The Reversion Tax's Perverse Result

Did Congress's effort to stop pension fund terminations ultimately hurt workers?

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Since 1985, employer funding for defined benefit pension plans has plummeted. Unlike defined contribution plans that are akin to tax-preferred savings accounts, defined benefit plans represent an employer's promise to pay workers a pension at retirement. The plan sponsor is responsible for making contributions to a trust fund to secure the promise. For that reason, the employer must manage the pension plan wisely and invest its assets prudently to assure sufficient funds to cover future liabilities. Starting in the mid-1980s, and for much of the subsequent 15 years, investments yielded historically high returns. One would thus expect that employers would have seized on the investment boom to increase the value of their pension plans. But, in fact, firms dramatically reduced their pension funding ratios over that time. The reduction in pension funding was both large and pervasive, and it occurred in plans that historically had the best funding.

I believe that the root cause of those developments is the enactment of a series of escalating "reversion taxes" over the period 1986-1990. Those taxes fundamentally altered the property rights to pension assets and removed an important incentive for firms to fund pension plans.

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FUNDING RATIOS 1980-1995

Figure 1 shows the average funding ratio for a large sample of continuously operated defined benefit plans over the period 1980 to 1995. During the early 1980s, funding ratios generally increased, reflecting a rebounding from poor investment returns during the 1970s. But, beginning in the mid-1980s, that growth flattened noticeably, and began falling significantly after 1990. In 1986, the typical pension fund held $125 in assets for every $100 in liabilities. By 1995, that ratio had fallen to only $107 in assets for every $100 in liabilities.

The reduction in funding is not explained by changing interest rates used to calculate pension liabilities; as part of my estimation when compiling the data for Figure 1, I used a 6.5-percent interest rate to discount pension promises in all years. The reduction also cannot be explained by poor investment performance; the return for a balanced portfolio over 1986-1995 was 5.4 percent per annum in excess of T-bill returns. The pattern of funding ratios is not suggestive of gradual changes in the retirement market (such as the aging of workers covered by the plans), but of some stimulus that plausibly explains rapid and systematic change throughout the industry over a relatively short period. Tax policy is an obvious candidate for the cause.

JAMES ESTRIN/THE NEW YORK TIMES

CHANGING TIMES: As companies switch to defined contribution plans, employees are left to deal with the risk.

Cross-section observations add considerable information to the time series data. Figure 2 shows funding ratios in both 1986 and 1995. The best-funded pension plans are in the right tail; the poorest-funded are in the left tail. In 1986, funding ratios are distributed widely. By 1995, the right tail of the distribution is mostly eliminated and, compared to 1986, the mass of the distribution is shifted markedly to the left. Whatever caused the defunding had a disproportionate effect on the best fund plans.

THE DEFINED BENEFIT PENSION CONTRACT

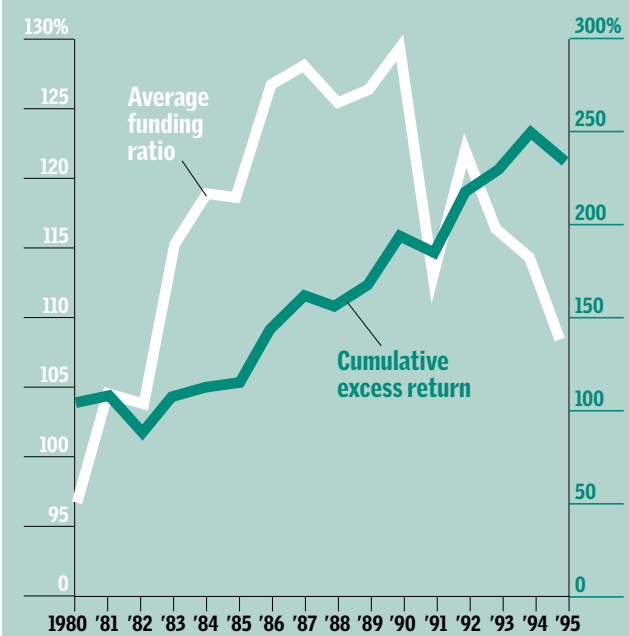
In order to determine what influenced employers' pension plan decisions in the 1980s and 1990s, we must first understand the nature of pension contracts and appreciate why firms historically have overfunded them — that is, have funding ratios in excess of 100 percent. Understanding the nature of the contracts will also provide the basis for appreciating how reversion taxes have interfered with the natural contractual relationship between workers and their employers.

Cost of quiting In a defined benefit plan, the employer makes a promise to pay workers a benefit at retirement age. A typical plan might pay an annuity starting at retirement equal to 1.5 percent multiplied by the number of years of employment, multiplied by the final wage. The indexing of the starting pension to the final wage makes it pretty important to workers to stay with the company. If a worker quits before he is eligible for retirement, the wage he earned at the

FIGURE 1

Falloff of Funding

The average funding ratio and excess returns for 1,900 plans from 1980-1995.



Source: Longitudinal data base, Form 5500 Annual Pension Reports. All liabilities are adjusted to a 6.5 percent interest rate and GAM 83 mortality table. Numbers reflect beginning-year values.

time he quit is used to determine his pension. While he can earn future pension service credits with his new employer, the service he accumulated on the day he departed his old company would be paid off in proportion to the wage he earned at the time he left, not the wage he would have earned at retirement had he stayed.

For example, consider a 40-year-old employee with 20 years of service who earns $40,000. Suppose that the company's retirement age is 60 and the employee's pension pays 1.5 percent per year of service, times final salary. Over the next 20 years, the employee expects his salary to increase with inflation plus some real factor. If that amounts to six percent per year, his final wage at retirement would be $128,285. At the time of his 40th birthday, his expected pension annuity (based on the 20 years of service accumulated to date) would be $38,485. He would collect his annuity until his death. If we assume death at age 80 and use a 6 percent interest rate to discount, the present value of the annuity at age 40 is about $440,000. The present value of the annuity is his "ongoing" pension benefit. However, if he quits at age 40 with a final income of $40,000, his annuity at age 60 (based on the same 20 years of service) would be only $12,000. The present value of the annuity is his "termination" pension benefit, which amounts to only about $140,000. The difference between his ongoing and termination pension benefits – $300,000 – is his "pension capital loss" from quitting. Hence, he has a strong incentive to stay because, if he quits, he loses more than two-thirds of his pension value.

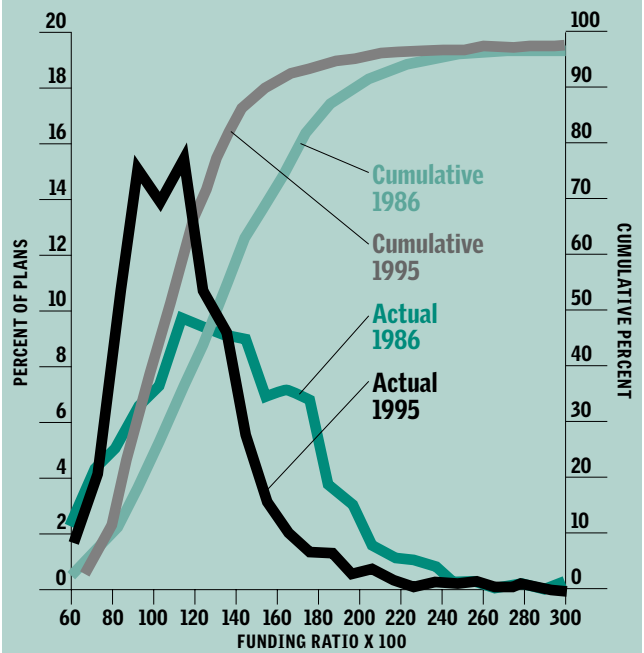
It is easy to calculate the present value of pension benefits and losses. Figure 3 shows the result for workers of every tenure level. In compiling the figure, I assumed a six-percent interest rate, and a 20-year retirement period. I index all dollar values to the worker's annual wage. Notice both the curved line representing termination benefits and the straight line representing ongoing benefits. The difference between those amounts (area C) is the amount workers lose by quitting, which is also shown by the curve labelled "Loss from termination." Finally, I show the ratio of losses to termination benefits as the downward sloping curve from left to right.

Workers with little tenure have higher losses as a percent of termination benefits; they lose less in percentage terms as they approach retirement. However, absolute dollar losses are relatively small at early tenure because workers have not accumulated much service. They become larger by mid-career as workers accumulate more service but still earn a wage that is substantially lower than their anticipated wage at retirement. As they approach retirement, the wage converges on retirement wage, thereby working to reduce the size of the capital losses.

FIGURE 2

Changing Distribution

Funding distribution for 1,900 plans, 1986 vs. 1995.



Source: Longitudinal data base. All liabilities are based on a common discount rate equal to 6.5 percent, and a common mortality table (GAM 83).

Contingent benefits Workers as a group have a stake in the financial success of their firm. If the firm encounters financial difficulty, the pension contract usually entitles it to terminate the plan. In that event, the employees are entitled to their pensions but, by contract, their wage at the date of the plan's termination is treated as their final wage. In effect, a termination imposes losses on workers that are coincident with the loss-from-termination curve shown in Figure 3.

Presumably, if the firm is successful, the plan will not terminate and workers will receive the full value of their ongoing pension benefits. If the firm encounters sufficient financial stress, however, it may terminate the plan and pay workers their termination benefits. We can think of the difference between ongoing liabilities and termination liabilities as "contingent benefits." In terms of Figure 3, the area between the two pension values (area C) denotes the contingent benefits. We can think of that value as a profit-sharing component of their compensation. Lower-tenure workers have lower absolute losses, but a higher proportion of their benefits are contingent on the firm's financial success.

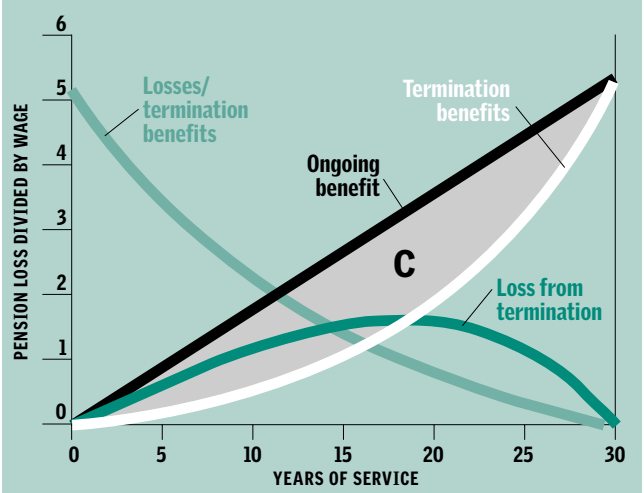
In general, as suggested by the ratio of contingent benefits to termination benefits (the curve that slopes downward from left to right), a firm that employs lots of younger workers typically has a high ratio of excess assets to termination benefits. Firms with more mature workforces normally would have a lower ratio.

Excess assets Because an employer normally funds a pension plan at a rate that would cover ongoing benefits, it is not uncommon for a plan to hold excess assets at the time of a voluntary termination. Historically, upon termination, if a plan had excess assets, they "reverted" to the firm and were subject to normal corporate tax treatment. In effect, the firm never relinquished ownership of

FIGURE 3

The Cost of Quiting

Ongoing vs. termination benefits.



Assumes worker reaches retirement age after 30 years of service. Assumes a 6 percent interest rate: wage growth equal to interest rate.

the assets it pledged to cover contingent benefits. The mere act of funding contingent benefits neither conferred ownership of the excess assets to workers nor imparted a security pledge that the employer would pay the contingent benefits. Hence, if an urgent need were to arise in the future, the firm could terminate the plan, pay termination benefits to workers and retirees, and use the excess assets for corporate purposes.

REVERSION TAXES AND CORPORATE INCENTIVES

In the 1980s, a number of employee groups and other special interests advocated government action to prevent firms from doing just that. Congress responded in 1986 by changing the tax treatment of excess pension assets. Lawmakers levied a 10-percent (nondeductible) excise tax on reversions from defined benefit plans — a levy that became known as the "reversion tax." While the tax rate was modest, it signaled a major alteration in congressional interpretation of ownership rights to excess pension assets. Lawmakers reinforced that signal in 1988 when they increased the tax to 15 percent, and again in 1990 when they boosted it to 50 percent. The firm also has to pay a corporate tax on the reversion amount. If that tax rate is 35 percent, then the firm is left with only 15 cents of each reversion dollar.

The reversion tax affects the value of a defined benefit plan to the firm. Effectively, the new tax meant that, to the extent that firms fund beyond termination benefits, they transform the contingent pension liability into additional secured debt, up to the amount of the excess assets. Thus, if a firm terminates its pension plan, it can reduce its pension debt burden by the full amount of contingent pension liabilities only if it maintains zero excess assets. Hence, the reversion tax creates an inescapable quandary for the firm. It can gradually reduce its excess assets through lower contributions, but doing so trades one tax for another: The firm rids itself of the prospects of a reversion tax by forgoing the benefits of tax-free accumulation of funding for contingent benefits. In that sense, the reversion tax not only discourages funding, it unambiguously increases the cost of maintaining a defined benefit plan and, thus, increases the firm's willingness to terminate the plan.

Oddly, the termination alternative is costly as long as the plan has excess assets. The termination option becomes less costly if the firm first reduces excess assets. Hence, the reversion tax, which Congress implemented to discourage firms from terminating pension funds, has had the effect of discouraging firms from excessively funding the plans, and from even having a defined benefits plan at all.

ESTIMATED SHORTFALL OF PENSION ESTIMATES IN 1995

What is the tax's effect on pension assets? To answer that question, I examined the financial information of some 1,900 plans that filed public reports over the period 1980 to 1995. By simulating pension asset growth and replacing actual contributions with hypothetical contribution rates that reflected firms' pre-1986 behavior, I calculated what the plans' assets would have been if the sponsors did not have to consider the reversion tax. In doing the counterfactual simulation, I assumed that all other effects, notably investment returns, would have been the same as a proportion of assets in the plan. The simulations showed that reversion taxes reduced plan assets in 1995 by about 20 percent.

Historically, a firm in financial stress could terminate its pension fund, pay termination benefits to workers and retirees, and use the excess assets for corporate purposes.

Extrapolating those results to the universe of all defined benefit pension plans, and taking into account the imprecision in my estimates, I put the universe shortfall in the range of $218 billion to $262 billion.

My estimates suggest that plan sponsors have eliminated a substantial portion of excess assets from private defined benefit plans. Based on the 6.5 percent interest rate that I used in my empirical work, I calculated that the universe excess assets in 1995 were about $135 billion. My estimates imply

that, had contribution behavior not changed after 1986, excess assets would have been at least 2.6 times higher, or about $350 billion. Thus, reversion taxes have led firms to reduce excess assets by almost 60 percent.

The reduction is not costless for corporations. Assuming that the operative marginal tax rate for plan sponsors is 35 percent and earnings on pension assets are 10 percent, then the additional corporate tax bill on the tax-exposed $218 to $262 billion in assets is 3.5 percent, or $7.6 to $9.1 billion dollars per annum. That number is a ballpark estimate of the value of maintaining the incremental amount of contingent pension benefits.

Multi-employer plan funding One way to check the reasonableness of my results and interpretation is to look at fund-

The Effect of Reversion Taxes on Contribution Behavior

To measure the effect of the reversion tax on contributions, I used a longitudinal sample of plans that existed over the entire period 1980-1995. There were 1,900 plans available for study, or about one in every eight plans (with at least 100 participants) that filed a report in 1995. The sample, which accounts for about one-fourth of assets and liabilities in all defined benefit plans in 1995, is the basis for the data summarized in Figures 1 and 2.

Presumably, the reversion tax changes plans' target funding ratio, though it should affect some plans more than others. Notably, the tax should not change the target very much for plans that normally hold few excess assets. Those would be plans that have mostly older workers and retirees; thus, ongoing and termination benefits are not very different and the ratio of excess to termination liabilities is not very high. But for plans that normally have high target ratios, excess assets can be very significant components of the trust fund.

I took advantage of the fact that reversion taxes most likely affected plans with lots of excess assets as a percent of liabilities. My estimates recognized that many factors may have changed over time that were more or less confluent with reversion taxes that might also have affected contribution behavior. I did not rely solely on the observation that contribution behavior changed inexplicably after 1986 and again after 1990. That is, I looked for the differential impact of time effects on plans with excess assets, effectively using as a control the behavior of plans that have fewer excess assets.

The dependent variable in the regressions I estimated is the log of (one plus) contributions as a percent of termination liabilities. I looked for changes in contribution behavior that were consistent with the timing of reversion taxes and their predicted relative effects on plans that carry large ratios of excess assets to termination liabilities. I used an estimating procedure designed for dependent variables that cannot have a value below zero, and thus may bunch up around zero in many cases.

As independent variables, I included the plan's funding ratio, excess assets as a percent of termination liabilities, and dummy variables for all the plans and years. The latter variables nullified any source of time effects that are common to all the plans. I identified the reversion tax effects by including dummy variables denoting the post-1986 and post-1990 periods; both interacted with excess assets as a percent of liabilities. The reversion tax theory predicts negative coefficients on the interaction terms. Finally, I controlled for differences in the age distributions across plans.

The results are presented in Table 1. The numbers reported in the table are the estimated marginal effects of each variable on the actual contribution rate. Numbers in parentheses are t-values, which measure the number of standard errors that the estimates are away from zero. All the t-values are very high, meaning that the chances that their measured effects are very unlikely to be the product of chance.

TABLE 1

What Caused the Funding Change?

Estimates of the contribution model parameters.

Independent variables	Effect on contribution rate
Maturity	-.041 (13.22)
ln funding ratio	-.014 (6.23)
Excess assets	.014 (6.31)
DUMMY86 excess assets	-.055 (27.96)
DUMMY90 excess assets	-.074 (21.51)
Plan dummy variables	X
Year dummy variables	X
Estimated contribution without effects	.066
Incremental effect of 1986 term	-.015
Incremental effect of 1990 term	-.013
Total incremental effects, post-1990	-.028
Observations	19,939

The dependent variable is the log of one plus the contribution as a percent of pension liabilities; t statistics are in parentheses.

ing in so-called multi-employer plans. The plans cover union workers across many firms, as for example the Central States Teamsters Fund. A board comprised of union and company representatives administers them. Multi-employer plans, by law, are protected from reversions: All contributions are irrevocable. If a principal cause of defunding in single-employer plans is attributable to the reversion tax sequence — which effectively makes contributions to all plans irrevocable — then it follows that funding in all plans should converge at levels observed in multi-employer plans. They do.

The coefficient on the excess assets variable standing alone is positive, suggesting that, in the pre-reversion-tax period, excess assets were positively associated with contributions. In contrast, the interaction effects between the reversion dummy variables and the excess assets variable are negative and large. Prior to 1986, plans with excess assets were affiliated with abnormally high contributions. The interaction terms show that, holding constant the idiosyncratic behavior of each plan and the overall-year influences that affected all plans, contribution rates fell after 1986, and especially after 1990, for plans in proportion with the levels of their excess assets.

In the bottom portion of Table 1, I summarize the implications of the estimates for the average contribution rates in the sample. The estimates suggest that, had reversion taxes not been enacted, the average contribution rate in the sample would have been 6.6 percent. The effect of the reversion tax is put at -1.5 percent in 1986 and another -1.3 percent after 1990, for a total effect of -2.8 percent. Thus, the estimated effect of the reversion tax variables on the sample as a whole implies a 40-percent reduction in contribution rates. That is a large number, considering that it includes the effect on many plans characterized by almost no excess assets.

More general estimates For about 25 percent of my sample, I had detailed financial data for the plan sponsors. I redid the estimates for the sample holding constant the key financial ratios of the sponsor and found comparable results to those reported in Table 1.

I also redid the estimates, breaking down the sample into 19 separate categories (100 plans in each) that reflected the firms' funding ratios as measured during the pre-reversion-tax era. Thus, the first category is comprised of the 100 plans with the lowest funding ratios between 1980 and 1985, and the 19th category is comprised of the 100 plans with the highest funding ratios during the pre-reversion tax era. I then re-estimated the model reported in Table 1 for each category separately. I recorded the total effect of the reversion tax akin to the penultimate row in the table. From those calculations, it became apparent that there is a close relationship between reaction to the reversion taxes and the pre-reversion funding characteristics of the plan. For instance, the 500 plans in the five highest categories reduced contributions to their plans by 60 percent while the 500 plans in the five lowest categories reduced their funding by only 16 percent. In short, the results are consistent with the hypothesis that reversion taxes exerted the largest relative effect on the best-funded plans in the defined benefit pension system. R

TABLE 2

Employer Incentive

With the reversion tax in place, nonunion plan coverage levels converged with union levels.

Omitted class: multi-employer plans Independent variables	1986	1995
Intercept	4.66 (363.9)	4.47 (428.3)
% participants still active workers	.084 (13.92)	.170 (14.62)
Number of active workers (millions)	.89 (1.63)	1.68 (4.08)
Single-employer union plan	-.069 (4.79)	-.083 (8.27)
Nonunion plan	.224 (17.25)	.067 (7.12)
R-squared	.072	.064
Mean dependent variable	4.85	4.59
Observations	19,109	13,195

The dependent variable is the log of the funding ratio; t statistics are in parentheses.

To show that, I compared funding ratios across plan types in 1986 and 1995. The dependent variable is log of the funding ratio (expressed as a percent). I set multi-employer plans as the omitted pension type. I also controlled for single-employer plans covering union workers. While reversions from those plans are legal, they are very uncommon because such reversions would be subject to a collective bargaining contract. (Presumably, that is one reason why union plans typically have lower funding than nonunion plans.) I also controlled for the size and maturity level in the plans.

The first column in Table 2 shows the regression results for 1986, while the second column shows the results for 1995; t-values are in parentheses. The dependent variable is the log of the funding ratio times 100. The results suggest that funding in single-employer union plans is even lower than in multi-employer plans — a result that does not change much in the 1986 versus 1995 data. In contrast, in comparison to multi-employer plans, funding levels in nonunion plans fall quite dramatically over the period. In 1986, funding in nonunion plans was almost 25 percent higher than in multi-employer plans. By 1995, the difference had fallen to less than seven percent. In short, the enactment of reversion taxes appears to have generated funding levels in all plans that are about the same as those that characterize plans in which reversions are explicitly prohibited.

State pension assets I also checked the results against state and municipal pension data. Public pensions are not affected by funding rules and reversion taxes. Thus, if tax policy explains the asset reductions in the private sector, then pri-

vate pension assets in defined benefit plans should fall relative to assets in public defined benefit plans.

The data are consistent with that expectation. The results, shown in Figure 4, indicate a slight increase in the ratio of private defined benefit plan assets to public plan assets from 1975 to 1985. But, beginning in 1986, the ratio changes directions, and has been falling through 1995 (the last period for which I have data). Clearly, something dramatic affected private pension funding starting in 1986, and since the data do not depend on liability calculations, they suggest that much of the trend towards lower funding ratios in the private sector after the mid-1980s is attributable to a reduction in the growth rate of assets.

CASH BALANCE PLANS

The adoption of reversion taxes may have done more than just lower funding ratios for defined benefit pension plans. The taxes also appear to be at the core of the phenomenon known as "cash balance plan conversion" — the conversion of traditional pension plans into defined contribution plans. In those plans, the firm does not promise a benefit, but instead deposits some percentage of pay in an employee's account.

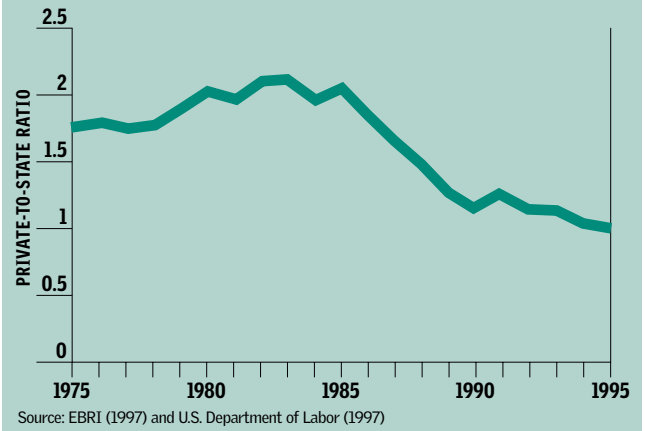
Reversion taxes make it more costly for a firm to maintain a defined benefit plan with contingent benefits. For firms that assessed the new level of cost as higher than the benefits of maintaining the plan, the obvious reaction is to terminate it in favor of a cheaper and simpler pension. Because of the reversion tax, however, termination of the defined benefit plan with excess assets requires businesses to confer upwards of 85 percent of the excess assets to the government in the form of non-deductible reversion taxes in addition to corporate income taxes.

But actuaries have figured out an innovative way for a firm to terminate its plan and establish a defined contribution plan without triggering the tax. Instead of explicitly terminating the plan, the firm amends it so that workers' termination benefits are deposited into "accounts" that operate just like a defined contribution plan. (To stay within the tax rules that govern the definition of a defined benefit plan, the employer guarantees that workers will earn a rate of return equal to some fixed income security — often a Treasury bill.) On the day of conversion, large amounts of excess assets emerge that, by law, the firm can retain in the original plan and use to fund future contributions to the employees' accounts. By following that course of action, the firm effectively converts to a defined contribution plan without paying the reversion tax.

FIGURE 4

Converging Assets

Private vs. public defined benefit plan assets, 1975-1995.



Source: EBRI (1997) and U.S. Department of Labor (1997)

HECTOR MATA/AFP PHOTO

The significance of those transactions is that, despite the efforts of some firms to ameliorate losses for some employees, conversions almost always impose substantial capital losses on workers. In perhaps the majority of instances, workers absorb the entirety of the capital losses depicted by area C in Figure 3. By creating a demand to terminate, the reversion tax visited workers with the very losses that the sponsors of legislation were trying to thwart. About 20 percent of all private defined benefit plans (weighted by covered workers) have been converted to cash balance plans.

CONCLUSION

It is hard to imagine a public policy that has engendered a result so contrary to its original intent. Lawmakers intend-

ed to protect the integrity of pension promises in private, defined benefit plans. By ruling out the use of reversions as sources of financing for some takeovers and other corporate events, Congress assumed that corporations and workers would attach higher value to the plans, which would lead to higher funding levels and broader defined benefit coverage. The legislation, however, changed the asset ownership paradigm in defined benefit pensions — an act that, not surprisingly, altered the economics not only of funding, but plan choice as well.

Corporate sponsors reacted predictably and vigorously. Even in the face of historically high investment returns, plan sponsors succeeded in reducing their excess pension assets by 60 percent, a reduction with a dollar value that I put in the range of $218 billion to $262 billion. In addition, by effectively outlawing the funding of contingent benefits, the legislation greatly increased the after-tax cost of using the plans, which has encouraged sponsors to abandon them in favor of the defined contribution variety. The legislation is directly responsible for the growth industry in cash balance conversions, which are de facto terminations that often confer the kinds of capital losses on workers that the legislation sought to prevent. The occupation of creating new defined benefit plans effectively no longer exits.

While defined contribution plans are desirable in their own right, part of their popularity is attributable to developments in tax policy that disfavor defined benefit plans. A more neutral policy toward pension plan types would be a more sensible approach. By creating a level playing field, we can rely on the joint optimizing behavior of workers and firms to deliver the pattern of pension coverage that maximizes surplus. A step in the direction of pension reform is to eliminate the reversion tax, followed closely by the repeal of other regulations that discourage funding (one of which I present in the postscript). The reform also would give firms more latitude in designing their pensions in ways that maximize their value in each firm. A free market in pensions would likely increase coverage rates, improve productivity, and generate more private funds for future retirement cohorts. Those benefits are not of trivial value, especially in light of revelations about Enron employees' 401(k) status and the growing problems surrounding Social Security.

Postscript: Re-enforcing Legislation

The federal legislation that enacted and increased the reversion tax is not the only act of Congress that discouraged the continuance of traditional defined benefit plans. Another piece of harmful legislation was the 1988 implementation of a funding limit on those plans. Prior to that, firms could fund for ongoing benefits without regard to the value of termination benefits. But, under the limit, employers cannot make additional contributions to plans with assets in excess of 150 percent of termination benefits. That limit further reduced the after-tax benefits of defined benefit plans, though, as I will show below, its effect has been smaller than the vigorous reaction to the reversion tax.

To determine the 150-percent limit's effect, I conducted an additional simulation of pension funding for the period 1986-1995 that assumed the limit had not been enacted. The results show that the marginal effect of the funding limit was less than 10 percent of the total reduction in excess assets over that time period. Clearly, the effect of the limit was dwarfed by the effect of the reversion tax.

That does not say, however, that the limits might not have been more constraining if the reversion tax had not been enacted. My estimates suggest that if the reversion tax were set to zero but the 1988 full-funding limit were retained, the limit itself would exert an effect on pension assets about one-third as strong as the reversion tax. Hence, to return pensions to an improved funding status more like the pre-1986 period, the reversion tax and the 1988 full-funding limit must both be repealed. R

READINGS

- "Breach of Trust in Hostile Takeovers," by Andrei Shleifer and Lawrence Summers. Printed in *Corporate Takeovers: Causes and Consequences*, edited by Alan Auerbach. Chicago, Ill.: University of Chicago Press, 1988.
- "Corporate Pension Fund Policy," by William Sharpe. *Journal of Financial Economics*, Vol. 3 (1976).
- "The Effect of Voluntary Terminations of Overfunded Pension Plans on Shareholder Wealth," by Jack VanDerhei. *Journal of Risk and Insurance*, Vol. 54 (1987).
- "An Empirical Analysis of the Transition To Hybrid Pension Plans in The U.S.," by Robert Clark and Sylvester Schieber. Presented during the Brookings Institution's Conference on Public Policies and Private Pensions, November 22, 2000.
- "Pension Plan Funding and Corporate Debt Ratings," by Tom Carroll and Greg Niehaus. *Journal of Risk and Insurance*, Vol. 65 (1998).
- "Pension Terminations and Worker-Shareholder Wealth Transfers," by Mitchell Petersen. *Quarterly Journal of Economics*, Vol. 107 (1992).
- "Reversion Taxes, Contingent Benefits, and Pension Funding," by Richard A. Ippolito. *Journal of Law and Economics*, Vol. 44 (2001).
- "A White Paper on Emerging Pension Issues," published by the ERISA Industry Committee. Washington, D.C.: ERISA, July 1996.