by Fischer Black

The Tax Consequences of Long-Run Pension Policy

A firm's pension fund is legally separate from the firm. But because pension benefits are normally independent of fund performance, pension assets impact the firm very much as if they were firm assets.

Because they are worth more when times are good and less when times are bad, common stocks in the pension fund add to the sponsoring firm's leverage. They cause contributions to a pension fund to be high just when the firm can least afford to pay them. Conversely, bonds in the pension fund will make it easier for the firm to avoid default on its own bonds when times are bad all over: The more bonds a pension fund buys, the more the firm can borrow.

The tax treatment accorded the pension fund differs notably from that accorded the firm. Some have argued that a firm can capitalize on the difference by accelerating the funding of its pension plan. The benefits of full funding are wasted, however, unless the added contributions to the fund are invested in bonds; higher pension contributions now mean lower contributions later, hence higher taxes later. The benefits come from earning, after taxes, the pretax interest rate on the bonds in the pension fund.

If the firm wants to take advantage of the differing tax treatment of bonds without altering the level of its current pension contributions, it can (1) sell stocks in the pension fund and then buy bonds with the proceeds while (2) issuing debt in the firm and buying back its own shares with the proceeds. An investment in the firm's own stock creates no more tax liability than an investment in stocks through the pension fund.

MY message is simple: Almost every corporate pension fund should be entirely in fixed dollar investments. A pension fund has special tax status, but this tax status has no value if the pension fund is invested in stocks. On the other hand, a pension fund's special tax status has great value if the pension fund is invested in short-term paper, long-term bonds or insurance contracts.

It seems at first that switching from stocks to bonds in the pension fund will hurt the firm, because in the long run stocks will usually do better than bonds. To show that this is not a problem, we can look at a two-part change, where the change in the pension fund investments is combined with a change in the firm's capital structure.

The capital structure change involves issuing the firm's bonds and buying back the firm's stock. Since in the long run the firm's stock will usually return more than the firm's bonds, the gains from the capital structure change when times are good will offset the losses from the switch from stocks to bonds in the pension fund.

In the basic plan, the pension fund change and the capital structure change have opposite effects on the firm's leverage, so the leverage is unchanged. All that remains is the tax effect, which works to increase the value of the firm. To see why all this is true, let us start by looking at the

Fischer Black is Professor of Finance at the Sloan School of Management, Massachusetts Institute of Technology, and an associate editor of this journal.

tie between the pension fund and the firm that sponsors it.

Background

Legally, a firm's pension fund is separate from the firm. The fund's trustees act first in the interest of the fund's beneficiaries. Still, the performance of the pension fund investments affects the firm more than it affects the fund's beneficiaries. If the fund's performance is good, the firm's contributions will sooner or later be lower than they would have been. If the fund's performance is bad, the firm's contributions will sooner or later be higher than they would have been.

Thus pension fund performance affects the firm's cash flows, earnings and stock price. The effects of changes in the value of the fund's investments will probably show up fairly quickly in the firm's stock price, especially when these changes are due to overall market movements. But earnings figures generally won't be affected for some time, because of the smoothing procedures used in figuring contributions to the pension fund.

An extra dollar earned on the pension fund investments means a dollar that the firm won't have to contribute. Indeed, the extra dollar may grow over time, so if it is used to reduce a distant future contribution, that contribution will probably be reduced by more than a dollar.

The change in the value of the pension fund investments is the present value of the change in the future contributions, no matter how long the firm waits to change its contributions, so long as the pension benefits are not affected by the value of the pension fund. Thus greater volatility in the pension fund investments will mean greater volatility in the present value of the firm's contributions, and greater volatility in the value of the firm. Stocks in the pension fund mean more uncertainty about the firm's future cash flows than bonds in the pension fund.

In some firms, good returns on the pension fund investments mean pressure for greater pension benefits, while bad returns do not make reductions in benefits possible. In those firms, the beneficiaries have a kind of option on the fund. If the fund does well, the beneficiaries share in the gains, while if the fund does badly, the firm bears all the losses. Normally, though, the pension benefits are independent of the pension fund performance. Gains and losses in the pension fund are borne entirely by the firm.

In sum, there is a close tie between the performance of the pension fund investments and the firm. It's almost as if the pension fund investments were assets of the firm. Changing the risk of the pension fund's investments is like changing the risk of the firm's assets.

Leverage

Leverage, as I define it, is the sensitivity of a firm's performance to economic conditions. A firm with high leverage will do very well when conditions are good, and very badly when conditions are poor.

Financial leverage comes from a high debt-equity ratio. In defining the debt-equity ratio, it makes sense to measure debt as fixed dollar liabilities minus fixed dollar assets. Operating leverage comes from fixed costs other than interest costs. Costs that are fixed in the short run contribute to operating leverage, even if they are variable in the long run.

In this respect, pension costs can be worse than fixed costs. If pension liabilities are independent of economic conditions, while pension fund assets are worth more when times are good and less when times are bad, pension costs will be lower when times are good and higher when times are bad. Often this effect will be offset by the sensitivity of pension liabilities to economic conditions. Still, the effect of common stocks in the pension fund is to add to the firm's leverage.

Bonds in the pension fund work like bonds held directly by the firm. In figuring the debt-equity ratio for a firm, it would be sensible to subtract something from the firm's debt if its pension fund contains an unusually large investment in bonds, and to add to the firm's debt if its pension fund contains an unusually small investment in bonds.

Shifting from stocks to bonds in the pension fund will reduce the firm's leverage. It will reduce the variability in the firm's earnings, the risk of the stock and the risk of default on the firm's bonds. The bond interest rate will fall, and if the shift is substantial, the firm's bond ratings should ultimately go up.

Debt Capacity

There are many measures of debt capacity. I like to think of debt capacity in market value terms, using the market value of a firm's equity cushion and the variability of that market value to define the firm's debt capacity.

Some other measures make use of the book debt-equity ratio, subtracting the firm's holdings of bonds from its liabilities. Another important measure of debt capacity is the earnings coverage

of interest charges. A more variable earnings stream will mean less effective coverage.

Shifting from stocks to bonds in the pension fund will increase the firm's debt capacity, sooner or later. It will reduce the variability of the market value; it will reduce the ratio of net debt to equity; and it will reduce the variability of earnings.

With stocks in the pension fund, if times are bad for the economy and the firm at the same time, required contributions to the pension fund may be high just when the firm can least afford to pay them. Bonds in the pension fund will make it easier for the firm to avoid default on its own bonds when times are bad all over.

Thus a firm that is expanding by investing more than its retained earnings can create debt capacity, no matter how it is defined, by selling stocks and buying bonds in the pension fund. The more bonds the pension fund buys, the more the firm can borrow.

Benefit Security

Shifting from stocks to bonds in the pension fund will make the benefits more secure (assuming insurance has not already made them perfectly secure), even though stocks are expected to return more than bonds. For example, suppose the plan is fully funded, with assets sufficient to pay the benefits if the assets are in bonds. If the assets are in stocks, there will be some chance they will not be worth enough to pay the benefits when due.

Having the assets in stock will reduce the expected contributions by the firm, but can only make the pension beneficiaries less secure, since it reduces the present value of any defined set of benefits. This holds true whether the plan is fully funded or not. Just as an increase in the risk of a firm's assets that doesn't change the firm's value will make the bondholders less secure, so an increase in the risk of the pension fund assets that doesn't change the fund's value will make the beneficiaries less secure.

Since investing pension fund assets in bonds makes the beneficiaries more secure than investing in stocks, it should make the trustees more secure too.

Fund Dollars and Firm Dollars

Pension fund contributions are deductible for both federal and state income taxes. A higher contribution means a lower tax, and a lower contribution means a higher tax.

If the combined federal and state marginal tax rate is 49 per cent, it costs the firm only $0.51 to make an extra $1.00 contribution to the pension fund. The other $0.49 comes from reduced taxes. Similarly, a reduction of $1.00 in the pension fund contribution gives the firm only $0.51 after taxes. The other $0.49 goes to higher taxes.

Thus we can imagine that assets can be swapped between the fund and the firm on a $1.00/$0.51 basis, $1.00 in the fund being equivalent to $0.51 in the firm. A gain of $1.00 in the value of the pension fund is worth only $0.51 to the firm after taxes, while a loss of $1.00 in the fund costs the firm only $0.51 after taxes.

Even the increased debt capacity brought by bonds in the pension fund is modified by taxes. An extra $1.00 of bonds in the pension fund will mean only about $0.51 in extra debt capacity for the firm. The risk brought by stocks in the pension fund translates to a smaller risk, after taxes, in the firm. Some of the risk brought by stocks in the pension fund is borne by the government, through variability in current and future tax collections.

The Plan

The simplest form of my plan entails selling stocks in the pension fund and buying bonds with the money received, plus issuing the firm's debt and buying back the firm's stock with the money received. There is no change in the current pension fund contribution.

If the marginal income tax rate is 49 per cent, then every $1.00 switched from stocks to bonds in the fund is matched with $0.51 of the firm's bonds issued and $0.51 of the firm's stock bought back. Interest income in the fund is tax exempt, while interest expense for the firm is tax deductible. The firm borrows directly at the after-tax rate, and lends through the fund at the pretax rate.

Neither dividends nor changes in the value of the pension fund stock portfolio have any direct tax consequences. Transactions in the firm's own stock don't have any direct consequences either. Thus the only immediate tax consequences of the plan are those resulting from the bond transactions.

In effect, the plan involves (1) selling the stocks in the pension fund and putting the money in the firm's own stock plus (2) borrowing by the firm to finance tax-free lending by the pension fund. The firm gains if its own stock does better than the pension fund stocks sold, and it gains by the spread between the pretax and after-tax interest rates.

Suppose the interest rate on the firm's bonds and on the bonds held by the pension fund is R, while the firm's marginal tax rate is T. If $X of stocks in the pension fund are sold and replaced by bonds, $X(1−T) of the firm's debt will be issued and the same amount of the firm's stock will be bought back. The added deduction will be $X(1−T)R, so the taxes saved each year will be $X(1−T)RT. This tax saving is nearly certain as long as the firm stays healthy enough to pay income taxes in most years, so it should be discounted at the after-tax interest rate (1−T)R. If the tax saving lasts indefinitely, its present value will be $XT.

As the pension fund grows through income and added contributions, added amounts will be available to put into bonds rather than stocks. The present value of the tax saving including these added amounts can be far greater than the present value assuming the firm and pension fund remain at their current size. On the other hand, it is possible that the firm will eventually have troubles that eliminate its income taxes, or that the tax laws will be changed to eliminate the benefits of the plan. These possibilities reduce the present value of the tax saving from the plan.

Assuming the plan's benefits continue, however, the present value of the tax saving at the firm's current size will be $XT, where T, including both federal and state taxes, is close to 50 per cent. The amount of debt issued by the firm is $X(1−T), which is approximately equal to the present value of the tax saving. It's as if the firm issued the debt at close to a zero interest rate, and without having to repay it. It's as if the debt issued by the firm were free.

A Year at a Time

One way to see how the plan works is to assume that all pension benefits will be paid at the end of the next year. If the assets of the fund are more than sufficient to pay the benefits, the difference will go to the firm. If the assets are not sufficient, the firm will make up the difference.

Assume that the interest rate on one-year bonds is 10 per cent, and that the firm's marginal tax rate is 50 per cent. Assume that the stocks the pension fund might hold will do exactly as well over the next year as the firm's stock. Suppose that the benefits to be paid total $220 million, while the fund's assets are initially invested in stocks worth $200 million. The firm's stock starts the year at $100 per share, and ends the year at $Y per share.

If the pension fund is invested entirely in stocks that do exactly as well as the firm's stock, then the value of the pension fund portfolio at the end of the year will be $2Y million. The fund will return to the firm $2Y−220 million. After taxes, this will be worth $Y−110 million. (See Table I).

If my plan is used instead, the $200 million in stocks will be sold and $200 million will be put into one-year bonds. The firm will issue $100 million in one-year bonds and buy back one million shares of stock. At the end of the year, the bonds in the fund will be just sufficient to pay the pension benefits. The firm can sell the million shares of stock again and can pay off its bonds for $100 million plus interest. The net gain to the

Table I A Single Year *(dollars in millions)*

		Start	*End*	*Benefits*	*Gain*	*Tax*	*Net Gain*
Plan 1							
Fund							
	Stocks	200	2Y	220	2Y−220	Y−110	Y−110
	Bonds	—	—	—	—	—	—
Firm							
	Stock	—	—	—	—	—	—
	Bonds	—	—	—	—	—	—
Total							Y−110
Plan 2							
Fund							
	Stocks	—	—	—	—	—	—
	Bonds	200	220	220	0	0	0
Firm							
	Stock	100	Y	—	Y−100	0	Y−100
	Bonds	−100	−110	—	−10	−5	−5
Total							Y−105

firm will be \$Y−110 million plus the tax saving from \$10 million of interest deductions.

With my plan, the firm ends up exactly as it would have, except that it earns an extra five million dollars after taxes for the year. The capital structure change has been reversed, and the pension benefits have been paid. Except for the fact that the firm's stock may do better or worse than the stocks in the pension fund portfolio, it's a pure arbitrage. We are adding a tax saving to a stream of cash flows for the firm and the pension fund together, without changing those cash flows in any other way.

An actual pension plan that lasts many years works like this in each year of its life, with the initial investment in the pension fund each year equal to the ending investment for the previous year plus the current year's contribution. The analysis also works if we imagine that the pension fund performance has no effect on contributions to the fund until pension benefits are paid many years later. This would be like the one-year analysis with a higher interest rate.

The Source of the Gain

The simplest version of my plan has two parts—a change from stocks to bonds in the pension fund and a change from stock to bonds in the firm's capital structure. Which part of the plan gives the bulk of the saving?

On the surface, it seems the tax saving comes from the firm's added debt, so the benefit must come from the capital structure change, whether or not the pension fund investments are changed. But a capital structure change alone has disadvantages at least partly offsetting the saving in corporate taxes.

Absent the change in pension fund investments, more debt means a greater chance that the firm will some day find its fixed charges burdensome and its flexibility in raising more capital by issuing debt impaired. More debt will increase the risk of the firm's outstanding debt, the volatility of its stock and the variability of its earnings.

If the benefits of greater debt outweigh the costs, then the firm should issue more debt than my plan calls for. Of course, the firm should attempt to optimize its debt-equity ratio whether or not it adopts my plan. If the firm is at an optimal debt-equity ratio when it considers my plan, it will be indifferent between one more dollar of debt and one less dollar of debt. The benefits and the costs of an added dollar of debt will be equal.

After implementing the simple version of my plan, the firm will still be at a roughly optimal debt-equity ratio. The added bonds in the pension fund will support the added borrowing by the firm. This means that the firm can reverse the capital structure part of the plan without changing the benefits significantly. At the optimal debt-equity ratio, a small change in the capital structure makes no difference.

On the other hand, without the capital structure change, the plan simply represents a change in the pension fund investments. The benefits of the plan come from earning after-tax interest on the bonds in the pension fund at a pretax rate.

Full Funding

Since buying bonds in the pension plan gives the firm after-tax interest at a pretax rate, the firm may want to keep its contributions to the plan at the maximum level allowed by the Internal Revenue Service. The firm may even be able to increase contributions to the fund for tax purposes without showing higher pension expense on its income statement. Contributions not shown as expenses on the income statement in the current period will show up as assets on the balance sheet.

Higher contributions to the pension plan generally won't compete with other uses for the firm's money. Because they are profitable investments in their own right, the firm should be able to borrow or issue stock to finance these contributions.

Note, though, that full funding gives tax benefits only to the extent that the fund is invested in bonds. The benefits of added contributions are lost if they are invested in stocks.

This seems odd, because added contributions (up to the IRS maximum) do mean added deductions. But higher contributions now mean lower contributions later, and thus higher taxes later. When the fund is invested in bonds, there's a saving from deferring these taxes equal to interest on the taxes. When the fund is invested in stocks, there is no saving. Assuming the firm's stock does as well as the pension fund stocks, an investment in the firm's stock would be just as good as an investment in stocks through the pension fund. The benefits of full funding are wasted unless the added contributions to the pension fund are invested in bonds.

Variations on the Plan

If the firm wants to change its capital structure in using the plan, and if it is issuing or retiring

securities for other reasons, what's important is that it end up with more debt outstanding and less stock outstanding than it would have had.

If the firm is issuing securities, it can issue more debt and less common stock than it would have issued. If the firm is retiring securities, it can retire more common stock and less debt than it would have retired. Issuing debt to make an investment can be as effective a way to implement the plan as issuing debt to buy back common stock.

Moreover, as noted, the change in the firm's capital structure is not the important part of the plan. The change in the pension fund investment strategy is the important part. If the fund merely sells stocks in the pension fund and buys bonds with the proceeds, the present value of my plan will be about the same. The tax saving will be indirect, in the form of a tax-free investment in bonds, rather than direct, in the form of added interest deductions.

While the present value of my plan depends mainly on the change in pension fund investments, the firm that omits the capital structure change may regret it. If stocks are switched to bonds in the pension fund, and the stock market takes off, the firm may wish it had waited to make the change.

Other Matters

The complete version of my plan involves selling stocks in the pension fund, buying bonds in the pension fund, selling the firm's bonds and buying the firm's stock. In effect, my plan substitutes investments in the firm's stock for a diversified portfolio of stocks (in the fund), and investments (by the fund) in a portfolio of bonds for the firm's bonds.

If the firm issues bonds equivalent to the bonds bought by the pension fund, the bond substitution is probably of little consequence. But the firm's stock may do much better or much worse than a diversified portfolio, so we should look at the stock substitution more closely.

When my plan is implemented, the firm's stock will follow more closely the firm's operations. It will not depend as much on the performance of other firms. The firm's stock will be less well diversified.

Investors who hold the firm's stock in large portfolios will not be sensitive to this, since their portfolios provide diversification. A stockholder with a large concentrated holding may be more sensitive to diversification within the firm. On the other hand, at an interest rate of 10 per cent, the after-tax gain is five per cent per year of the amount of the firm's stock bought back. Would many investors pay five per cent per year for the sake of added diversification within their holdings of a single firm's stock?

If diversification is important, another version of the plan can be used. The firm can issue bonds and invest the proceeds in shares of a mutual fund that converts capital gains to dividends. Such a mutual fund tries to realize its capital gains while they are still short-term gains. Its dividends are the dividends on the shares it holds plus interest income plus short-term capital gains.

Assuming the firm is taxed to the extent of 15 per cent of the mutual fund's dividends, its tax rate on that income will normally be around 7.5 per cent. That rate is higher than the zero tax the firm pays if it buys back its own shares, but it is still much lower than the potential gains from my basic plan of around 50 per cent of the income.

Debt Rating

The rating agencies do not yet pay much attention to the mix of investments in a firm's pension fund. They give some weight to a firm's unfunded liabilities, but rarely consider, at least on their own, the way the pension fund is invested. In a marginal case, though, the firm is likely to be in close touch with the agencies. A firm using my plan will be able to point out to the agencies the stabilizing effects of having bonds in the pension fund. The plan will also have indirect effects on the firm's debt rating. Over time, these effects should be beneficial even without any suggestions to the rating agencies.

The most important of these effects will be added profitability for the firm, hence both higher earnings and a higher value. Also, the stability introduced by having bonds in the pension fund will offset, at least in part, the instability that will result from any increase in the debt-equity ratio brought about by implementation of the plan.

Using my plan is unlikely to hurt the firm's debt rating, even though one part of the plan involves higher debt than the firm would otherwise have. If it were to hurt the debt rating, the firm's interest rate probably would not go up much, because the market would recognize the stability brought by bonds in the pension fund.

Even if the firm were forced to pay a higher interest rate on some future issue of bonds, the tax saving from the plan would probably far exceed the added interest expense it causes. If the

new bond issue is large, the plan won't have a material effect on its interest rate. If the new bond issue is about the same size as the debt issued under my plan, the tax saving (five percentage points when the interest rate is 10 per cent) will be far greater than any conceivable increase in interest rate.

Accounting Considerations

When both parts of my plan are implemented, and when the firm's stock does as well as the stocks that might be held in the pension fund, the firm's cash flows will be higher in almost every circumstance than they would be if the plan were not implemented. To me, that is the most important consideration. It is the justification for switching from FIFO to LIFO for inventory accounting: So long as the firm is paying taxes and the prices of the items used in inventory are rising, LIFO will give lower taxes, hence higher cash flows, than FIFO.

Since a firm that switches to LIFO for tax purposes must also switch in its financial statements, the switch will reduce its reported earnings in the short run. In the long run, however, the tax saving will give the firm higher reported earnings than it would have had with FIFO.

A firm that changes only its pension fund investments will see no short-run effects on reported earnings. A shift from stocks to bonds in the pension fund will make future earnings more stable: If stocks do very well, the shift will make future earnings lower than they would have been; if stocks do very badly, the shift will make future earnings higher than they would have been. But a change in the pension fund investments combined with a change in the firm's capital structure will increase reported earnings per share whenever the initial earnings-price ratio is greater than the after-tax interest rate.

For example, a pretax interest rate of 12 per cent means an after-tax interest rate of about six per cent. A price-earnings ratio of nine means an earnings-price ratio of about 11 per cent. With these givens, a firm that implements the plan will increase its earnings per share. The lower the price-earnings ratio, the larger the increase in earnings per share will be.

When a firm's earnings-price ratio equals the pretax interest rate, the earnings increase times the price-earnings ratio will equal the present value of the tax saving at the firm's current size. In the example above, a price-earnings ratio around eight will do it. In this case, the full value of the tax saving comes in the form of higher earnings.

In other cases, some of the value of the tax saving will come in the form of even higher future earnings per share, so there will be an increase in the price-earnings ratio, now or when the effects become known, as well as an increase in earnings per share. The two effects combined will give the present value of the tax saving.

While some of the benefits of my plan come in the form of a higher price-earnings ratio, others normally come in the form of higher earnings per share. Thus my plan may be easier to accept than a switch from FIFO to LIFO. The plan is not as likely, however, to increase book equity per share. Issuing debt to buy back stock will increase book equity per share only when the stock is bought below book value, and it will always reduce total book equity.

Finally, the plan increases cash flow in the sense that it makes more cash available for dividends, repurchase of the firm's liabilities or investments. But if we look at the firm without including the pension plan, and if we think of dividends as fixed in the short run, the plan may reduce short-run cash flows. Cash flows defined this way will go up in the short run only if the dividend yield is higher than the after-tax interest rate on the firm's bonds. If the yield is four per cent and the after-tax interest rate is six per cent, short-run cash flows will go down. Even in this case, however, the plan will improve long-run cash flows. It may cause dividends to grow rapidly, for example.

Bond Indentures

The firm can change its capital structure only in ways consistent with its bond indentures. Bond indentures generally restrict the amount of added debt a firm can take on. The benefits of the plan are great enough, however, that a firm may want to look beyond the limits imposed by its bond indentures when those limits seem binding.

One solution to this problem can be to issue junior debt not restricted by the indentures. The interest rate differential between junior and senior debt will rarely be as large as the differential between pretax and after-tax interest rates. And the differential will be offset if the pension fund invests in debt securities equivalent to those issued by the firm. Moreover, a junior debt issue will not have much impact on the ratings for the firm's senior debt. It offers a way around a rating constraint, if one is felt to exist.

Another way to deal with restrictive indentures is to refinance, buying back existing debt

and issuing new debt with more appropriate restrictions that take the firm's pension fund investment policy into account, at least implicitly. But perhaps the simplest solution to the problem of a restrictive bond indenture is not to change the capital structure at all. The expected benefits of the plan come mostly from the change in the pension fund investments. ■

References

Black, Fischer. "The Investment Policy Spectrum." *Financial Analysts Journal,* January/February 1976.
Emphasizes the fact that most of the risk in a defined benefit plan's pension fund portfolio is borne by the stockholders of the sponsoring firm, not by the beneficiaries.

Masulis, Ronald. "The Effects of Capital Structure Change on Security Prices: A Study of Exchange Offers." *Journal of Financial Economics,* forthcoming.
Finds that, when firms offer to exchange debt for stock, the stock price goes up an average of 10 per cent on announcement of the offer.

Scholes, Myron, "Executive Compensation, Pension Funding, Signalling and Taxation." In *Proceedings of the Seminar on the Analysis of Security Prices.* Chicago: University of Chicago, May 1979.
Shows that a firm does not gain from issuing its own stock to make contributions to a pension plan that invests the money in other firms' stock.

Sharpe, William. "Corporate Pension Funding Policy." *Journal of Financial Economics,* June 1976.
Points out that, ignoring tax factors, a firm's stockholders may not care how the pension fund investments are divided between bonds and stocks.

Tepper, Irwin, and Paul, Robert. "How Much Funding for Your Company's Pension Plan?" *Harvard Business Review,* November/December 1978.
Argues that speeding up contributions to a pension plan saves taxes, using examples in which the added contributions are invested in bonds. (Irwin Tepper also has an unpublished paper, "Taxation and Corporate Pension Policy," that argues, as I do, that pension funds should switch existing common stocks to bonds.)

Treynor, Jack; Regan, Patrick; and Priest, William. "Pension Claims and Corporate Assets." *Financial Analysts Journal,* May/June 1978.
Emphasizes the fact that the assets and liabilities of a firm's pension plan are effectively assets and liabilities of the firm. (This was first pointed out by Treynor, writing as Walter Bagehot, in "Risk in Corporate Pension Funds," *Financial Analysts Journal,* January/February 1972.)