theory also assumes the firm maximizes wealth. But it is shareholders' wealth. Standard theory says that dividend policy is irrelevant in perfect, frictionless markets because paying a dollar per share dividend reduces the share price by exactly a dollar; shareholders' wealth is unchanged. However, corporate wealth declines by a dollar per share. The dollar is no longer under the effective control of management.

I will briefly describe how several common financial decisions would be analyzed by a firm seeking to maximize corporate wealth. For

simplicity I will assume the manager has no information advantage and also that existing debt is (close to) default-risk-free, so no temptation arises to undertake transactions to undercut existing creditors.

Because corporate wealth is measured in terms of market value, rules for ranking capital investments are exactly the same as in standard finance theory. The firm always seeks positive net present value (NPV) and prefers more NPV to less.

Suppose the firm issues debt to finance additional capital investment projects that happen to have $NPV = 0$.⁶ Then corporate wealth does not change: the market value of additional real assets is offset by the new debt liability. Thus debt financing would provide no incentive to overinvest in negative-NPV projects. Outside investors should see no bad signals in a debt issue earmarked for additional assets. This is consistent with the lack of response of stock prices to announcements of new debt issues.

However, an issue of debt that replaces equity, holding PVA and PVGO constant, decreases corporate wealth. As debt increases, corporate wealth, which is the sum of equity and employees' surplus, must go down. This could be good news for stockholders. First, PVTAX, the government's claim on the firm, could be significantly decreased by interest tax shields.

Second, employees' surplus would decrease, transferring value to the equity account. Employees' surplus is similar to a subordinated debt claim, whose market value falls when more senior debt is issued and inserted between the junior debt and the firm's assets. The employees' surplus is junior because creditors can usually force the firm to "go on a diet" if debt service is threatened. The diet squeezes out the perks, overstaffing and above-market wages that constitute employees' surplus.

Thus the organizational theory can explain why debt-for-equity changes are good news for stockholders. (Of course one has to accept that interest tax shields have significant value and that employees' surplus is an important entry on the organizational balance sheet.) The theory also predicts that firms will not undertake debt-for-equity exchanges except, say, under threat of a takeover.

An issue of equity that replaces debt would be bad news for investors. The reasoning is just as for a debt-for-equity exchange, with signs of course reversed. But would a new equity issue, or unanticipated retention of earnings, be bad news if the money is put to use on the asset side of the balance sheet? Yes, because employees' surplus increases.

⁶ The present value of interest tax shields on debt supported by the project is included in the project's NPV.

Remember that this surplus resembles a junior debt, whose value increases when the firm adds equity-financed assets. New equity investors anticipate this and adjust the purchase price of the new shares accordingly. The increase in surplus must therefore be extracted from existing equity.

The equity issue may be even worse news if the proceeds are not productively invested. If \$10 million is raised and invested in a project with a value of only \$6 million, existing shareholders lose \$4 million (and also lose whatever the employees gain from appreciation in the value of their junior claim). Other things constant, corporate wealth nevertheless increases by \$6 million.

Thus, the negative stock market reaction to equity issues is guaranteed if one assumes that marginal investments are negative-NPV. But why should the corporate-wealth-maximizing firm ever accept a negative-NPV project? Why not issue equity and buy marketable securities, which presumably have $NPV = 0$? Then a \$10 million equity issue should add \$10 million to corporate wealth.

This is not an easy question for the organizational theory, but some answers are possible. First, buying marketable debt securities amounts to lending money. If borrowing has a significant tax advantage, there must be a corresponding disadvantage to lending. Thus investment in a Treasury bill should have $NPV < 0$ after tax. Second, if another company's equity securities are purchased, an additional layer of taxation is created, which should drive NPV negative. This layer of tax is eliminated if the other company is taken over, but takeovers not motivated by real economic gains are also likely to be negative-NPV once transaction costs and takeover premiums are recognized.

Assume, then, that outlets for investment with at least zero NPV are limited. That limit defines the maximum scale of a shareholder-value-maximizing firm. What limits the scale of a firm that maximizes corporate wealth? It seems that any new equity issue inevitably increases corporate wealth, regardless of whether the proceeds are used to repay debt or add to assets. (Corporate wealth is also increased if earnings are retained rather than paid out as dividends.) This is so even if the assets' NPVs are negative, so long as they have any value at all. Why doesn't the firm issue more and more equity, expanding and generating practically unlimited corporate wealth? If corporate wealth is the objective, the firm does not care about the price of new shares.

This, too, is not an easy question. One can appeal to the threat of takeover by other firms seeking to maximize their own corporate wealth by preying on other firms with large employee surpluses or substantial negative-NPV investments. However, takeovers did not appear as a significant threat to large public corporations until relatively recently. One can also note the compensation schemes of top management,

whose fortunes are tied more closely to equity earnings and stock prices than those of most of their employees.

The deeper answer is that corporate wealth is in the end not determined by the corporation but by investors. Only market value can be translated into "the power to distribute cash." That depends on what investors are willing to pay.

The only reason they are willing to pay anything at all, absent the threat of takeover, is that the firm has somehow bonded itself to distribute cash to shareholders. Obviously the bond is not contractual, as it is with debt, but implicit. Presumably this is the reason why firms have fairly well-defined, sticky dividend policies, and also why top managers accept compensation schemes linked to stock prices, despite the otherwise diversifiable risk this forces them to carry.

A stock issue increases equity value only if this bonded or "promised" future payout increases. Consider the two extreme cases. First, suppose that the firm issues \$10 million in new equity but does not "promise" to pay out any additional future dividends. Then existing shareholders must absorb a \$10 million capital loss. In other words, the decision to issue new stock breaks the firm's "promise" to old shareholders. But having just broken that promise, it is not clear where the firm would find any rational new shareholders. In other words, an equity issue would probably be infeasible.

At the other extreme, the firm could accept an implicit obligation to pay out additional future dividends with a present value of \$10 million. This fully "covers" the newly issued shares, so existing shares maintain their value. Total equity value increases by \$10 million.

Corporate wealth also increases by \$10 million. However, not much of this goes to employees. The firm has \$10 million more in assets but has also promised \$10 million to new shareholders. Nothing is left over for employees' surplus, except for the transfer to surplus from existing equity, which occurs because employees now hold better-protected junior claims on the firm's assets. (Note that this transfer could explain the markets' negative reaction to stock issues.)

Perhaps this tells us why firms prefer to accumulate retained earnings rather than to issue shares. Suppose the firm has "promised" to pay out dividends according to some sticky rule. Then if earnings are higher than anticipated, much of the increase is free for employees to deploy; it has not been promised to shareholders. On the other hand, if an unanticipated shortfall occurs, dividends are to some extent protected, and the firm may have to turn to outside financing for real investment.

This begins to look like a pecking order, at least with respect to a preference for internal versus external financing. Thus the organizational theory of capital structure may be able to explain why the most

profitable firms typically borrow the least. Their higher than “normal” or expected earnings are retained because their contract with stockholders does not require them to be paid out. If real investment opportunities do not increase proportionally to earnings—as is likely for mature firms—then high earnings mean greater retention, less reliance on external financing, and presumably a lower debt ratio.⁷

The organizational theory also seems to explain stock market reactions to announcements of security issues, retirements, and exchanges. Overall it is a promising alternative to capital structure theories based on shareholder wealth maximization.

Yet caution is called for. I have not been able to develop the theory fully and formally in this paper. I have not analyzed the implicit contract between the firm and its shareholders or attempted a link-up to the literature on dividend policy. I have compared employees’ surplus to a junior debt liability without giving a detailed description of the properties of this claim, and I have implicitly treated employees’ surplus as a kind of tax that does not reduce the potential value of existing assets and growth opportunities. This is almost certainly oversimplified.

Finally, I have accepted Treynor’s and Donaldson’s suggested objective of maximizing corporate wealth. The discussion above of equity issues and the firm’s implicit contract with shareholders suggests that maximizing corporate wealth may not always be in the employees’ interest, even if all employees could act as one.

Conclusions

This paper has briefly reviewed three theories—perhaps I should say stories—of capital structure. I have tried to match them to firms’ actual behavior and to judge their ability to explain the two most striking facts about corporate financing.

The first fact is that investors regard almost all leverage-increasing security issues or exchanges as good news, and leverage-decreasing transactions as bad news. The only exception is plain-vanilla debt issues, which apparently are no news at all. The second fact is the strong negative correlation between profitability and financial leverage.

The widely cited static trade-off theory, taken literally, explains neither fact. It is at best a weak guide to average behavior.

The pecking order theory is a minority view that seems to explain the two striking facts.

⁷ I admit that the organizational theory does not fully explain why firms should prefer debt to equity if external financing is sought.

The organizational theory described in this paper is a first try at restating Jensen's free cash flow theory of the market for corporate control as a general theory of capital structure choice. It also explains the two striking facts, though its predictions are not as clear and definite as those of the pecking order model. A more thorough and formal development of the organizational theory is obviously needed.

The initial plausibility of the organizational theory derives from current events, particularly the aggressive use of leverage in leveraged buyouts, takeovers, and restructurings. The leading explanation for this is that high debt ratios are necessary to force mature companies on a diet and to prevent them from making negative-NPV capital investments or acquisitions. The debt is viewed as a contractual bond that forces the firm to distribute cash to investors.

The organizational theory is an extension of this argument, and therefore broadly consistent with current events. The static trade-off theory gives no help with current events unless it is assumed that target firms are systematically underleveraged and therefore not maximizing market value. But in that case the static trade-off theory is no more than an open invitation to develop an organizational theory.

Thus, the race to explain capital structure really has only two contenders: models such as the pecking order theory that assert asymmetric information as the chief underlying problem, and models that start from the proposition that organizations act in their own interests.

References

- Baskin, J. 1989. "An Empirical Investigation of the Pecking Order Hypothesis." *Financial Management*, vol. 18, no. 1, Spring, pp. 26-35.
- Brealey, R.A. and S.C. Myers. 1988. *Principles of Corporate Finance*. 3rd ed. New York: McGraw-Hill Book Co.
- Donaldson, G. 1984. *Managing Corporate Wealth: The Operation of a Comprehensive Financial Goals System*. New York: Praeger.
- Jalilvand, A. and R.S. Harris. 1984. "Corporate Behavior in Adjusting to Capital Structure and Dividend Targets: An Econometric Study." *Journal of Finance*, vol. 39, no. 1, March, pp. 127-144.
- Jensen, Michael C. 1986. "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers." *The American Economic Review*, vol. 76, no. 2, May, pp. 323-329.
- Jensen, Michael C. and W.H. Meckling. 1976. "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure." *Journal of Financial Economics*, vol. 3, pp. 305-360.
- Kester, W.C. 1986. "Capital and Ownership Structure: A Comparison of United States and Japanese Manufacturing Corporations." *Financial Management*, Spring, pp. 5-16.
- Long, M. and I. Malitz. 1985. "Investment Patterns and Financial Leverage." In *Corporate Capital Structure in the United States*, B. Friedman, ed., pp. 325-348. Chicago: University of Chicago Press.
- Masulis, R.W. 1988. *The Debt-Equity Choice*. New York: Ballinger Publishing Co.

- . 1989. "The Effects of Capital Structure Change on Security Prices: A Study of Exchange Offers." *Journal of Financial Economics*, vol. 8, no. 2, June, pp. 139-177.
- Modigliani, Franco and Merton H. Miller. 1958. "The Cost of Capital, Corporation Finance and the Theory of Investment." *The American Economic Review*, vol. 48, pp. 261-297.
- Myers, Stewart C. 1977. "Determinants of Corporate Borrowing." *Journal of Financial Economics*, vol. 5, November, pp. 147-175.
- . 1983. "The Search for Optimal Capital Structure." *Midland Corporate Finance Journal*, vol.1, no.1, Spring, pp. 6-16.
- . 1984. "The Capital Structure Puzzle." *Journal of Finance*, vol. 39, July, pp. 575-592.
- Myers, Stewart C. and Majluf, N.S. 1984. "Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have." *Journal of Financial Economics*, vol. 13, June, pp. 187-221.
- Shyam-Sunder, L. 1988. "Essays in Corporate Financing." Ph.D. dissertation, Massachusetts Institute of Technology.
- Smith, C.W. 1986. "Investment Banking and the Capital Acquisition Process." *Journal of Financial Economics*, vol. 15, pp. 3-29.
- Taggart, Robert A. 1985. "Secular Patterns in the Financing of Corporations." In *Corporate Capital Structures in the United States*, B.M. Friedman, ed. Chicago: University of Chicago Press.
- Treynor, Jack L. 1981. "The Financial Objective in the Widely Held Corporation." *Financial Analysts Journal*, March-April, pp. 68-71.
- Williamson, S. 1981. "The Moral Hazard Theory of Corporate Financial Structure: An Empirical Test." Ph.D. dissertation, Massachusetts Institute of Technology.

Discussion

*O. Leonard Darling**

I have to compliment Stewart Myers on his paper. Even a nonacademic type such as myself could read it and understand his salient points. I am encouraged that research is being done on this important subject, how to determine the optimal capital structure. I was also more than slightly relieved to find out that academia has not yet resolved this question. The young investment bankers I have met in recent years have all been quite sure that they had just created the optimal capital structure. I am relieved that many of the bizarre capital structures proposed are not blessed by academia.

I would like to twist on the discussant's role slightly, and instead of trying to comment on theories that Myers has discussed, I would like to apply these theories to what I see happening in corporate America. Let me begin by saying that the most leveraged corporations are in the process of "de-leveraging." In the entire postwar period, corporations have been increasing their leverage. Increased leverage has been a successful way of increasing shareholder wealth. In recent years, much of this increase has been used to retire common stock. The format of debt-for-equity exchanges has usually resulted in significant premiums paid to shareholders over prevailing market values. The optimal capital structure has been viewed as one of maximum debt.

I believe the real challenge today is how to de-leverage these corporations in order to reach the optimal capital structure. Clearly, we have passed the apex of the value-of-the-firm curve that Myers depicts

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in his Figure 1, which supports the static trade-off theory. The financial distress caused by excessive leverage has reduced the total market value of all the firm's securities to a point that falls below the maximum theoretical value. Clearly, it makes sense for these firms to de-leverage. In my opinion, how these corporations move back from over-leverage to a more satisfactory capital structure depends in large part on whether they are publicly or privately held.

Before departing to the specific subject of de-leveraging individual companies, let me make some general comments on why excessive leverage—specifically the use of high-yield debt in leveraged buyout transactions—is and will continue to be on the decline. The high-yield market is in disarray. The cost of high-yield debt is at historic highs relative to either investment-grade debt or equity. In the past two years the stock market has moved up sharply from the lows of October 1987, and interest rates on high-quality paper have declined by more than 200 basis points. During this period the interest rate on new high-yield debt has increased slightly. The imbalance between the amount of debt buyers can absorb and the supply of new paper has created a logjam of unsold new issues. The problems surrounding recent leveraged buyout statements of liquidity shortfalls have further reduced the number of potential buyers for leveraged buyout or high-risk paper. If it makes sense for the most leveraged corporations to de-leverage, then it must make equal sense for those contemplating excessive leverage to rethink their plans. Certainly, the bright young investment banker must now have better advice for his clients than to incur the cost of selling high-yield debt.

Turning back to the issue of de-leveraging the financially distressed company, it is important to consider whether the company is publicly owned or privately owned. I believe different theories govern, depending on ownership. De-leveraging a public company may be more difficult and require a different course of action than de-leveraging a private company.

De-leveraging a public company must be done in a way that continues to maximize shareholders' value throughout the process. Otherwise, the firm runs the threat of an outsider buying controlling shares in the marketplace and replacing management. Another consideration in de-leveraging a public company is that new equity may be necessary to help retire debt. Clearly, it is important to try to keep shareholders' values as high as possible during this process. As Myers' Figure 1 points out, the total market value of the firm's securities is reduced by excessive leverage. The static trade-off theory described in his paper appears to best explain this process, as firms located in the financially distressed area of Figure 1 move to the left on Figure 1, increasing the value of the firm.

De-leveraging a private company is quite different. A private firm is often owned by management who have borrowed money to acquire the firm and are primarily concerned with maximizing their personal wealth over a long time span. They are less concerned with the day-to-day value of the stock and are quite willing to trash (reduce the value of) their outstanding debt if it allows them the opportunity to buy back this debt at a lower price. In essence, the shareholder benefits from capturing the decline in the market value of the debt. Without the constraints of a publicly quoted common stock (fear of the stock price dropping and a hostile tender offer), the battle between bondholders and shareholders can get quite fierce. Myers' organizational theory hypothesizes that shareholders attempt, through leverage, to capture employees' surplus. By retiring subordinated debt at large discounts, the shareholders are similarly capturing the bondholders' surplus.

Let me talk about a couple of practical examples and try to relate them to these theories. Bob Price, CEO of Price Communications (a publicly held corporation) is in the process of de-leveraging his company by selling \$50 million of 10 percent convertible bonds and, with the proceeds, buying back his high-yield debt that yields approximately 20 percent and sells at a significant discount from par value. Bob was an investment banker before he started Price Communications, and he has cleverly walked the fine line that allows him to sell equity securities at an attractive price while he simultaneously buys back his high-yield debt at substantial discounts. Bob is moving to a more functional capital structure without damaging his stock price, a difficult feat when one considers the relatively low opinion the bondholders have of the company. It is interesting that Price Communications' stock has been an excellent performer over the past few years.

De-leveraging a private company can be far more difficult and painful for the debtholders. Robert Campeau's method of dealing with the over-leverage in his Allied and Federated Companies is far more ruthless. Without public shareholders of Allied and Federated to worry about, Campeau announced in early September that his companies were experiencing liquidity problems and that in exchange for an infusion of capital from the parent he expected to buy back the publicly traded high-yield debt at the prices at which the debt was trading on that date. Naturally, following on the heels of the announcement about the lack of liquidity, the debt of these subsidiaries was selling at bankruptcy levels. I read that Campeau believed he had overpaid for Federated by \$300 million. By mid-September, the market value of Federated's high-yield debt had declined by more than that amount. Mr. Campeau would obviously prefer that debtholders suffer the loss, rather than himself. This is a classic example of shareholders increasing their value at the

expense of the debtholders. I am sure that the bondholders have other thoughts, and I do not expect an easy resolution.

The bankruptcy courts may well resolve issues such as those presented by the Campeau dilemma. This thought is less than comforting to bondholders in light of the recent intrigue surrounding Revco. Revco was an early leveraged buyout that was capitalized at \$1.5 billion in debt and \$19 million in equity and entered bankruptcy within one year of the buyout. As the legal panel at this conference pointed out earlier, normally all classes of debt must consent to a reorganization plan. However, in this case management are attempting to force a reorganization plan that is unfavorable to the bondholders. Management intend to inject new money into the company (\$150 million) and argue that this allows them to force bondholders to settle on management's terms. Management's unilateral proposal would wipe out \$600 million of the current \$800 million in high-yield debt. If this were allowed by the court, it would become increasingly difficult to issue high-yield debt, as it would be obvious that the bondholders were assuming all the downside risk while receiving very little of the upside potential.

The situation in corporate America is clear. The most leveraged of corporations must de-leverage. The total value of the firm is being penalized by excess debt. The optimal capital structure requires more equity and less debt. Private companies are most likely to de-leverage through confrontation with debtholders, while public companies will attempt to move back from an overly leveraged position to the optimal capital structure by some form of equity financing.

Again, I thank Stewart Myers for his continuing research and also for his contribution to my own understanding of the optimal capital structure.

Discussion

*Robert A. Taggart, Jr.**

It is an honor to be asked to discuss Stewart Myers' paper, but at the same time it is a somewhat daunting task in view of his many important contributions to capital structure research. These contributions include "Problems in the Theory of Optimal Capital Structure" (1966, with Alexander Robichek), "Determinants of Corporate Borrowing" (1977), "Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have" (1984, with Nicholas Majluf), and his Presidential Address to the American Finance Association, "The Capital Structure Puzzle" (1984). What I would like to do first is try to place his current paper in the context of these previous contributions.

Each of the four papers that I mentioned deals with capital market frictions, or imperfections, and their impact on corporate financing decisions. That is a natural starting point, since we know from Modigliani and Miller's (1958) seminal paper that corporate financing decisions have no impact on firm value in the absence of these frictions. While many of Modigliani and Miller's critics have pointed to the potential importance of market frictions, Myers' repeated contribution has been to show how and why they can affect corporate decisions in the framework of an economic model that includes maximizing behavior on the part of all participants. At the same time, his view of how these frictions operate has undergone continual alteration. Indeed, a second hallmark of Myers' work has been his willingness to take issue with his own previous work.

In the two earlier papers, "Problems in the Theory of Optimal

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Capital Structure" and "Determinants of Corporate Borrowing," Myers helped develop what he now calls the "static trade-off" theory. The first of these papers emphasized the costs of bankruptcy and financial distress as counterweights to the tax benefits of debt. The second paper provided a broader interpretation of these costs by showing that the very possibility of bankruptcy could cause even a currently healthy firm to make suboptimal investment decisions if it had a sufficient amount of debt outstanding.

In "The Capital Structure Puzzle," however, Myers began to emphasize the lack of empirical support for the static trade-off theory and proposed as an alternative the "pecking order" theory. As he pointed out at the time, this represented in some ways the resurrection of earlier conclusions on the subject by a variety of scholars and business observers. Rather than adopting their implicit model of managerial discretion, however, he emphasized the inherent informational advantage that corporate managers have over investors (Myers and Majluf 1984). The result was a model of rational, value-maximizing behavior that was consistent with two salient empirical facts: (1) the stock market's negative reaction to new stock issues and positive reaction to the substitution of debt for equity and (2) the negative relationship between firm profitability and debt proportions.

The current paper is very much in the tradition of Myers' previous work. First, it reexamines and challenges the conclusions from his own earlier papers in the light of recent developments. Second, it calls for a closer analysis of ideas that have long been present in informal discussion but have yet to be incorporated in a rigorous model.

Turning first to the challenge from recent developments, it is becoming increasingly clear that the 1980s have witnessed a departure from the previously normal pattern of corporate financing. This is illustrated in Table 1, which shows some financing ratios for U.S. nonfinancial corporations during the post-World War II era, divided into intervals of roughly five years each. Prior to 1984, a pecking order model is quite consistent with the data. New stock issues are never more than a minor source of funds. More important, debt rises as a proportion of total sources of funds only when internal funds fall relative to capital expenditures. This is exactly what one would expect to observe if corporate managers turned to internal funds first, used debt second, and relied on new equity only as a last resort. Since 1984, however, the use of debt financing has increased at the same time that internal funds have been plentiful relative to investment needs. The increased debt has in turn helped finance a dramatic net retirement of corporate equity.

The pecking order theory, especially as rationalized by the asymmetry of information between investors and corporate managers, is hard-pressed to explain this unusual pattern. It is true that empirical

Table 1
 Financing Ratios for U.S. Nonfinancial Corporations in the Post-World War II Period

| Period | Ratio to Total Funds Sources: | | | Ratio of Internal Funds to Capital Expenditures |
|---------|-------------------------------|--------------|----------------|---|
| | New Debt | Stock Issues | Internal Funds | |
| 1945-49 | .30 | .05 | .65 | .84 |
| 1950-54 | .31 | .06 | .63 | .82 |
| 1955-59 | .31 | .04 | .65 | .90 |
| 1960-64 | .30 | .02 | .69 | .96 |
| 1965-69 | .40 | .01 | .59 | .81 |
| 1970-74 | .47 | .05 | .48 | .70 |
| 1975-79 | .38 | .01 | .60 | .91 |
| 1980-84 | .34 | -.02 | .68 | .91 |
| 1984-88 | .45 | -.18 | .73 | .98 |

Source: Board of Governors of the Federal Reserve System.

studies find a positive stock market reaction to the exchange of debt for equity, but what has suddenly motivated corporate managers to make this exchange? The asymmetric information version of the pecking order theory, which emphasizes the value of financial slack, has a difficult time rationalizing such a major reduction in financial slack. A possible explanation is that financial innovation and lower costs of managing financial distress have reduced the optimal amount of financial slack for many firms. For example, increased access to public debt markets, such as the commercial paper, Eurobond and junk bond markets, may have made it easier to raise new funds in a hurry. In addition, credit enhancement techniques and more concentrated lending structures, as in leveraged buyouts, may have made it easier for even those firms in financial distress to raise new funds and keep operating. This explanation, however, does not seem to fully confront the fact that a significant portion of the recent exchange of debt for equity has been associated with the "corporate restructuring" phenomenon. What is needed, apparently, is a model that predicts pecking order financing behavior in normal times, but is also capable of predicting changes in behavior during periods of upheaval.

I would interpret Myers' formulation of the "organizational" theory, in fact, as a plea for a closer look at the determinants of pecking order behavior so that departures from that behavior can be more readily predicted. On this score, then, it might be useful to note that at least three different stories have been used to rationalize pecking order behavior. First is the asymmetric information story that has been emphasized in Myers' own previous work. Unless some dramatic revision in the value of financial slack has occurred, this story seems

unable to explain the changes in financing behavior that have resulted from corporate restructuring.

Second is a tax story (Stiglitz 1973, for example). The basic idea here is that, for many configurations of corporate and personal taxes, it is better to retain and reinvest a dollar of corporate earnings than to pay it out and then raise new funds from investors who, in the aggregate, have already paid taxes on this distribution. This personal tax penalty is less severe if the distribution takes the form of a share repurchase rather than a cash dividend. (Even though ordinary income and capital gains are taxed at the same rate under the current tax law, investors at least have a choice of whether to realize or defer their gains with a stock repurchase.) If new funds are raised in the form of debt, the associated interest tax shield may also offset this personal tax penalty, at least partially. Hence, if new funds are raised at all, debt will be favored to new equity. However, unless the tax penalty on the distribution can be overcome, retained earnings will be favored over new securities issues of either type.

This tax story thus predicts a pecking order type of financing behavior, and it is also capable of predicting changes in that behavior as either the tax code or perceptions of Internal Revenue Service rule enforcement change. Certain aspects of the Tax Reform Act of 1986 (for example, the reduction of all personal tax rates below the corporate rate) could be interpreted as increasing the net tax advantage of corporate debt, and at the same time, corporations have been less reluctant to distribute funds in the form of stock repurchases in recent years. Taken together, these facts might be argued to have shifted the balance of tax factors more toward debt financing. However, as Alan Auerbach (1989) argues in his paper, the time of the change in corporate financing behavior does not quite fit with that of the tax code changes, and it is difficult to interpret the increase in equity retirements as primarily a substitution for dividend payments. Thus the tax story, too, seems incapable of fully explaining the shift in corporate financing behavior that has occurred since the mid-1980s.

The third, and oldest, story that has been used to rationalize pecking order financing behavior involves corporate managers' desire to shield themselves from the scrutiny and discipline of the capital market. Internal funds, which bring no additional scrutiny, are thus said to be the best source of funds for new investment, followed by debt and, finally, by equity. Managers would also presumably change their behavior in the face of some exogenous increase in capital market pressure, as in a wave of takeover threats, for example. This managerial discretion story leaves out the investor side of the equation, however, and is thus unable to explain why such pressure would lead managers to retire already outstanding equity for debt.

The organizational theory that Myers sets forth is most closely akin to this managerial discretion story, but it improves upon it by bringing in the investor side of the equation. It can thus explain why a debt-for-equity exchange can increase shareholder wealth at the same time that it decreases employees' surplus. I think the point that "corporate wealth is in the end not determined by the corporation but by investors" is especially worthy of further development, since it hints at ways in which the capital market may limit managerial discretion, even apart from such mechanisms as shareholder voting power and corporate takeovers. It also suggests to me that the organizational theory may be complementary to the asymmetric information version of the pecking order theory. Shareholders will react to news of a stock issue, say, in the knowledge not only that corporate managers may have superior information but also that the managers' objectives are not perfectly aligned with their own. What remains to be established more precisely is where the valuation process itself begins to impinge on managerial discretion.

I am also intrigued by the characterization of employees' surplus as a subordinated debt claim. This is similar to the way other implicit claims on the firm by customers, suppliers, and even the local community have been characterized (see Titman 1984; Cornell and Shapiro 1987), but the difference is that the managers have a more direct influence over the value of their claim. As above, I think one of the issues to investigate further is how the limits to that influence are established. It is clear that events such as takeovers and voluntary restructurings can sharply erode the value of the employees' surplus. What is less clear is how the day-to-day stock market valuation process circumscribes the value of the employees' surplus or of other implicit claims.

While Myers has emphasized that a good deal of fleshing out remains to be done, he has pointed to an interesting and promising path that corporate capital structure would do well to explore more thoroughly. His assignment in the conference program has been to present the firm's view of debt and equity, and he has responded by suggesting that finance theory might do well to look at that view as logically distinct from, although inextricably related to, the capital market's view. In the end, this path may lead to a better understanding not only of corporate financing decisions, but of the very nature of the corporate form of organization.

References

- Auerbach, Alan J. 1989. "Tax Policy and Corporate Borrowing." In this volume.
- Cornell, Bradford and Alan C. Shapiro. 1987. "Corporate Stakeholders and Corporate Finance." *Financial Management*, vol. 16, Spring, pp. 5-14.
- Modigliani, Franco and Merton H. Miller. 1958. "The Cost of Capital, Corporation Finance and the Theory of Investment." *The American Economic Review*, vol. 48, June, pp. 261-97.
- Myers, Stewart C. 1977. "Determinants of Corporate Borrowing." *Journal of Financial Economics*, vol. 5, November, pp. 147-175.
- . 1984. "The Capital Structure Puzzle." *Journal of Finance*, vol. 39, July, pp. 575-92.
- Myers, Stewart C. and Nicholas S. Majluf. 1984. "Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have." *Journal of Financial Economics*, vol. 13, June, pp. 187-221.
- Robichek, Alexander A. and Stewart C. Myers. 1966. "Problems in the Theory of Optimal Capital Structure." *Journal of Financial and Quantitative Analysis*, vol. 1, June, pp. 1-35.
- Stiglitz, Joseph E. 1973. "Taxation, Corporate Financial Policy and the Cost of Capital." *Journal of Public Economics*, vol. 2, February, pp. 1-34.
- Titman, Sheridan. 1984. "The Effect of Capital Structure on a Firm's Liquidation Decision." *Journal of Financial Economics*, vol. 13, March, pp. 137-52.