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# The Case Against Stock in Corporate Pension Funds

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**A** company has \$1 million of stock in a pension fund. The liability can be matched with a \$1-million dedicated bond portfolio. What are the consequences of shifting the pension fund from stock to bonds?

## Current accounting

Current accounting rules favor equity investment by recognizing future risk premiums in advance, while concealing risk through smoothing techniques. The stock-to-bonds shift will lower the company's reported earnings—which of course disqualifies the shift from further consideration at many companies.

This article focuses on the real economics rather than GAAP accounting. For this purpose, we assume a transparent financial system, in which shareholders have full information about corporate pension funds and recognize that they experience the risks and rewards of these funds. Needless to say, today's system falls well short of that standard, but it is advancing rapidly in that direction, as the accounting profession progresses toward a market value paradigm and the financial community improves its understanding of pension plans.

## No first-order change in value

After the stock-to-bonds shift, the company expects to earn less on its pension assets, giving up the chance of a surplus reversion. There is, though, no "first-order" change in corporate value, because the \$1-million bond portfolio has the same value for shareholders as the \$1-million stock portfolio that it replaces. The company's reported earnings (and expected economic earnings) will be less. The company, though, has reduced its risk, so investors will require less expected return.<sup>1</sup> Put another way, companies add no value for shareholders by doing what the shareholders could do for themselves—investing in publicly traded securities.

## Shareholder response

If the company's stock-to-bonds shift is transparent, astute shareholders will observe the need to reoptimize their personal portfolios. Suppose that a shareholder held a personal portfolio of equity and bonds that was

optimal for his risk preference. Because the company's stock now has a lower risk and lower expected return, the shareholder's portfolio no longer reflects his risk preference. To reoptimize, he should buy whatever equity the company has sold and should sell bonds equivalent to the company's new immunized portfolio. (This adjustment should be in proportion to his fractional ownership of the company's equity. It should also reflect the corporate tax rate, as we shall see below.) His portfolio, including the indirect ownership through the pension fund, would then be restored to its previous position.

We now consider the second-order effects of the overall changes, taking into account the shareholder's response to the company's pension fund reallocation.

## Notation and assumptions

We use the following notation and assumptions:

- The shareholder pays personal income taxes at effective rates of  $\tau_{ps}$  on stock and  $\tau_{pb}$  on bonds. Generally  $\tau_{pb} > \tau_{ps}$ , because capital gain tax rates are lower than ordinary tax rates and are deferred until gains are realized.
- The company pays taxes at a rate of  $\tau_c$ . Therefore \$1 earned in its pension fund (whether on stock or bonds) has an after-tax value *to the company* of  $(1 - \tau_c)$ . That  $(1 - \tau_c)$  has an after-tax value *to the shareholder* of  $(1 - \tau_{ps})(1 - \tau_c)$ .
- The actual (stochastic) investment return is  $\tilde{r}_s$  on stock and  $\tilde{r}_b$  on bonds.
- The shareholder owns one millionth of the company's equity.

## Income tax effects

Here is the income tax effect on the shareholder of the overall transaction, reflecting his fractional ownership of the company and the offsetting change he should make in his personal portfolio.

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1) For example, investors may require only a five percent return on a safe Treasury bond investment. At the same time, they may require an expected (but risky) ten percent return on a specific stock.

Change in	Pension Fund	Personal Portfolio
1. Holdings	+\$1 bonds – \$1 stock	$(1-\tau_c)(+\$1 \text{ stock}-\$1 \text{ bonds})$
2. Corporate Earnings	$(1-\tau_c)(\tilde{r}_b-\tilde{r}_s)$	
3. Shareholder net income	$(1-\tau_{ps})(1-\tau_c)(\tilde{r}_b-\tilde{r}_s)$	$(1-\tau_c)[(1-\tau_{ps})\tilde{r}_s-(1-\tau_{pb})\tilde{r}_b]$
4. Total of Line 3	$(1-\tau_c)\tilde{r}_b(\tau_{pb}-\tau_{ps})$	

Line 1: The shareholder's pro rata share of the pension fund buys \$1 of bonds and sells \$1 of stock. The shareholder offsets this shift by buying  $(1-\tau_c)$  of stock and selling the same amount of bonds. The  $(1-\tau_c)$  adjustment may not be intuitively obvious, but Line 4 will show its correctness.

Line 2: The pension fund earnings reflect \$1 of bonds rather than \$1 of stock. To arrive at the after-tax value to the company, we multiply by  $(1-\tau_c)$ .

Line 3: We further adjust the company's tax-adjusted pension fund earnings to reflect their after-tax value to the shareholder. We similarly tax-adjust the change in the return of his personal portfolio.

Line 4: Note that  $\tilde{r}_s$  does not appear. This shows that the shareholder has hedged the company's transaction and restored his previous risk level. The total effect on the shareholder's net income is positive, because  $\tau_{pb} > \tau_{ps}$ . (On a mark-to-market basis,  $\tilde{r}_b$  may be negative in any one year, but on a dedicated portfolio it must be positive over its horizon.)

#### Offsetting pension change at the company level

The illustration above is based on Tepper (1981), who shows that companies should sell their pension fund equities to permit their shareholders to increase their personal equity holdings. Black (1980) suggests a different way to offset the pension fund restructuring, at the company level rather than the shareholder level. The company can sell (or issue) bonds and buy back its own stock, thus restoring its previous overall bond and equity exposure. Its holdings of its own stock create no tax liability, but the bond issuance creates a new tax deduction. So again, keeping the equity exposure outside the pension plan reduces income taxes. Boots PLC is following a similar path, see Ralfe (2002).

The Black transaction exchanges a diversified equity portfolio for an undiversified holding of company stock. This exchange is consistent with the finance principle that shareholders gain no value when companies diversify, because the shareholders can do that themselves in their own portfolio construction. Shareholders should prefer the option of buying "pure" shares of a single business, rather than "pre-diversified" shares that combine businesses. On the other hand, the Black transaction can destroy value if this concentration increases the company's own risk to a dangerous level.

Black mentions an alternative of issuing bonds and investing the proceeds in a tax-managed diversified equity portfolio.<sup>2</sup> The stock portfolio would generate some taxable income, but the interest deduction on the bonds would more than offset it, leaving a net tax saving.

Company ownership of a diversified stock portfolio makes little sense in corporate finance terms, because that's not what shareholders are paying management to do. But both the leveraged stock repurchase and this alternative illustrate the financial gains available from the pension fund restructuring. The pension fund restructuring by itself gives the company more debt capacity (or cheaper rates on its existing debt level) that it can use in various ways. The most natural is probably further investment in its own business, which management commonly regards as superior to stock repurchase. Such managements should regard pension fund restructuring plus borrowing to invest in the business as superior even to the demonstrable gains of pension fund restructuring plus a leveraged stock buyback.

2) A tax-managed portfolio could include high-dividend stocks to take advantage of the corporate dividend exclusion. It would also minimize turnover and try to time its sales to balance realized gains and losses.

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### Excise taxes

The company is exposed to an excise tax upon plan termination if the pension fund holds stock that outperforms the immunizing portfolio and therefore the liability. If the equity risk is taken instead by the shareholder directly (Tepper, 1981) or on the company's balance sheet (Black, 1980), the shareholder gets the full benefit of superior stock performance without liquidity problems or excise taxes.

### Participants' right to surplus

The excise tax is not the only claim on surplus generated by stock held in the pension fund. If the participants can assert a legal or moral claim to the surplus, they too may share the benefit of superior stock performance. The company may also devote some of the surplus to additional pension benefits simply to minimize its excise tax upon reversion.

### PBGC risk-related premiums

Holding stock in the pension fund exposes the fund to greater potential for risk-related PBGC premiums, which are minimized by immunization.

### Benefit security

With the immunized bond portfolio, participants enjoy full benefit security regardless of the performance of the stock markets. They may attach a higher value to their more secure pensions.

### Default risk

There is finally an advantage for holding stock in the pension fund—the company may be able to pass off losses to others! If the company goes bankrupt after a period of poor equity performance, the PBGC and the participants might absorb some of the losses. There is no such possibility if the pension fund is immunized.

Of course, the plan participants do not see this as an advantage and may devalue the pension plan as a part of their total compensation.<sup>3</sup> The PBGC likewise does not see this as an advantage—hence the risk-related premiums.

### In conclusion

As the title indicates, this article presents a one-sided view of pension fund investment and neglects the joys of equity investment. Perhaps a few readers will undertake to repair this neglect.

When doing so, they should not simply point to the superior long-term performance characteristics of

equity and the diminution of risk that they believe takes place over the extended horizons of pension funds. I do not suggest that equity is an inferior investment because of its risk—*only that it is an inferior investment for corporate pension funds*. In a transparent financial environment, equity risk taken in a pension fund is not “free.” It raises the return demanded by shareholders and creditors. It comes at the expense of similar risk that could be taken elsewhere with more tax efficiency and full benefit of upside performance—in shareholders' investment portfolios, or in the company's capital structure or business risk.

Financial economists understand that shifting pension funds from equity to bonds raises the expected pension cost. Pension actuaries must understand equally well why it can, at the same time, raise shareholder value. Companies better serve their shareholders *and* their pensioners when they use their businesses rather than their pension funds as platforms for taking risk and building value. **♣**

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### References

- Black, F., “The Tax Consequences of Long-Run Pension Policy,” *Financial Analysts Journal*, July-August 1980, pp. 21-30.
- Gold, J., “Economic Design of Cash Balance Plans,” 2001 SOA Cash Balance Symposium Monograph M-RS02-3, Chapter I, [http://www.soa.org/library/monographs/retirement\\_systems/M-RS02-3/M-RS02-3\\_1.pdf](http://www.soa.org/library/monographs/retirement_systems/M-RS02-3/M-RS02-3_1.pdf).
- Ralfe, J., Comment on “Reinventing Pension Actuarial Science,” *Pension Forum*, January 2003.
- Sharpe, W. F., “Corporate Pension Funding Policy,” *Journal of Financial Economics* 3, June 1976, pp. 183-193.
- Tepper, I., “Taxation and Corporate Pension Policy,” *Journal of Finance* 36-1, March 1981, pp. 1-13.

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3) See Sharpe (1976).