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Market Commentary/Strategy

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Pension Missiles: Is the Cure Worse than the Disease?

A Report to CIEBA

In response to the perceived pension funding crisis, regulatory and accounting bodies and the credit rating agencies have proposed changes for defined benefit pension plans, encompassing performance measurement, the transparency of financial reporting, and funding requirements. In this study, originally prepared for the Committee on Investment of Employee Benefit Assets (CIEBA) of the Association of Financial Professionals, we evaluate seven key proposals and their potential impact on US financial markets and the economy.

- **Tough medicine for pension plans**
Proposed changes to defined benefit (DB) pension plans might kill the patient if applied as shock treatment. Appropriately phased implementation of any agreed changes is essential to strengthen the DB system, but doing nothing could condemn the patient to a slow death.
- **End of the perfect storm?**
The markets' recovery has reduced plans' huge funding gap. But unfavorable demographics and the legacy of inadequate funding mean that plans' underlying health is worse than it appears under today's flawed accounting, funding, and tax rules.
- **Trouble still ahead**
Absent significant contributions to pension plans or returns that we think are unattainable, the underlying economic gap between plan assets and plan obligations will widen. Critically, the least healthy plans are shifting liabilities to stronger ones and thus infecting the system.
- **The reform proposals as "missiles"**
DB plan CIOs see these proposals as an attack and will likely respond by increasing bond allocations and bond portfolio duration. This response would reduce plan risks, but it would also add to the short-term stress on corporate cash flows and increase the reported costs of a DB plan. Thus, even the gradual adoption of some of these proposals could prompt plan sponsors to reconsider DB plans entirely.
- **Macro impact**
The economic impact of this reallocation of funds likely would be small, because it probably would temporarily reduce equity prices and flatten the yield curve. The macro impact of freezing DB plans and/or the impact of pension contributions on corporate cash flow (and thus capital spending and hiring) would also probably be small.
- **Balanced reform needed soon**
The corporate DB system can be healthy and efficient if plans make affordable choices and if both sponsors and regulators manage them appropriately. Neither group should overreact to the recent past; greater transparency and a balanced approach to reform are both critical.

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Pension Missiles: Is the Cure Worse than the Disease?

Key Findings

- **Tough medicine for pension plans.** Proposed changes to the measurement, funding requirements, and reporting transparency of defined benefit (DB) pension plans might kill the patient if applied as shock treatment. While appropriately phased implementation of any agreed changes is essential to strengthen the DB system and its plan sponsors, doing nothing could condemn the patient to a slow death. We believe that appropriate reforms would reinforce the legitimate role of DB plans in contributing to retirement savings. In this report, prepared for the Committee on Investment of Employee Benefit Assets (CIEBA), part of the Association of Financial Professionals, we evaluate seven key reform proposals from regulatory and accounting bodies and credit rating agencies. We draw on CIEBA's surveys of its members, which are corporate DB plan sponsors.

- **Why now?** The perceived crisis from shortfalls in DB plans and the associated but opaque risk to investors and taxpayers were the catalysts for the proposals. To be sure, the simultaneous sharp decline in equity markets and interest rates that triggered the crisis was probably a once-in-a-generation event, and, over the long haul, rates and returns should recover. Plan asset managers have done their job in the past, if anything delivering average returns that exceed the long-run return assumptions of typical DB plans. Moreover, circumstances beyond plan sponsors' control contributed to the crisis: Regulations discouraged appropriate funding, and, in the early days of DB plans, few could have anticipated plan sponsors' declining business fortunes, the shift to early retirement, or the increase in longevity that boosted post-retirement obligations, especially relative to current business activity.

Nevertheless, the proposals are aimed at correcting real flaws in the DB system. The bull market of the 1980s and 1990s gave an artificial boost to reported earnings and led corporate managers to increase benefit promises without annually funding them. Managers became complacent about the long-term challenges of funding these promises when returns inevitably reverted to the mean, and they overlooked the need to match assets and obligations. The shortfall from the bursting of the equity bubble and the simultaneous decline in interest rates unmasked the basic mismatch, and many plan sponsors will be forced to make additional cash contributions for many years to come. We believe the time has come to calculate precisely the economic and financial risks to plan sponsors in DB plans, and to fund them more appropriately in order to minimize the risks for all stakeholders.

- **Trouble still ahead.** Some think we are crying wolf, since the worst appears to be over for DB plans in aggregate. Rising equity prices and bond yields as well as increased company contributions have reduced the shortfall between plan assets and the present value of their liabilities, and many plans will continue to contribute to sponsors' reported operating earnings this year. But without significant additional contributions from plan sponsors, the underlying economic gap between plan assets and plan obligations will widen as the pool of retirees exceeds the active workforce. Critically, some plan shortfalls and duration mismatches are far worse than others. Maintaining the status quo allows the least healthy plans to continue infecting the system, shifting liabilities to stronger DB plans and ultimately, to the taxpayer.

- **The reform proposals as "missiles."** The reform proposals are aimed at exposing the underlying economics of DB plans and giving sponsors incentives to reduce the risks that all stakeholders face. The proposals that CIEBA views as missiles fall into three categories: increased transparency (via changes in financial reporting rules); funding and guarantee rules for government entities (through changes in regulated rates for calculating obligations and pricing asset allocation risks); and a reevaluation of rating agency approaches.

- **Impact on Corporate America.** Plan sponsors are being forced to inject larger amounts of cash into their plans to address shortfalls. If adopted, the proposed changes could magnify and accelerate that trend in the short term. For a few companies, the short-term contributions and earnings impact of changes will swamp their operating performance; for most, the outcome will be easily manageable, if addressed soon.

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- **Risk reduction response: No free lunch.** DB plan CIOs see these proposals as an attack and will likely respond by adopting a more risk-averse, matched asset mix — increasing bond allocations and bond-portfolio duration. This response would add to the short-term stress on corporate cash flows and increase the need for shifts to avoid further mismatches. Critically, reducing risk in the portfolio is a two-edged sword: It will better align plan assets and income with future cash benefit payments and strengthen the DB system, but it will doubtless increase the reported (but not actual) costs of a DB plan. Thus, even the gradual adoption of some of these proposals could prompt plan sponsors to reconsider DB plans entirely.
 - **Impact on asset prices.** This reallocation of funds from stocks to bonds theoretically could produce offsetting moves in asset prices. If state and local government retirement funds follow suit, the rebalancing could temporarily reduce equity prices by as much as 8–12% and flatten the yield curve by as much as 40–150 basis points from prevailing levels. The impact would also depend on the speed of reallocation and on changes in the supply of bonds and equity.
 - **Macro impact: Beyond asset prices.** These crosscurrents in asset prices are unlikely to have a major impact on the economy because lower bond yields would offset the impact of lower stock prices on economic activity. Freezing DB plans and/or the impact of pension contributions on corporate cash flow (and thus capital spending and hiring) could be more important, but from a macro standpoint, the expected impact of such events would also probably be small. The numbers appear daunting: In response to the implementation of the proposals, 30% of surveyed CIEBA members think they would likely freeze accruals or new entry into the plans. And while only one-fifth of the private workforce is covered by DB plans, limiting the economy-wide effects, ripple effects could magnify the impact. In any case, freezing a DB plan does not eliminate a shortfall, especially for the plans most at risk, which must fund existing accrued benefits.
 - **Conclusion and recommendations.** The corporate DB system can be healthy and efficient if the promises made are affordable and appropriately managed. Market conditions over the past three years have exposed weaknesses in the current DB system that should be carefully addressed, but neither regulators nor plan sponsors should overreact to the recent past, in our view; the worst of the funding shortfall appears behind us, at least for now. Thus, greater transparency and a balanced approach to reform are both critical. At the same time, neither regulators nor plan sponsors should let today's improved market conditions renew complacency about DB plans' health. Unfavorable demographics mean that, for any level of risk appetite, DB plans will cost more than originally thought. DB plans' underlying obligations and funding will require plan sponsors to adjust their actions. The future of the DB system depends on carefully implementing appropriate reforms that ensure that plan sponsors act promptly to adequately fund liabilities while taking on prudent economic risks.

Pension Missiles: Is the Cure Worse than the Disease?

Incoming Missiles

Proposed changes to measurement, funding requirements, and the reporting transparency of corporate defined benefit (DB) pension plans are aimed at improving them, but there is a risk that these cures would kill the patient if applied as shock therapy. If implemented abruptly, five of the seven proposals we evaluate here — viewed as “incoming missiles” by many plan sponsors — might result in significant changes to asset allocation and/or lead to plan freezing, outcomes that in our view could unfortunately sound the death knell for the defined benefit concept. Under current circumstances, we believe that too-rapid implementation would impair or threaten the financial health of a substantial number of plan sponsors, which might respond with bankruptcy and/or plan termination. And while we believe that US financial markets and the economy can easily absorb the short-term macro impact of such an abrupt adoption, the aftershocks could trigger some macroeconomic dislocations. For example, the bankruptcy of some leading companies could disrupt suppliers and customers and thus the economy.

If implemented gradually, however, we believe that appropriate measures would strengthen the DB system and ensure a legitimate role for DB plans in providing retirement savings. Such measures would modify some of the proposals and go beyond them. It is not our purpose here to recommend specific remedies to fix the DB pension system. But we do generically endorse four major areas for improvement:

- *Funding rules and incentives for sponsors to implement them must be realistic and appropriate*, including tax deductibility for funding annual service costs, even in times of pension surplus;
- *Pension accounting principles must also be realistic and appropriate*. They should eliminate reporting smoothed financial gains in operating earnings, while annually and transparently revealing the financial health and riskiness of each plan to investors, regulators, and sponsors;
- *Plans must report scenarios that stress-test future plan costs and contributions under a variety of assumptions*, akin to forward “value-at-risk” calculations for financial institutions; and

- *The portability of DB plans should improve* so that active participants can change jobs without losing “earned” but “unsecured” benefits from generous final-pay plans. That change would likely limit the lump-sum withdrawals at early retirement that disrupt matching and efficient management of plan assets and obligations.

Some believe that a third alternative — maintaining the status quo with minor changes — is now viable. After all, the financial storm created by falling rates and stock prices during 2000–2002 was a “70-year flood” for DB plans, and the worst of the resulting funding shortfall is likely behind us — for now. A combination of last year’s recovery in equity markets and over \$80 billion in plan contributions in 2002–03 has reduced the expected year-end 2003 funding gap below the 2002 and mid-2003 shortfalls.

Unfortunately, however, DB plans’ problems run far deeper than the snapshot of their financial health conveyed by today’s or even tomorrow’s funding gap. Indeed, their problems are rooted not in financial but economic mismatches created by years of underfunding relative to the promises made, and overly optimistic mortality and retirement assumptions. These problems are manifest most clearly in the increasing ratio of inactive to active plan members. That mismatch will magnify the drain on plan sponsors’ operating performance of any negative market outcomes.

Looking forward, some plans face massive short-term funding needs as the growth and duration of retirements increase over the next decade. Even if yields and equity prices rose by enough to eliminate plans’ current funding gap — and such a rise seems to us to be highly unlikely — they would have to keep rising at an unrealistic pace to solve their long-term problems. Our calculations illustrate the two discouraging sides of the same coin: If returns average 8%, sizable annual funding needs will likely persist. Alternatively, it would take implausible returns to eliminate the need for increased funding.

Four Reasons Why Change Is Needed

Thus, retaining the status quo in our view is a non-starter: It would condemn the DB system to a slow death, for four reasons.

- *Funding gap exceeds current resources*. We estimate that, under reasonable economic and financial assumptions,

the funding gap for DB plans in aggregate is still in the vicinity of \$170 billion — not large in relation to the economy, but large relative to plan sponsors' current resources, especially for the minority of sponsors who make up the majority of the shortfall.

- *Immediate and daunting time profile of plan liability cash flows.* The fact that the ratio of the aggregate projected benefit obligation (PBO) to accumulated benefit obligation (ABO) is so close to 1.0 indicates the reality that time is not on plan sponsors' side: The growth in benefit payments is likely to rise steeply over the next decade, and the asset returns needed to cover interest and service costs are high. Any shortfall in the net funding has a quickly compounding effect on the affordability of actual benefits, increasing the necessity for new funding.
- *Challenging environment for plan sponsors.* The economic fortunes of DB plan sponsors seem unlikely to improve enough over the next decade to provide the funding needed to close the gap.
- *Several sponsors still lack resources to fund plans as promised.* Finally, and as a result, while the worst of the crisis may seem to be over, several sponsors still lack the resources to fund their shortfalls and may ultimately have to file for bankruptcy and/or terminate their plans — with or without changes to regulations.

For these reasons, we believe that doing nothing is simply not a sustainable alternative.

Why Are the Missiles Coming Now?

The perceived crisis in DB plans and associated risk to taxpayers and shareholders were the catalysts for the reform proposals that CIEBA terms “missiles.” The missiles are not aimed at plan asset managers; after all, they have done their job in the past decade, if anything delivering average returns in excess of assumed long-run expected returns. Rather, they target the inappropriate funding and accounting regulations and assumptions of the past that laid the foundation for the crisis. We believe, and we think the authors of the proposals believe, that the time has finally come to better understand and calculate the magnitude of the promises made, reflecting economic and financial risks to the plan sponsors in DB plans. Transparency and better measurement of the underlying obligations can lead to more appropriate funding and risk analysis so that in the future, DB plans rarely become a burden to stakeholders.

The proposals are aimed at forcing plan sponsors to take the steps needed to assure the fundamental strength of DB plans over the long term as one of the three basic legs of the retirement saving stool. The proposals go beyond simply assuring actuarial solvency by netting the present value of liabilities to today's assets. Instead, they would require matching much more closely the cash inflows and reserves with the likely path of cash outflows that plans face today.

Of course, the framers of the DB plan funding reform proposals focused only on reducing shortfall risk in DB plans, not on whether plan sponsors could continue to afford the plans under the new rules of the game. The hard truth, in our view, is that with or without appropriate changes to such rules, DB plans in general will require more funding. The pension funding holiday taken by many corporations in the 1990s, combined with increased promises and unrealistic assumptions, placed an intolerably high burden on the returns that plan asset managers need to generate. With this funding holiday in our view effectively over, the critical need now is that the required “catch-up” and rethink of asset allocations must be gradual to avoid a rush to the exits. With appropriate rule changes, policy makers can still achieve the right balance between plan risk and affordability so that most plans can deliver on their promises.

The hard truth is that with or without appropriate changes to the rules, DB plans in general will require more funding.

It was not always thus for DB plan sponsors; time was once on their side. Employees were not as footloose as they are today; in the early development of industrial organizations, employers and employees often expected a lifetime partnership. As a result, payments to employees for services rendered were assumed to continue from the time of employment through retirement until death, for both the employee and his/her dependents.

Two other key principles made DB plans attractive. First, plan sponsors could achieve superior returns to individuals through professional management and scale economies in investment management and administration. Second, DB plans mutualized the risk of protracted bear markets across overlapping generations, so today's retirees could still count on their retirement. It's worth stressing that these two principles remain cornerstones of the logic for sponsoring DB plans.

Moreover, it was reasonable to assume that at a minimum, an investment-grade corporation had the following strengths that could provide the resources for DB plans at a cost it could afford: A time horizon of decades, reasonably steady operating cash flow, access to financing, and expectations for productivity enhancement and growth. Adding in economies of scale in management and administration and the investment discipline that most individuals lack, it made perfect economic sense for corporations to help employees save and invest for their retirement while providing an insurance premium.

The DB concept is straightforward: Estimate the employee's retirement age, annuity amount (or lump sum), and life expectancy. Then withhold enough from each period's wage or salary to fund those payments, and invest the deferred cash salary in a manner that will provide the appropriate cash payments during the employee's retirement.

While the framework is straightforward, there clearly have always been uncertainties that create risks — specifically, the actuarial estimation of life expectancy, retirement age, and appropriate investment returns. The question is, who does or should bear these risks, and how or to what extent can they be minimized? In a DB plan, if the sponsor is financially healthy, its shareholders and bondholders bear the risk. If the sponsor is ailing, the employees and, where available, a government guarantor — the Pension Benefit Guaranty Corporation (PBGC) — or indirectly the sponsors of healthy plans and the taxpayer, will share the burden of the risk.

Importantly, plan risks and required benefit payments rise with plan maturity (i.e., as the proportion of retirees rises relative to active employees). Thus, funding and asset allocation in our view should reflect the different time pro-

file of cash flows when a plan is mature — even for a going concern. In the early stages of a DB plan, the workforce is young, so the bulk of payments to retirees will not occur for 30 to 50 years, and there is time to fund them (see Exhibit 1). In contrast, for a mature plan with both active and retired participants, payments to retirees and contributions for new deferred compensation should occur each period.

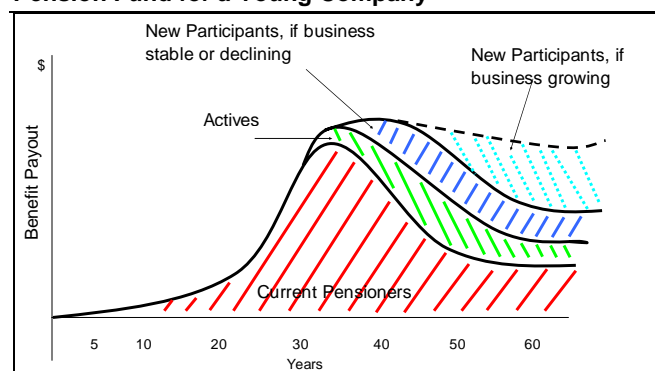
Critically, in our view, to mutualize risks across generations, the flow of retirees must be offset by new employees participating in the plan. If the risks are managed appropriately, then there is a steady state where the cash inflows (from returns on the plan assets) and cash outflows to retirees are matched, and the DB engine runs smoothly.

This mutualization requirement does not mean that we view DB plans as perfectly analogous to our nation's Social Security system. Far from it. Social Security is the "safety net" in our nation's retirement saving system. Despite current surpluses in the so-called Social Security trust funds, we fund Social Security from taxes on the assumption that economic growth will enable society to meet promises made. In contrast, the DB system has worked under the assumption that plan sponsors could meet promises made by investing deferred compensation, taking prudent investment risks and generating returns commensurate with those risks.

But here are two crucial similarities: First, like Social Security's actuaries, plan sponsors traditionally assume that their plans will go on forever and that their companies will grow and add new employees. So for mature plans, as illustrated in Exhibit 2, it is critical that the growth in employees continues into the future. Those future employees' retirement needs are what enables sponsors to direct plan investment managers to invest in a portfolio of appropriately risky se-

Exhibit 1

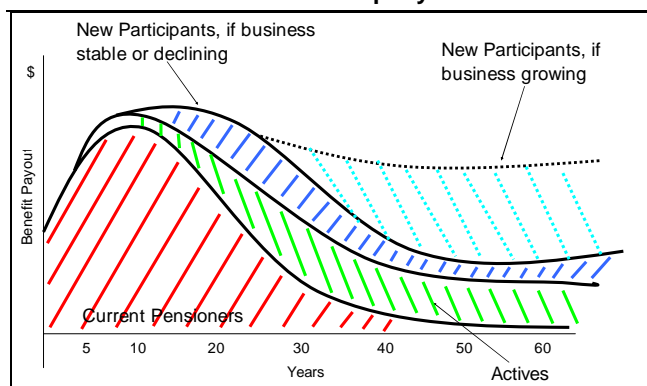
Pension Fund for a Young Company



Source: Morgan Stanley Research

Exhibit 2

Pension Fund for a Mature Company



Source: Morgan Stanley Research

curities, mutualizing risk across generations. Absent an increasing number of future employees, as is the case today for many companies, plan sponsors in our view should direct CIOs to hold a smaller proportion of a DB pension plan's assets in equities than today's 60% norm. We recognize that most CIOs will reject such a notion. Even with no growth, their liabilities stretch far into the future, so taking on investment risk seems appropriate. True enough, as long as the returns are there to meet current cash flow needs, without having to dip deeply into the pool of assets when market returns fall below assumptions.

Absent an increasing number of future employees, CIOs should hold a smaller proportion of a DB pension plan's assets in equities than today's 60% norm.

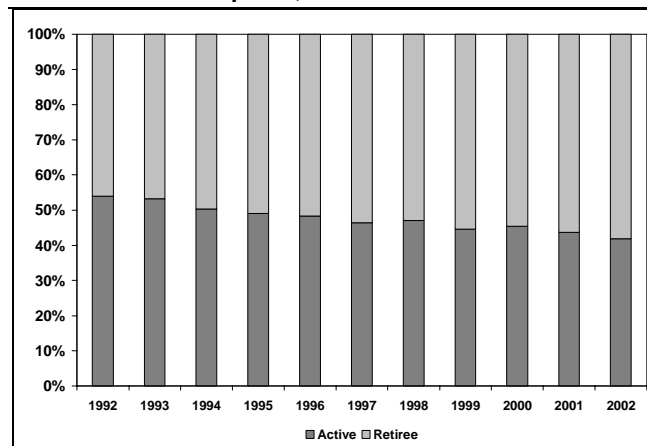
The second similarity is that actuaries for both Social Security and DB plans have persistently underestimated longevity, so that those current cash flow needs are rising faster than anticipated. So even in a growing economy — or at a growing company — the fact that the retiree population is growing faster than current workers dictates a change in funding and in risk-taking from that steady-state growth assumption outlined above. It's worth noting that current funding regulations make the problem worse by directing plan sponsors to use a 1983 mortality table, thus underestimating the size of the cash obligations.

Exhibits 1 and 2 show the typical pattern of cash obligations a company faces in its DB plan, depending on the maturity of the plan (i.e., the proportion of retirees relative to active employees). Exhibit 1 shows a relatively young plan while Exhibit 2 shows a more mature plan where retirees (including dependents) are a high proportion of total participants. Exhibit 3 indicates that the mature plan is more typical of the companies in CIEBA.

We should emphasize that today's problems in DB plans arose partly because of circumstances beyond plan sponsors' control: People have lived longer than expected; increasing competition and changes in technology have forced companies to reduce their workforces over time, altering their demographic profiles; and government regulations of funding rules, including the tax deductibility of funding and restrictions on the role of pension trustees and advisors, have limited sponsors' choices.

Exhibit 3

CIEBA Sample: Distribution of Active to Retiree Defined Benefit Plan Participants, 1992–2002



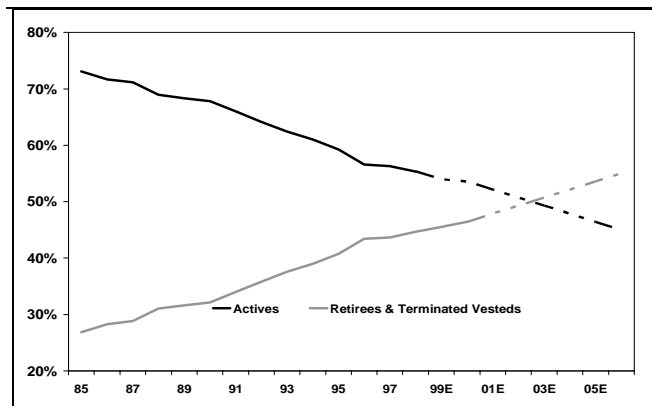
Sources: CIEBA Pension Survey, Morgan Stanley Research

But in hindsight it is also widely agreed that the lack of transparency in financial reporting systems meant that many stakeholders did not understand either the costs or the risks in DB plans, while investors and rating agencies chose to overlook the underlying economic costs and risks, even when information was available.¹ For their part, companies have chosen investment policies that substantially mismatch the timing of cash inflows and outflows, thus hoping to boost returns but also adding risk to their plans.

Thus, without changes, we believe that the US defined benefit pension system as a whole is unlikely to be able to keep promises made. Fundamentally, the problem has two dimensions. The first is a mismatch between the underlying demographics of the workforce and the fortunes of the industries/companies offering these plans. The second is the fact that existing asset allocations that are the legacy of past decisions cannot meet future needs for cash outlays. The fact that the average US company with a DB plan has a demographic bias toward retirees, as shown in Exhibit 3 for the CIEBA universe, suggests that cash outlays are going to grow continuously over the next decade or two (depending on mortality). To be sure, the average is affected by a few companies in the tails of the distribution, so that the median company is healthier than these means imply. Yet we believe that continuous restructuring and outsourcing by plan sponsors exacerbate this trend, and that those tails are getting fatter.

Exhibit 4

Retirees Now Outnumber Active Participants, and the Trend Is Unfavorable

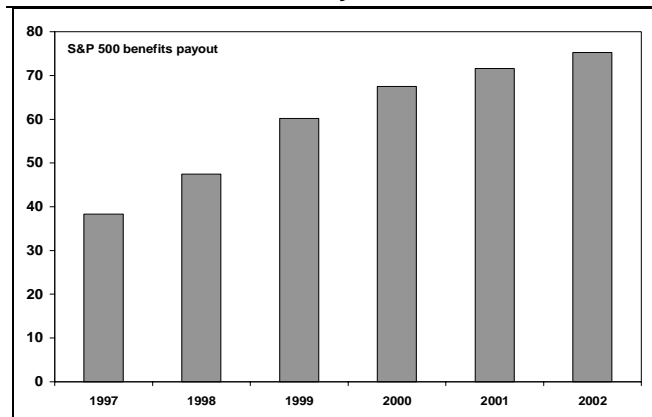


Source: US Department of Labor, including estimates

Exhibit 4 shows the same result for the broader universe of all DB plans, based on projections made in 1998 that extend to 2006. That retirees and terminated vested participants were then projected to outnumber active participants represents a demographic watershed for America's DB plans. The result is not just that cash distributions have grown rapidly (Exhibit 5), but that they will continue to grow in the medium term.² And in our view, those trends will swamp the impact on plans' long-term funding gaps of almost any plausible rise in interest rates or in equity prices. That view rests partly on our belief that mean reversion is the most powerful force in finance, that the investment climate of 1982–2000 will not be replicated any time soon, and that prudent plan sponsors should not use their CIOs' track records over that period as a basis for future planning.³

Exhibit 5

S&P 500: Pension Benefit Payments, 1997–2002



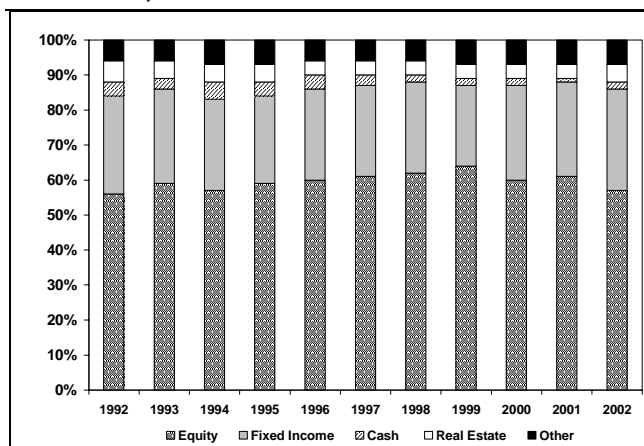
Sources: Company reports, Morgan Stanley Research

Despite the trend of growing payouts to participants with lower levels of replacement by active employees, investment patterns have changed little. Exhibit 6 shows the CIEBA data on the asset allocations of respondents to its survey from 1992 to 2002. Equity allocations have ranged around 60%, depending largely on market cycles, with 1994 and 2000 levels around 57% and peaking in 1999 at 64%, with fixed income capturing most of the change. The survey data also reveal fixed-income duration of about 5–6 years, while the duration of liabilities is roughly 11–13 years. Thus, on average, DB plans are taking both duration and market risk. The market risk in the plan is exaggerated by the economic risk in the sponsor: Many US companies with DB plans are in cyclical industries, so that a fall in equity prices often occurs at the same time that the operating businesses face difficulties.

The result of this mix is shown in Exhibit 7, which also provides a graphic illustration of why so many players are still concerned about the DB pension system. Looking at the companies in the Standard & Poor's 500 Index (S&P 500) with DB pension plans, we see that in 1993–95, prior to the bubble years, companies in aggregate were adequately funded relative to the projected benefit obligation (PBO).⁴ As the bull market took off, interest rates were falling and economic growth was rapid, so from 1996–99, aggregate surpluses rocketed to a peak of more than \$250 billion.⁵ From then on, we see a deteriorating picture, with both asset values and interest rates falling, leading to the large plan deficits reported in 2002. The picture for 2003 is not yet fully known, as companies are only required to report their position annually, and the final numbers depend

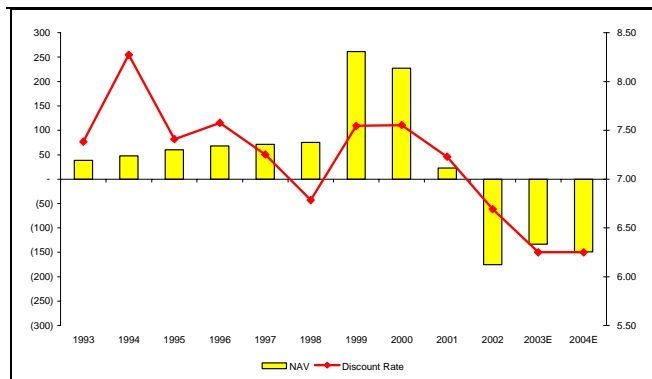
Exhibit 6

CIEBA Sample: Asset Allocation for Defined Benefit Plan Assets, 1992–2002



Sources: CIEBA Pension Survey, Morgan Stanley Research

Exhibit 7
S&P 500 Pension Net Asset Value and Discount Rates, 1993–2004E



Source: Company reports, Morgan Stanley Research
 Note: 2004E assumes an 8% actual return on plan assets and no funding

on the state of the markets and the contributions made by companies by year-end. The projections we include in Exhibit 6 are estimates based on known contributions to date and discount rates and asset market returns through December 2003 (assuming a standard asset mix of 60% equity/35% fixed income/5% cash). What jumps off the page is the fact that by our estimates, funded status has improved only slightly after sponsors contributed \$47 billion to their plans in 2002 (a 300% increase over 2001 funding levels) and around \$35 billion in 2003, a year when the S&P 500 rose by 26%. Even in 2004, we estimate that with an 8% actual return on plan assets and stable discount rates at 6.25%, (well above current rates) the aggregate deficit would increase without new funding.

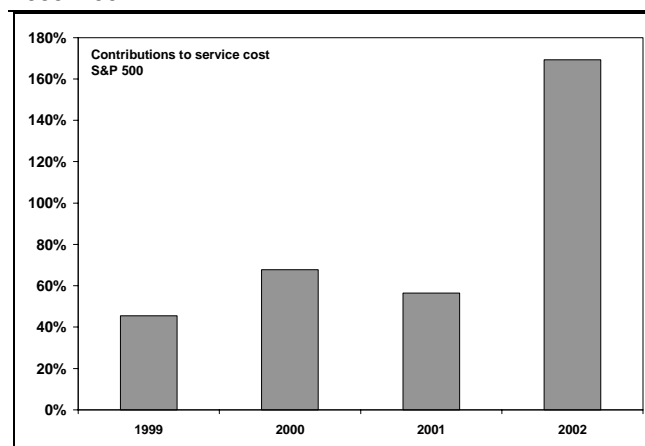
By our estimates, funded status has improved only slightly after sponsors contributed \$47 billion to their plans in 2002 and around \$35 billion in 2003.

In hindsight, the stock-market bubble actually hurt plans' long-term health. That's because the bubble made plans look overfunded but gave little indication of the duration and funding risk the companies were taking. We believe that this environment fostered complacency among plan sponsors, their CIOs, and most of the regulators. In a period when many companies could have reduced their funding risk and better matched the cash inflows and outflows, a majority of companies did little. There are many reasons why no action was taken, but we believe the prime candidates are as follows:

- *First, under US GAAP requirements, high expected returns associated with high asset values were reported as part of operating income.* In an investment world myopically focusing on operating income (EBIT) as a measure of performance and EBITDA as a measure of operating cash flows, this was “manna from heaven” for companies hungry for growth and capital. Moving from high-return equity to lower-return fixed income would have been a big negative for EBIT-based numbers.
- *Second, actuaries and ERISA-based calculations encourage the use of discount rates that incorporate some risk premium and smoothing of shortfalls so that there is no “penalty” for investing in riskier assets.*
- *Third, tax rules penalizing companies with surpluses deterred them from funding annual deferred compensation and some potential shortfalls.*
- *Fourth, analysts, investors, and rating agencies largely overlooked the pension accounting and funding issues.*⁶

Finally, the apparent cash benefits were exaggerated because instead of steadily contributing the deferred compensation of their active employees to pension plans, plan sponsors took extended contribution holidays. As indicated, this action was encouraged by the tax system. In Exhibit 8, we show the ratio of corporate contributions to “service costs” (the accounting measure of deferred compensation) for S&P 500 companies from 1999–2002. Under normal circumstances, that ratio should be 100%. The pension holiday (underfunding) for the period pre-1999–2001 lulled many

Exhibit 8
S&P 500 Ratio of Pension Contribution to Service Cost, 1999–2002



Source: Company reports, Morgan Stanley Research

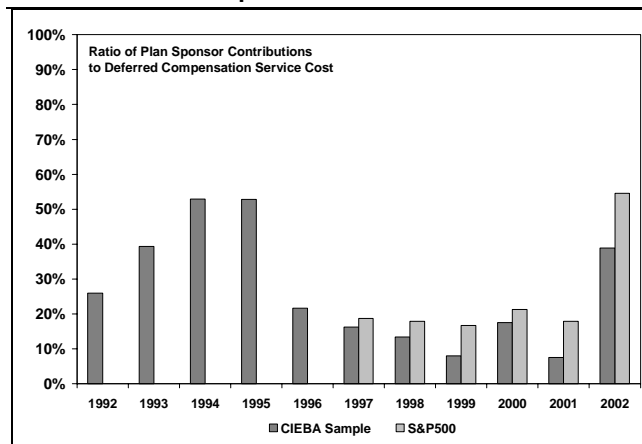
corporate managers into a false perception that the high returns earned by plan asset managers were not risky and constituted sustainable free cash. Ironically, had the corporate managers chosen to limit the risks by reducing the exposure to risky assets, some of the “missiles” we examine in this report might not have been launched. Of course, managers also would not have enjoyed the benefits of the pension holiday and the boost to reported operating income. In any case, the jump to a 160% contribution-to-service-cost ratio in 2002 and the declining benefit to income is a painful shock to many, and demonstrates clearly that the pension holiday is over.

In Exhibit 9, we show the legacy of that pension holiday: The ratio of contributions to benefit plan payouts for the S&P 500 companies and for the CIEBA survey respondents has tripled or doubled, respectively, in the past three years. While these payments are not directly related, companies need to fund their cash payments to retirees from cash returns on their plan assets, annual contributions, or sales of existing assets (including the realization of actual returns). Exhibit 9 shows not only that contributions have grown but that even more must be done to make up for existing shortfalls unless the markets continue to surge.

Ironically, the risk is that market developments in 2003 will alleviate pressure in the short term, making the interested parties feel their problems are solved. In turn, this could create complacency and induce companies to defer actions needed to combat underlying problems, especially if necessary and inevitable increased funding occurs (we detail these actions below).

Exhibit 9

Ratio of Pension Contribution to Benefits Paid for S&P 500 and CIEBA Sample



Source: CIEBA Pension Survey, Company reports, Morgan Stanley Research

But not taking action now would be a mistake. In our view, given current equity market valuations, further significant improvements in equity markets (i.e., sustained double-digit returns) would require implausible earnings growth. And as we show in Exhibit 7, even with the healthy equity markets of 2003, the aggregate short-term funding gap has been narrowed but not eliminated, and long-term requirements are still growing, so we view the reported obligations to be understated unless benefits promised are reduced. Deferring action in our view risks another pension funding crisis in the near future, which would create an added disadvantage for US corporations relative to key global competitors.

An Analysis of the Missiles and Their Impact

Proposed remedies for the shortfall in funding seem to be coming from all sides as various regulatory, accounting, and rating agencies propose changes designed to improve the transparency and funding of plans. The dramatic shift from abundant surplus to significant deficit within a three-year period, shown in Exhibit 7, was the major spur to this relatively swift and prolific set of responses; the recent spate of corporate malfeasance that undermined DC plans at a few companies probably was another catalyst.

In this section, we consider each of these “missiles” and how they may affect plan sponsors and the overall picture of the corporation’s economic health that we argue is needed for an accurate diagnosis.

The missiles fall into three categories.

1. *Changes in the transparency of financial reporting (FASB):*

- Eliminating the impact of smoothing of pension plan results on reported earnings, and
- Increased disclosure regarding pension plan assets, benefit costs and obligations, and cash flows.

2. *Changes in the rates government entities use to regulate funding and risk tolerance in asset allocations:*

- Changing the basis of the risk premium to the level of equity exposure from the amount of underfunding (PBGC),
- Use of an unsmoothed corporate yield curve based on the age of a plan’s covered population (Treasury), and
- Discount-rate reform, replacing the 30-year T-bond rate with a rate based on a corporate bond index (Congress).

3. *Rating agencies’ proposals:*

- Treating PBO as debt and reflecting the risk of various asset classes in ratings, and
- Use “core” earnings as proposed by S&P to lessen the importance of pension fund returns.

Proposed Changes in Financial Reporting

Current US accounting rules under Statement of Financial Accounting Standards 87 (SFAS 87) dictate that plan sponsor companies recognize four main components in the pension cost included in operating costs (see the Appendix for a description of current and forthcoming accounting treatments):

1. *Service cost:* The deferred compensation earned by active employees;
2. *Interest on the pension obligation* (using PBO and an aggregate discount rate);
3. *Expected return on plan assets* (an expected rate of return applied to a market value measure of plan assets); and
4. *Amortization of the difference between actual and expected returns on plan assets* or actuarial gains and losses, based on a complex set of rules.

Plan assets and obligation are shown as a net amount on the balance sheet, subject to rules allowing deferral of unrecognized gains and losses. These rules can lead to illogical outcomes, as in the 2002 fiscal year, when many companies swung from reporting pension assets to pension liabilities with offsets to equity and even the creation of an intangible asset. Since Morgan Stanley’s first *Apples-to-Apples* report published in February 1998, we have expressed our concerns with the US GAAP treatment of pension costs and obligations. Specifically, we advocated the separation of service costs, which are operating in nature (deferred compensation) from the financing costs. We also expressed concern over (1) the lack of transparency in the asset allocations and (2) the timing and potential uncertainty in the benefit payments due to participants.

Increased disclosure. As increasing numbers of analysts and investors became concerned with the accounting for pensions, a broad push for changes began. The FASB has initiated its review of the pension accounting question with the second rethink of its disclosure rules in the last five years. The primary focus of this change, which was approved and took effect in December 2003 for companies with fiscal years ending in December, is to provide more information about the asset allocations and distributions of the obligations, so that the funding and performance risk in pensions can be assessed more effectively (see the Appen-

dix for a summary). We applaud these changes and believe they will help investors to more clearly differentiate the relative riskiness of plan sponsors' pension obligations and investment policies. However, it is clear to the FASB and other observers that many of the existing and newly added disclosures are burdensome and are only needed to help investors unravel the inappropriate measurement rules under FASB 87. So the FASB is expected to take up the larger question surrounding measurement of the pension cost and net obligation (or surplus) in 2004–05.

As part of this rethink (or as part of a separate project on changes to the income statement as a measure of performance), FASB is likely to take a second step of leaving only the service cost (and prior service cost adjustments) in operating earnings and putting the other items below the EBIT line, as we have advocated for many years. The new disclosures and the removal of financing costs from operating income represent an accounting missile that, to our surprise, 92% of CIEBA survey respondents said would have little impact on their actions. We believe that the new disclosures of asset allocations alone will have some impact, as they will make high expected return assumptions difficult to justify in some cases. Furthermore, we expect that the removal of the financing income from operating income will eliminate one incentive to keep equity levels in pension portfolios higher than prudent asset-liability management and risk-taking would otherwise suggest.

Elimination of smoothing. In contrast, CIEBA survey respondents believe that the most potent accounting missile is the potential elimination of the smoothing of returns on plan assets and liabilities, which would occur if the accounting rules moved to a mark-to-market system. This is likely to occur either in response to the current situation or as part of the FASB's convergence with International Accounting Standards.⁷ The IASB is widely expected to revise its existing standard to follow the UK's Financial Reporting Standard No. 17 (FRS 17), which requires a mark-to-market approach for all pension assets and liabilities, although the annual change does not all flow through earnings. By looking to set a joint agenda beginning April 2004, we expect the FASB to work with the IASB on this new standard.

We believe that a mark-to-market approach under which all benefit payments are discounted at a single corporate bond rate and pension assets are valued at market value at the year end would not resolve today's flawed pension accounting rules. But this FRS 17-like approach is certainly better than the arbitrary smoothing under FAS 87 that distorts the

economic realities for long periods of time. A plausible alternative would be to discount the obligation at a rate reflecting the incremental cost to the company (using the yield curve) and mark-to-market both assets and liabilities but report the annual changes as financial gains and losses. In addition we would encourage disclosure of the sensitivity to rate and return changes to indicate the "value at risk."

Even so, it is useful to consider the potential impact of an FRS 17-like approach. Exhibit 10 shows the percentage change in annual reported net income from a marking to market of the assets alone (that is, adjusting for the after-tax impact of the difference between actual and expected returns). These numbers probably exaggerate earnings volatility because in some companies, liabilities moving in the opposite direction would smooth earnings (especially if there is appropriate matching). However, most companies' disclosures do not provide sufficient information to distinguish these changes.

These estimates are unlikely ever to materialize because we expect companies to adjust to the reporting regime under which they operate. A full mark-to-market system would induce companies to reduce the "risk" in their investments. In sum, for most years the data in Exhibit 10 represent the extreme of potential adjustments. We see that the median (weighted average) adjustment swings from a positive 11.7% (22.1%) in 1997 to a negative 20.0% (50.3%) in 2002. As the negative returns in 2002 were combined with lower interest rates, the actuarial adjustment from marking the liability to market would have added to the negative impact on earnings, resulting in a median hit of almost 27% and a weighted average hit of more than 67%.

While these calculations exaggerate the outcome, this change in accounting rules would clearly increase earnings volatility, unless asset allocations or hedging strategies change dramatically. However, the increase in earnings volatility might not matter much for investors. We believe that investors would not apply a standard "multiple" to the mark-to-market adjustment. Rather, they are likely to be rational and view it like any other matched book of financial assets and liabilities, focusing more on the riskiness of the net amounts than the annual adjustments, and not assuming that unrealized gains and losses will continue indefinitely. Hence, no "multiple" is likely to be applied to such gains/losses in pricing the sponsor's equity.

Proposed Regulatory Changes

The second set of missiles relates to responses from various regulatory agencies. One issue is the potential move by the Pension Benefit Guaranty Corporation, (PBGC) a quasi-government pension insurance agency, to charge premia according to the riskiness of the plan based on its asset allocations. The second issue relates to the potential move to a single long-term corporate bond rate or to an unsmoothed yield curve to replace the current discount rate (a weighted average of 30-year Treasuries) used for ERISA funding purposes.

Risk premia based on asset allocations. Gearing PBGC premia to plan risk is appropriate, in our view. But risk should be measured comprehensively, rather than solely by the share of equities in plan assets, as has been proposed. CIEBA respondents are clearly concerned by this PBGC proposal, based on the fact that 49% of respondents stated that it would affect their asset allocation. But the response may understate the impact of the proposed change. If implemented, sponsors of “healthy” plans that have managed their benefits and assets and liabilities to minimize short-falls and duration mismatches would pay for other sponsor companies’ mismanagement (through higher premiums paid to the PBGC). In response, they likely would freeze their DB plans so as not to be “caught” as the insurer of the deficit plans, an outcome that would be far more draconian than asset reallocation. In contrast with the proposal, we favor comprehensive risk-based pricing that would reduce the moral hazard in the pension safety net. The only reason we can see why healthy companies would not want the PBGC to have true risk-based pricing is fear that it could trigger bankruptcies and plan terminations. Such “adverse selec-

tion” would increase the burden on the PBGC, thereby forcing the healthy companies to incur the cost anyway.

Unsmoothed yield curve and single corporate bond rate.

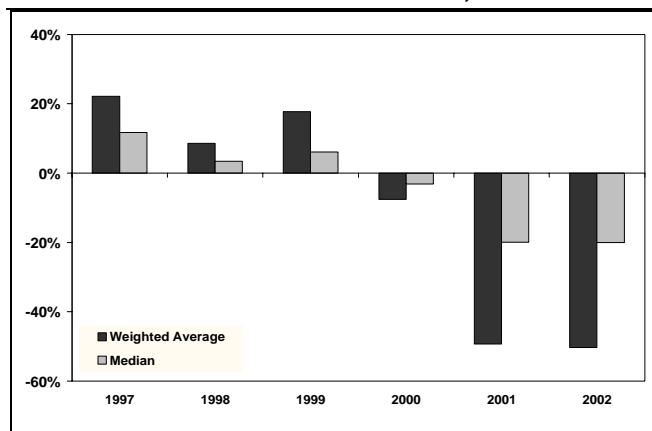
The strength of the negative reaction to the proposal to move to an unsmoothed yield curve was also a little surprising to us. Clearly, some of the reaction is to the potential balance sheet and earnings volatility that this change likely would cause, especially if combined with a move to marking to market in financial reporting. However, the intensity of the reaction suggests that many companies have a significant duration mismatch in their plans that will be highlighted with the lower short-term discount rates used with a full yield curve. If this is true, then any move to use a single corporate bond rate without any immunization of the near-term cash outflows could be disastrous for many of the DB plans if the markets do not provide very healthy returns for the next several years, hardly a riskless call. It also brings into question the argument that the obligations are predominantly long-term in nature, as this would mean that the low rates at the short end of the curve would have little impact on the total obligation.

Rating Agency Responses

The final set of missiles relates to rating agency reactions. For many years the rating agencies seemed to pay little attention to the pension obligations in their evaluations of corporate debt. We obviously cannot know why they chose this course, but it is plausible that aggregate surpluses blinded them to the risk that many of the sponsors were taking as shifting demographics were reducing the active-to-retiree ratio. This has changed in the last couple of years, in particular for Standard & Poor’s, which has made significant adjustments, both in adopting a new approach to its definition of core earnings and in a move to treat the PBO as debt — the latter seemingly also being implemented by the other major rating agencies, Moody’s and Fitch. CIEBA survey respondents correctly dismiss the core earnings issue, in our view, as Standard & Poor’s has clearly created a measure with little economic logic that investors are largely ignoring.⁸ However, while CIEBA survey respondents seem less concerned about the impact on debt ratings than we had expected, (with 67% indicating that this would have no impact on their asset allocations) we suspect that there will be a lagged effect as companies are required to increase their funding and the bite of the rating agencies’ changes on riskier plans becomes more evident. We have already seen the agencies cite pension issues when putting companies on credit watch or in some cases downgrading their ratings.

Exhibit 10

S&P 500: Estimated Impact on Net Income of Mark-to-Market Returns on Pension Plan Assets, 1997–2002



Sources: Company reports, Morgan Stanley Research

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Please see important disclosures starting on page 23.

In sum, some plan sponsors view many of these missiles as negative and “dangerous.” Yet it is unclear whether it is the nature of the remedies or their timing that turns them into missiles. For example, if we were starting a DB system from scratch today, few of these issues would be viewed as threatening. On the contrary, we would support many of the proposed changes — such as increased transparency of asset allocation and of estimated future contributions and benefit payments — to ensure economic efficiency and appropriate risk management. That is certainly our view, and to be fair, it is also the view of many DB plan CIOs and their bosses. Yet it is fair to argue that it may not be appropriate to shock a system that has been in place for decades into a new equilibrium over a very short time frame. But inaction won’t save the DB pension system.

Impact on Corporate America

DB plans are having a profound impact on Corporate America today as plan sponsors are being forced to inject large amounts of free cash or debt into their plans to overcome the current shortfalls. As we showed in Exhibits 7 and 9, the size of contributions has grown significantly in 2002, and we estimate it will need to remain at a higher level than in the period from the 1990s through 2001. This trend should become clear with the new accounting disclosures. They require disclosure of benefits to be paid in the next five years, by year; aggregate benefits in years 6–10; and expected contributions looking forward at least one year. Yet the data also reveal that contributions — while above service cost in 2002 and 2003 (at least in aggregate) — are still less than benefits paid, so that returns on plan assets must contribute to the payment of benefits. To the extent that these payments have to be made in the near term, corporations are continuing to take on short-duration market risk that could bite if economic growth is inadequate.

The missiles collectively might trigger a 12.7 percentage point (22.2%) reduction in DB plans’ equity allocations.

Depending how companies react, the proposed changes would likely have an impact beyond how sponsors run their plans. Short-term required plan contributions would be larger, and if investment policies remain the same, the volatility of reported earnings would rise substantially. For some companies, the contributions and earnings impact would swamp their operating performance, while for others, the outcome should be far less dire. Either way, gradual but disciplined implementation of funding and investment pol-

icy adjustments would buy time for both groups to restore the health of their plans while maintaining the health of their companies — obviously vital for the well-being of current workers, debt holders, and shareholders.

Plan Sponsor Responses to Proposals Indicate Risk Reduction

The CIEBA survey indicates that DB plan CIOs see these proposals as incoming missiles that will trigger changes in the operating rules for their plans. The survey strongly suggests that CIOs will respond to some of them by adopting a more cautious asset mix in two important dimensions.

First, if several of these proposals were implemented, plan CIOs would decrease assets allocated to equities and increase their allocation to bonds by a similar dollar amount. Companies would want to reduce equity exposure and increase fixed-income allocations to reduce the extra earnings volatility, higher PBGC premiums, and the wider duration mismatch between plan assets and liabilities that would otherwise accrue under the new proposals. Note that because the typical equity allocation is twice that for fixed income, fixed-income allocations would jump by roughly twice as much in percentage terms as equity allocations were reduced. Note too that the response to the collective implementation of all proposals is far smaller than the sum of the individual responses, because each additional proposal has a successively smaller impact.

Exhibit 11 summarizes the asset allocation changes respondents would make in response to each proposal separately, and to the implementation of all seven proposals collectively. The responses are presented in terms of percentage point reductions in equity allocations; for example, elimina-

Exhibit 11

Missiles’ Impact: Plan Sponsor Changes to Equity Allocation

	Percentage point change in equity allocation
1 FASB elimination of smoothing	-9.0%
2 Treasury requires the use of an unsmoothed corporate yield curve	-8.1%
3 PBGC alters premium system so that premiums are based on equity allocation	-7.0%
4 Discount-rate process altered to allow use of a single long-term growth rate	-0.8%
5 Rating agencies treat the PBO as “debt”	-7.0%
6 Broad adoption of S&P’s definition of core earnings	-5.5%
7 FASB requirement to disclose expected returns	-0.3%
Collective impact	-12.7%

Note: Includes US and international equity.

Sources: CIEBA Pension Survey, Morgan Stanley Research

Exhibit 12

Duration Policy: Plan Sponsor Responses to Missiles

Impact Duration Policy	Eliminate smoothing	'Collective'
No	63%	53%
Yes	37%	47%
If Yes, Increase	89%	100%
1-4 Years	12%	15%
5-8 Years	69%	52%
+8 Years	19%	33%
Mean increase (years)	6.7	7.1
If Yes, Decrease	11%	--
1 - 4 Years	50%	--
5 - 8 Years	50%	--
+8 Years		--
Mean increase (years)	4.5	--
Net increase (years)	6.4	7.1

Sources: CIEBA Pension Survey, Morgan Stanley Research

tion of smoothing would likely trigger a 9 percentage point reduction in equity exposure.

Implementing four of the seven proposals would significantly shift asset allocation from equities to bonds (with a 5–6% reduction in equities), according to the survey. (It's worth noting that the survey results were meant to characterize such shifts under normal market conditions, e.g., with real interest rates closer to their historical means, and not necessarily under today's market conditions.) Small wonder: These are the "missiles," such as eliminating the smoothing for income reporting purposes of pension portfolio gains and losses, that would have the largest impact on plan sponsors' income statements and balance sheets. *Our analysis indicates that the seven missiles collectively might trigger a 12.7-percentage-point shift in portfolio weightings to fixed income from equities — a 45% increase in fixed income and a 22.2% reduction in equity allocations (assuming a normal mix of 60% equities, 35% fixed income, and 5% cash as a starting point). Given that private DB plans hold roughly \$900 billion in equities, such a shift would reallocate \$200 billion between the two asset classes.*⁹

The second dimension of the reaction, detailed in Exhibit 12, would also be profound: In response to the smoothing proposal, more than one-third of CIOs would change their duration policy (indicated in the second row of the table). What's more, those CIOs making the change would increase bond portfolio duration by a whopping 6.4 years, more than doubling the current duration of 5.75 years. And the seven missiles collectively would trigger a 7-year increase in duration, to nearly 13 years (see the last row of the

table). *Given that CIEBA respondents indicate that the average duration of their US PBO is about 11–13 years, such an increase seems entirely appropriate regardless of whether the proposals are implemented. No doubt, such changes would increase the volatility of the typical DB portfolio, but they would more closely match the duration of assets and liabilities.*

The management of risk and duration, especially in a period of transition, does not all have to occur in the instruments themselves. A variety of strategies using derivatives allow plans to manage their risk profiles without disrupting short-term flows. While the current scope, size and breadth of some derivatives markets pose practical obstacles to such a massive undertaking, increased demand and a relaxation of the restrictions on how pension trustees seek advice would likely provide a solution that would ease any transition. Furthermore, as investors and rating agencies increasingly view the pension obligation as part of corporate debt, a move to fixed-income investments can be value-accretive for investors (while providing increased safeguards for employees and retirees) if companies simultaneously issue bonds and repurchase their own equity.¹⁰

Aggregate reallocations by private and state & local plans could amount to nearly 3.8% of US equity market cap.

Ideally, plan CIOs should separate their asset-allocation decisions from their bond-duration decisions, because the first relate to the funding of current versus future retirees, while the second relate to how to fund the obligation to current retirees. Taken together, however, these changes would effectively move a significant sum into long-duration bonds. The combination would dramatically reduce the risk profile of private DB plans and "immunize" a large portion of their current ABO. The conundrum of course is that most plans don't have enough assets to match or immunize their liability. In addition, as discussed below in greater detail, an abrupt shift in asset allocation/duration could trigger significant asset price swings, reflecting the current limited supply of long-duration bonds (for example, there is \$400 billion of outstanding Treasury debt with current maturities greater than 10 years). However, as noted below, a significant step-up in the demand for long-duration debt would probably bring new supply, at least from private issuers.

Exhibit 13

Sales of Equities: “Collective” Scenario (Billions of dollars)

	Total	2004	2005	2006	2007	2008	2009	2010	2011	2012
Sales by private DB plans of domestic equities	145	64	36	36	3	3	3			
Sales by private DB plans of foreign equities	59	26	15	15	1	1	1			
Sales by state and local plans	377				166	94	94	8	8	8
Total equity sales	582	90	51	51	170	98	98	8	8	8
<i>Addenda</i>										
Domestic sales as share of US market cap	3.7%									
Foreign sales as share of foreign market cap	0.4%									
Sales as share of global market cap	2.1%									

Sources: CIEBA Pension Survey, Morgan Stanley Research

This asset allocation shift would itself have an impact on reported pension costs and operating earnings, as expected and presumably actual returns would be lowered. The primary shift would occur in the year of transition: Our estimates suggest this would reduce aggregate operating earnings by around 2% for the companies in the S&P 500, depending on the size of the adjustment and the assumptions used for actual/expected returns.¹¹

That’s not the end of the story, however. State and local government DB plan sponsors will be watching the private plans’ asset allocation moves with great interest, since in all likelihood they will be required to follow suit. *State and local plan holdings of equities are nearly double those of private plans. If both reallocated 22.2% of their equity holdings into bonds, such sales would amount to nearly \$600 billion, or 3.8% of US equity market capitalization as of March 22, 2004.* We assume that private and state and local plans spread their sales out over a multi-year period, as indicated in the survey. We also assume that state and local plans would follow private plan sponsors’ asset allocation and duration decisions with a three-year lag, but we also explore the case in which they follow suit immediately. Exhibit 13 depicts potential paths of equity sales from private and public plans for the “collective” scenario under these assumptions (we don’t separately calculate such paths for each missile, as the net effect of each is much smaller). Beyond changes to asset allocation, the responses to the survey suggest that in some cases, the proposed changes might trigger a significant backing away from DB plans. Sponsors might freeze plans for existing and/or new participants. In the first case, freezing a plan for existing participants would save sponsors from accruing deferred compensation, but they would still be responsible for all benefits accrued to date. Thus, such a move also would have critical implications for asset allocation because the time profile of the plan’s cash distributions (in the ABO) would shorten considerably and would be more certain. Freezing a plan thus would probably promote an even quicker move from

equities to bonds, and thus a more precise matching of duration between assets and liabilities.

By comparison, eliminating new participants from an ongoing plan would still leave aging active participants in the plan, with asset allocation implications somewhere in between current practice and a full freeze. It’s worth emphasizing that — apart from tax considerations, which could have an important bearing on capital structure — moving asset allocation to 100% bonds makes little sense for a going concern. Allocation of some plan assets to equities covers the “long tail” of the plan’s PBO from future and even yet-to-be hired retirees in perpetuity. For a going concern, equities can also hedge the inherent uncertainty of future payments in the PBO. For the individual plan sponsor, extending bond duration and reducing equity exposure can also be done through derivatives.

When contemplating the impact of freezing DB plans, it is always important to incorporate the likely increase in alternative compensation, in the form of either a defined contribution plan or higher cash compensation. Anecdotal evidence suggests that employees trade off pension and health-care benefits for other forms of compensation, so an elimination of DB pensions requires some payback to employees. Most alternatives require companies to pay earlier, exaggerating the short-term negative cash consequences, as both DC and cash compensation are paid out almost immediately as earned, while DB funding is currently often deferred. It’s worth noting that individuals would thus be much more reliant on their own resources to manage their retirement nest eggs.

Clearly, plan sponsors who see the handwriting on the wall may make all these changes regardless of any changes mandated by the authorities. But the incoming missiles would likely accelerate the process.

Projecting the Potential Impact on Asset Prices

In theory, this reallocation of funds from one asset class to another should produce small, temporary, and offsetting moves in stock and bond prices. The reallocation, including that from state and local funds, probably would be large enough in relation to the overall size of equity and debt markets to reduce stock prices and flatten the yield curve. The doubling (or tripling) of bond duration would further flatten the curve, the more so because the supply of long-duration debt is currently limited. As a result, plans seeking duration might well turn to derivatives to increase duration synthetically. In practice, however, several factors seem likely to affect the impact.

First, if the reallocation and duration extension were phased in over a multi-year period, the market impact of even such a large portfolio rebalancing move — including shifts in state and local government plans — likely would be swamped by more fundamental macro factors, such as inflation, growth, and monetary policy. The so-called “technical” factors of supply and demand typically magnify, but do not overwhelm, those fundamentals. Second, knowing that it was coming, market participants would likely anticipate the rebalancing and adjust portfolios accordingly, and perhaps more quickly than we assume. For example, assuming that state and local government retirement funds follow suit, we estimate that a gradual rebalancing could temporarily reduce equity prices by 8–12% and flatten the yield curve by 35–60 basis points in the first few months following implementation, based on the size of today’s markets. Continued equity sales to rebalance portfolios — even if known to market participants — might overhang the market and permit only a gradual rebound in prices or yields. The allocation of new DB contributions primarily to bonds could contribute to that effect.

Third, however, the more abrupt the rebalancing move, the more dramatic the price action would be while it occurred, and the swifter the ensuing rebound in prices toward values dictated by fundamentals. Issues of market liquidity in both cash and derivatives markets come into play in thinking of a massive rebalancing in a relatively short period of time. In a second alternative, therefore, we estimate that abruptly implementing the “collective” scenario would temporarily reduce equity prices by 10–15% and flatten the yield curve by 75–150 bp. This magnified, nonlinear response reflects market dislocations that could follow such an abrupt move.

Exactly what the reaction might be under such circumstances is far from clear, however. Some think that such an

abrupt reaction would be akin to forcing a “fire sale” of assets at the bottom of the market — like the forced liquidation of European insurance company equity holdings in 2002, or the forced sales of high-yield debt by thrift institutions in 1989 following FASB’s change in the accounting treatment of such bonds. We believe that the analogy is imperfect. In those earlier episodes, institutions were forced to sell assets; in this case, however, we are assuming that CIOs are merely choosing to be — appropriately — more conservative in response to changes in circumstances, and that the proposed changes in rules and regulations are the catalyst. As a result, the market reaction to implementation seems likely to fall far short of those in the two scenarios we have outlined.

A gradual rebalancing could temporarily reduce equity prices by 8–12% and flatten the yield curve by 35–60 basis points.

Likewise, while the reallocation to bonds from equities and the doubling of DB bond portfolio duration would significantly flatten the yield curve, we believe that comparisons with the impact of the 1997 Minimum Funding Requirement on the Gilt yield curve in the United Kingdom are inexact. The MFR was a much more comprehensive mandate than the proposals now on the table in the US. Nonetheless, we are highly sympathetic to the notion that under current circumstances, these changes would flatten the Treasury yield curve dramatically.

Fourth, however, the impact also depends importantly on how corporations and governments act to change the supply of bonds and equity. For example, the British retailer Boots went beyond shifting plan assets from equities to appropriately matched bonds. The company also changed its balance sheet by issuing bonds and repurchasing equity, in some sense reestablishing an equivalent “net” exposure, and thus taking advantage of a tax arbitrage opportunity. If plan sponsors and state and local governments issue debt on their own balance sheets to reflect and measure more precisely the PBO, and corporations repurchase their own equities, these changes in the supply mix would mute the decline in equity prices and yields.

In that regard, it is tempting to speculate that the implementation of these proposals would offer the Treasury’s debt managers an opening to resume bond issuance. A step-up in bond supply could significantly offset the flattening in the yield curve that the reallocation to bonds and duration

extension would otherwise induce. Arguably, a dramatic shift in the maturity composition of government supply toward bonds would facilitate what would otherwise represent a major scramble for duration by plan sponsors and others. The debt managers aren't likely to see the picture in those terms, however. Regular and predictable auctions have served them well over the years, and they need a compelling reason to alter the maturity profile of debt issuance. With the spread between 10- and 30-year yields at a still-wide 103 bp (as of March 19, 2004; see Exhibit 14), close to the recent record, issuing bonds would be expensive and counterproductive. If the scramble for duration narrowed that spread significantly, Treasury officials then — and only then — might be inclined to listen.

Macroeconomic Impact: Scenario Analysis

What would be the likely macroeconomic fallout from these asset price moves? In our view, these crosscurrents in asset prices are unlikely to have a major impact on the economy, for two reasons. First, even a perceptible decline in equity prices would only nick the economy; and second, lower bond yields would offset the impact of lower stock prices on economic activity.

Those factors are illustrated in simulation exercises aimed at approximating the impact of the “collective” scenario on the evolution of the economy. The first exercise, illustrated in Exhibit 15, shows that the impact of even the most dire scenario on growth, inflation, and employment would amount to only a few tenths of a percentage point.¹² Note that the initial decline in GDP reflects a quicker depressing effect from falling stock prices than the boost from falling bond yields. That gives way to a slightly positive effect after four years. In turn, that is the product of our assumption that the

Exhibit 14

Spread Between 30-Year and 10-Year Yields



Source: Federal Reserve. As of March 19, 2004.

rebalancing into bonds slightly but permanently lowers yields, but that stock prices rebound after the selling abates.

In the second exercise, shown in Exhibit 16, we add the duration extension to the rebalancing scenario. Again, the effects of this move on the economy are relatively small.

More interesting and much harder to assess would be the effects of freezing DB plans and the impact of pension contributions on corporate cash flow and thus capital spending and hiring. As pensions are deferred current compensation, we expect that in any such freeze, DB plans would be replaced by a DC alternative or simply increased salary/wage levels. This loss of perceived permanent income could produce a much more significant shortfall in economic activity than in the rebalancing scenarios, but we have no way to measure the impact.

Exhibit 15

Economic Impact of “Collective” Rebalancing Scenario

Percentage point difference from baseline scenario

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Real GDP	-0.1	-0.3	-0.5	-0.4	0.1	0.4	0.7	0.8	0.8	0.7
Prices*	0.1	0.1	-0.1	-0.5	-0.8	-1.1	-1.2	-1.4	-1.4	-1.4
Unemployment rate	0	0.2	0.3	0.3	0.1	-0.1	-0.2	-0.3	-0.2	-0.2

* Consumer price index

Source: Morgan Stanley Research

Exhibit 16

Economic Impact of “Collective” Rebalancing and Duration Extension Scenario

Percentage point difference from baseline scenario

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Real GDP	0	-0.1	-0.2	-0.1	0.2	0.5	0.7	0.7	0.6	0.5
Prices*	0.2	0.4	0.1	-0.4	-0.8	-1.1	-1.2	-1.4	-1.4	-1.3
Unemployment rate	0	0.1	0.2	0.2	0	-0.1	-0.2	-0.2	-0.1	-0.1

* Consumer price index

Source: Morgan Stanley Research

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The good news is that the expected macroeconomic impact of these scenarios probably would be limited. Only one-fifth of the private workforce is currently covered by DB plans, so even if every active participant doubled his/her saving out of current income and curbed consumption by a like amount in response to the perceived wealth loss, such retrenchment might trim overall economic growth by about half a percentage point. And not all CIEBA respondents say that they would freeze accruals or new entry even in response to all missiles fired. On a weighted average basis, about 27% might freeze accruals, while 35% might freeze entry of new participants in response to these changes collectively.

But freezing accruals or new entrants would not let sponsors off the hook. Even a frozen DB plan must fund the existing accrued benefits, so shortfalls and mismatches would bite into current cash flows more deeply in the early years of any switch. That would be especially true if the adoption of the proposals we have examined and related actions reveal bigger funding shortfalls, and funding rules require large contributions in a short time frame. Sizable contributions in turn could limit cash flows available for investment needs, with further macro spillover effects. As a result, the reaction of plan sponsors will dictate the ultimate outcome.

Either way, the legacy costs of past actions create a real disadvantage for these US corporations: Benefit costs, including pension contributions and healthcare insurance premiums rose by 6.5% in the year ended September, 2003, when they amounted to 28.4% of hourly compensation. In contrast, governments in many other countries provide such benefits, so the taxpayer bears both their costs and risks.

But using hindsight to place blame is pointless. The partners, plan sponsors, their owners, employees, and retirees, as well as the implicit government guarantors, all need to cooperate in finding a solution. The missiles do not change the underlying economic reality, so the real macro impact is a question of timing and managed response. Both moving too fast and not moving at all will both have a negative impact on the US economy.

Conclusion and Recommendations

We believe that the corporate DB system should remain a key element in our country's long-term system for retirement savings. Market conditions over the past three years have exposed weaknesses in the DB system that should be carefully addressed. Neither regulators nor plan sponsors should overreact to the circumstances of the immediate past;

in all likelihood, the worst of the pension funding shortfall has passed. Thus, a balanced approach to reform is critical. At the same time, neither regulators nor plan sponsors should let today's improved market conditions renew complacency about DB plans' health. With unfavorable demographics, for any level of risk appetite, DB plans are simply going to cost more than previously thought. And the cost of increased benefit promises needs to be rethought. DB plans' underlying obligations and funding will require that plan sponsors adjust their thinking. The future of the DB system depends on carefully implementing reforms which ensure that plan sponsors act promptly to adequately fund the promises they have made while taking on prudent economic risks.

While the macroeconomic impact of these proposals, if implemented, as a result of changes in stock prices and bond yields alone is likely to be small, the effects on the defined-benefit pension system will be substantial. Indeed, the future of the system now hangs in the balance and will depend not only on whether the proposals examined here are implemented, but more importantly, on whether plan sponsors act promptly to balance the economic risk in their plans with realistic return objectives.

Hence, while we believe that transparency is a big step forward, we are less focused on endorsing one or more of these missiles as cures for the DB system's ills, and more on exhorting DB plan sponsors to address the fundamental issues. In any case, additional accounting changes are likely to be phased in, and they will not hit until 2005 or 2006, given the FASB's current timetable. But the correct long-term solution is not to argue about the right discount rate and whether to mark assets and liabilities to market but to show the matched book over time. As the regulatory proposals now stand in Congress, the Senate version offers a two-year grace period followed by punishment for failure to comply, while the House version carries no penalties for failure. We strongly believe that any remedies that carry the carrot of a phase-in will only be meaningful if they also carry the stick of penalties for failure to reduce plan risk.

But we see no alternative. The key lesson from the past is that had Corporate America funded the DB system appropriately over the past decade, the massive cash infusions that plans now require would not be needed. In contrast, maintaining the status quo today in our view condemns the DB system to another funding crisis at some point in the future.

Appendix

Exhibit 1

Disclosures Under Current FASB Rules

Measure	Description
<u>Income Statement</u>	
Service Cost	Increase in obligation arising from employees' service during the period
Amortization of Prior Service Costs	Cost of adjustments to pension benefits from new labor contracts
Interest Cost	Reported obligation multiplied by the discount rate
Expected Return on Plan Assets	Value of plan assets multiplied by company's assumed expected return
Recognized Net Actuarial Loss/(Gain)	Recognition of "smoothed" gains/losses from changes in discount rates, actual vs. expected returns and other actuarial adjustments
Curtailments, Settlements, and Other	
Net Pension Cost in Operating Expense	
<u>Balance Sheet Items</u>	
Projected Benefit Obligation (PBO) (beginning of period)	Present value of expected payments based on projected salary levels.
Service Cost	As above
Interest Cost	As above
Amendments and Actuarial Losses/(Gains)	Changes arising from adjustments to actuarial assumptions
Benefits Paid	Payments made to retirees
Projected Benefit Obligation (end of period)	
Fair Value of Plan Assets (beginning of period)	Assets set aside to meet the obligations to employees, adjusted to current values
Actual Return on Plan Assets	Actual returns earned on plan assets
Employer Contributions	Cash contributions paid by the plan sponsor
Benefits Paid	
Fair Value of Plan Assets (end of period)	
Actuarial Assumptions Used for Pension Estimates	
Discount Rate	
Expected Rate Of Return	
Rate Of Compensation Increase	

Source: Morgan Stanley Research

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Exhibit 2

Additional Disclosures Under FAS 132 Amended

Plan Assets:

- Major categories of actual asset classes (e.g., equity securities, debt securities, real estate, other)

Plan Obligations:

- Accumulated benefit obligation (excludes projected salary increases in PBO)
- Expected future benefit payments for each of next five years and for years 6–10 in aggregate
- Best estimate of aggregate expected contributions for the next fiscal year

Other Disclosures:

- Description of investment strategies and policies employed including: target asset allocations, if used, and other pertinent factors such as investment goals, risk management, allowable and prohibited investment types, including the use of derivatives, diversification, and relationship between plan assets and benefit obligations
- Further breakdowns of plan assets if useful to understand market risks and expected long-term rate of return
- A description of the basis used to determine the overall expected long-term rate of return on assets assumption
- Assumptions used to determine the benefit obligation and (separately) net periodic cost
- Measurement date, or dates, used that make up at least the majority of plan assets and benefit obligations

Source: *Morgan Stanley Research*

Notes

¹ We do not think that all investors ignored the risks, but see Julia Coronado and Steven Sharp, “Did Pension Plan Accounting Contribute to a Stock-Market Bubble?” *Brookings Papers on Economic Activity 1: 2003*, ed. William C. Brainard and George L. Perry (Washington, DC: Brookings Institution, 2003), for evidence that investors in the 1990s failed to distinguish between operating and pension-generated income.

² CIEBA surveys of its members from 1992 to 2002 show pension payouts growing from \$27 billion in 1992 with 105 respondents to \$54 billion in 2002 with 104 respondents. The payout peaks in 2000 at \$57 billion, but that was with 119 respondents, so is not really comparable with the 2002 numbers.

³ See Richard Berner, “Future Investment Returns and Social Insurance” in *The Future of Social Insurance: Incremental Action or Fundamental Reform?* ed. Peter Edelman, Dallas L. Salisbury, and Pamela J. Larson, (Washington, DC: National Academy of Social Insurance, 2002).

⁴ Some pension specialists argue that the accumulated benefit obligation (ABO) is more relevant than the PBO as a summary measure of the obligation. There are pros and cons to both arguments but more than 80% of the companies that responded to the CIEBA survey have a PBO/ABO ratio ≤ 1.1 so we focus on the PBO number.

⁵ Many companies do not split their US and non-US plans in published financial statements. Where this split is given, we use only the US data, but we are aware of several cases where the non-US plans distort the size of the deficit (e.g., Procter & Gamble). We believe that on average the non-US plans are likely to increase deficits and reduce surpluses in the S&P 500 data.

⁶ Our early *Apples-to-Apples* reports published in 1997/1998 pointed out many of these issues, but we found little traction with investors, who continued to focus on EBITDA-based measures in sectors like telecoms.

⁷ New standards put out by the International Accounting Standards Board (IASB) are now known as International Financial Reporting Standards (IFRS).

⁸ In a report published when S&P first announced this measure, we showed it did not make sense (*S&P’s New “Core Earnings” Will Create Confusion not Clarity*, May 14, 2002).

⁹ These estimates are from Morgan Stanley’s Pension Strategies Group and differ from those published in the Federal Reserve’s Flow of Funds Accounts.

¹⁰ This was the strategy adopted by Boots PLC when the company changed its asset allocations prior to the imposition of FRS 17 in the UK.

¹¹ We assume a 10% return on equity and 6% on bonds in this calculation.

¹² We carried out these exercises with the Macroeconomic Advisors’ forecasting model of the US economy.

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(as of February 29, 2004)

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Total	1,789		632		

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