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# Market impact of pension accounting reform

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## FASB releases final phase one standard... Sec.1

Last Friday, the Financial Accounting Standards Board (FASB) released its final standard requiring companies to post the funded status (ie, assets less liabilities) of their pension and other post-employment benefit (OPEB) plans on the balance sheet by the end of this year. This impacts 2006 filings!

## $397bn liability on balance sheet at year-end... Sec.2

Based on 2005 10-K filings projected to the end of 2006, the aggregate S&P 500 underfunding that will appear as a liability on the balance sheets is estimated at $397bn. ($87bn for pension and $310bn for OPEB). The pension-funded status is estimated to improve to 94% (from 90% last year) to the end of 2006.

## $217bn aggregate hit to shareholder equity... Sec.3

Assuming a 35% corporate tax rate, aggregate shareholder equity is estimated to drop by $217bn, or 6%. Lower book values and more leverage could impact loan covenants and the ability to pay dividends. Our assumed (35%) tax rate generates a $117bn deferred tax asset. Companies unable to generate sufficient taxable income (to use their deferred tax asset) will take a larger hit to equity. Five companies' shareholder equity could be wiped out entirely.

## Funding won't erase past accounting sins... Sec.3

We still contend that corporations will issue debt and use the proceeds to fund their deficits. Unfortunately, additional funding does not impact the end-of-year charge to equity.

## Measuring the transparency gap... Sec.4

Current pension accounting standards with its smoothing mechanisms, corridors, long amortization periods, and footnote reporting of pension assets and liabilities, largely masks the equity risk in the pension plan. Section 4 provides a crude framework to simply get us thinking about these off balance sheet risks. Finally, we close by looking at how the debt-to-equity ratios will likely change as a result of phase one.

**Projected 12/31/2006 funded status ($bn)**

| | Assets | Liabilities | Net Funding |
|---|---|---|---|
| Pension | $1,382 | $1,469 | ($87) |
| OPEB | 95 | 405 | (310) |
| Total | $1,477 | $1,874 | ($397) |

**Total hit to shareholder equity ($bn)**

| | Pre-Tax | Post - Tax[1] |
|---|---|---|
| Pension | $243 | $158 |
| OPEB | 92 | 60 |
| Total | $334 | $217 |

1 Assumes a 35% corporate tax rate.
Source: Merrill Lynch estimates

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**Refer to important disclosures on page 24. Analyst Certification on page 22.**

# 1. Overview – Phase one accounting

Defined benefit (DB) pension and retiree health/other post-employment benefit (OPEB) plan assets and liabilities are currently not included on their issuer's balance sheet and thus are reported in the footnotes. These accounting rules allow for the deferral of actuarial gains and losses, which have the potential to fluctuate significantly. Because current accounting standards are designed to smooth the amounts reported for pension plans, the financials often report an asset on the balance sheet (giving the reader the impression the plan is overfunded) when in fact a funding deficit is reported in the footnotes (ie, off balance sheet).

## Phase one – Charge to shareholder equity at 12/31/06

***Balance sheet impact occurs at the end of this year!***

On 29 September 2006, the Financial Accounting Standards Board (FASB) released its final statement (FAS 158 *Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans*) requiring that public, nonpublic and not-for-profit organizations recognize on their balance sheet the overfunded or underfunded status of their defined benefit pension plan and OPEB plan. Recognition of the off-balance sheet funded status is effective for fiscal years ending after 15 December 2006.

**Projected 12/31/2006 funded status ($bn)**

| | Assets | Liabilities | Net Funding |
|---|---|---|---|
| Pension | $1,382 | $1,469 | ($87) |
| OPEB | 95 | 405 | (310) |
| Total | $1,477 | $1,874 | ($397) |

**Total hit to shareholder equity ($bn)**

| | Pre-Tax | Post - Tax[1] |
|---|---|---|
| Pension | $243 | $158 |
| OPEB | 92 | 60 |
| Total | $334 | $217 |

1 Assumes a 35% corporate tax rate.
Source: Merrill Lynch estimates

The funded status of the pension/OPEB plan will now replace the amounts shown on the balance sheet. Please see *section 2* for a breakdown of our projection of pension and OPEB underfunding at 31 December 2006 by industry group and a list of the largest underfunded plans.

These adjustments will likely result in a reduction in shareholder equity (ie, book value) for a majority of companies that have DB and OPEB plans. We estimate a total reduction in shareholder equity at 31 December 2006 of $217bn (or 6%). Please see *section 3* for additional details on the charge to shareholder equity.

This final statement completes phase one of FASB's two-stage project designed to improve the reporting of pensions and other post-employment benefits in the financial statements of public companies. This standard does not impact the income statement (with potentially an exception for utilities). The final standard also applies to not-for-profit organizations and other entities that do not report other comprehensive income (OCI). For nonpublic and not-for-profit organizations, recognition shall be applied for fiscal years ending after 15 June 2007. The final statement can be found at:

FASB Statement No. 158

The information contained in this report is based on our assumptions, estimates and interpretation of FAS 158. An analysis based on different assumptions or another interpretation of the document could produce other results.

## Phase two – Comprehensive reconsideration phase

Phase two of the project will reconsider all aspects of accounting for pension and OPEB arrangements, including the measurement of plan assets and plan obligations. That is, phase two could see *gross* pension assets and gross liabilities on the balance sheet, whereas phase one simply places the *net* difference on balance sheet at this time. This multi-year project will look at determining an economic pension expense and further separating this expense into components (ie, operating, financing, and investing).

# 2. Funded status at 12/31/2006

Table 1 shows the pension funded status for the 360 companies with pension plans in the S&P 500 by industry group. We extracted all of the relevant data from the 2005 notes to the financial statements of each company's 10-K and then projected these figures to 31 December 2006. We assume that 2006 asset returns for all pension (and OPEB) plans equal *5%*. We have also assumed that all sponsors increase their discount rate by *25bp. Please refer to Appendix A for further details on the assumptions used to project assets and liabilities.*

The aggregate funded status at the end of the year will improve to 94% (from 90%) if our assumptions hold true. There are 63 plans projected to be overfunded and 297 plans projected to be underfunded at the end of the year.

**Table 1: S&P 500 pension funded status ($mn where applicable)**

| | | | 12/31/2006 Projected | | | | 12/31/05 | 12/31/04 |
|---|---|---|---|---|---|---|---|---|
| Sector | Industry Group | Number of companies | PBO | Plan Assets | Net Funding | Funded Status | Funded Status | Funded Status |
| **Consumer Discretionary** | | **54** | **$261,359** | **$241,666** | **($19,693)** | **92%** | **88%** | **87%** |
| | Automobiles & Components | 5 | 191,497 | 180,282 | (11,215) | 94% | 90% | 87% |
| | Consumer Durables & Apparel | 15 | 20,743 | 18,662 | (2,081) | 90% | 86% | 85% |
| | Consumer Services | 5 | 1,646 | 1,404 | (242) | 85% | 80% | 81% |
| | Media | 14 | 26,165 | 22,385 | (3,780) | 86% | 80% | 85% |
| | Retailing | 15 | 21,308 | 18,933 | (2,375) | 89% | 85% | 88% |
| **Consumer Staples** | | **34** | **$93,824** | **$81,572** | **($12,252)** | **87%** | **82%** | **81%** |
| | Food & Staples Retailing | 5 | 7,482 | 6,461 | (1,021) | 86% | 81% | 80% |
| | Food Beverage & Tobacco | 23 | 70,366 | 63,540 | (6,826) | 90% | 86% | 84% |
| | Household & Personal Products | 6 | 15,976 | 11,571 | (4,405) | 72% | 64% | 67% |
| **Energy** | | **27** | **$69,944** | **$55,292** | **($14,652)** | **79%** | **72%** | **70%** |
| **Financials** | | **61** | **$134,694** | **$135,934** | **$1,240** | **101%** | **98%** | **97%** |
| | Banks | 22 | 25,959 | 27,000 | 1,041 | 104% | 104% | 104% |
| | Diversified Financials | 18 | 54,115 | 57,275 | 3,160 | 106% | 104% | 102% |
| | Insurance | 19 | 54,416 | 51,492 | (2,924) | 95% | 90% | 88% |
| | Real Estate | 2 | 204 | 167 | (37) | 82% | 77% | 75% |
| **Health Care** | | **33** | **$79,595** | **$70,102** | **($9,493)** | **88%** | **83%** | **81%** |
| | Health Care Equipment & Services | 17 | 19,441 | 16,913 | (2,528) | 87% | 82% | 78% |
| | Pharmaceuticals, Biotechnology & Life Sciences | 16 | 60,154 | 53,189 | (6,965) | 88% | 83% | 82% |
| **Industrials** | | **45** | **$331,388** | **$311,724** | **($19,664)** | **94%** | **91%** | **91%** |
| | Capital Goods | 33 | 291,895 | 273,967 | (17,928) | 94% | 90% | 91% |
| | Commercial Services & Supplies | 5 | 6,376 | 6,590 | 214 | 103% | 101% | 99% |
| | Transportation | 7 | 33,117 | 31,167 | (1,950) | 94% | 92% | 95% |
| **Information Technology** | | **37** | **$183,213** | **$177,187** | **($6,026)** | **97%** | **93%** | **89%** |
| | Software & Services | 10 | 22,396 | 19,466 | (2,930) | 87% | 81% | 81% |
| | Technology Hardware & Equipment | 19 | 156,504 | 154,255 | (2,249) | 99% | 95% | 90% |
| | Semiconductors & Semiconductor Equipment | 8 | 4,313 | 3,466 | (847) | 80% | 72% | 66% |
| **Materials** | | **29** | **$105,873** | **$94,109** | **($11,764)** | **89%** | **84%** | **84%** |
| **Telecommunication Services** | | **9** | **$109,329** | **$120,331** | **$11,002** | **110%** | **109%** | **107%** |
| **Utilities** | | **31** | **$99,875** | **$94,380** | **($5,495)** | **94%** | **91%** | **89%** |
| **Total** | | **360** | **$1,469,094** | **$1,382,297** | **($86,797)** | **94%** | **90%** | **89%** |

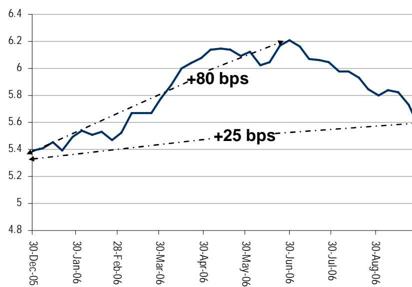
Source: Company 2005 10Ks, Merrill Lynch estimates

## Contribution methodology

A significant unknown in determining the projected end-of-year funded status is what companies will actually contribute in 2006. This unknown largely stems from the size and opaqueness of a company's credit balance[1]. Fortunately, sponsors must disclose what their anticipated contribution will be for 2006. Unfortunately, a number of companies report their statutory minimum required contribution which potentially underestimates what they will actually contribute.

Instead, our analysis arbitrarily assumes the 2006 estimated pension contribution equals the sum of the 2005 service cost plus a five-year straight-line amortization of the 31 December 2005 deficit. Plans with a surplus were assumed not to contribute. For OPEB arrangements, the 2006 contribution was set equal to the benefit payment. Incidentally, this methodology results in a total 2006 S&P 500 pension contribution of $62bn, which is in line with the 2005 total pension contribution of $58bn. *Please refer to Exhibit 2 in Appendix A for details.*

**Chart 1: Moody's Corp. AA (maturity > 20 yrs)**




Source: Bloomberg

## Sensitivity analysis

Chart 1 shows the year-to-date change in Moody's long bond rates; these rates are a proxy for determining discount rates for preparation of pension and OPEB accounting disclosures required under FAS132 (revised 2003). The chart shows an approximate 25bp increase in rates from the start of the year.

The assumptions in Table 1 above reflect changes in the capital markets from the beginning of the year to 30 September 2006. Clearly, a number of factors could radically alter the final 31 December 2006 results. As such, Table 2 provides a range of outcomes based on the two key capital market assumptions stated above. The projected 31 December 2006 funded ratio of 94% (shown in Table 1 above) is displayed in the middle of Table 2 below. It is interesting to note that the 55bp rate decline in the third quarter (Chart 1) eroded the funded status by approximately 6%.

**Table 2: Projected 31 December 2006 S&P 500 pension funded percentage**

| | 2006 Δ interest rates (bp) | | |
|---|---|---|---|
| **2006 Assumed Asset return (%)** | **(25)** | **+25** | **+75** |
| **0.0** | 84% | 90% | 95% |
| **+5.0** | 89% | **94%** | 100% |
| **+10.0** | 93% | 99% | 105% |

Source: Merrill Lynch

## The real crisis is about medical benefits and it's all about transparency, not disclosure

Almost every week an article is written about the looming healthcare crisis. Although medical rates are now single digit, premiums still rose by 7.7% last year – more than double the rate of inflation. In fact, premiums have almost doubled over the past six years[2]. "Disclosure" of these facts is critically important; however transparency is the real driver of change. Now, for the first time, all other post-employment benefits (not classified as pension), such as retiree medical, life insurance, and long-term care (ie, OPEB) liabilities will appear on corporate balance sheets. More important, future fluctuations in funding levels will now create additional balance sheet volatility. With the exception of specific OPEB

[1] See Pensions & Endowments 14 - US funding reform almost final (4 August 2006) for details.

[2] Kaiser Family Foundation and the Health Research & Educational Trust (2006).

plans that contractually guarantee retiree medical benefits as part of the collective bargaining process, most companies can *retroactively* rescind these benefits. In order to avoid a one-time balance sheet charge (see section 3) and more volatile "debt" on the balance sheet, it is likely that employer provided post-retirement medical care will continue to erode.

Table 3 confirms that OPEB arrangements are largely underfunded. When we combine these results with pensions, we see that the forecast aggregate 31 December 2006 funded percentage drops to *79%*.

**Table 3: S&P 500 total funded status (pension and OPEB) ($mn where applicable)**

| | | 12/31/2006 Projected | | | | | |
|---|---|---|---|---|---|---|---|
| Sector | Industry Group | OPEB Obligation | Plan Assets | OPEB Net Funding | Pension Net Funding | Total Net Funding | Total Funded Status |
| **Consumer Discretionary** | | **$134,732** | **$28,518** | **($106,214)** | **($19,693)** | **($125,907)** | **68%** |
| | Automobiles & Components | 124,910 | 28,118 | (96,792) | (11,215) | (108,007) | 66% |
| | Consumer Durables & Apparel | 4,375 | 0 | (4,375) | (2,081) | (6,456) | 74% |
| | Consumer Services | 108 | 9 | (99) | (242) | (341) | 81% |
| | Media | 3,769 | 300 | (3,469) | (3,780) | (7,249) | 76% |
| | Retailing | 1,570 | 91 | (1,479) | (2,375) | (3,854) | 83% |
| **Consumer Staples** | | **$19,821** | **$4,251** | **($15,570)** | **($12,252)** | **($27,822)** | **76%** |
| | Food & Staples Retailing | 927 | 0 | (927) | (1,021) | (1,948) | 77% |
| | Food Beverage & Tobacco | 14,270 | 1,403 | (12,867) | (6,826) | (19,693) | 77% |
| | Household & Personal Products | 4,624 | 2,848 | (1,776) | (4,405) | (6,181) | 70% |
| **Energy** | | **$16,136** | **$982** | **($15,154)** | **($14,652)** | **($29,806)** | **65%** |
| **Financials** | | **$16,798** | **$5,678** | **($11,120)** | **$1,240** | **($9,880)** | **93%** |
| | Banks | 3,004 | 964 | (2,040) | 1,041 | (999) | 97% |
| | Diversified Financials | 5,514 | 1,783 | (3,731) | 3,160 | (571) | 99% |
| | Insurance | 8,280 | 2,931 | (5,349) | (2,924) | (8,273) | 87% |
| | Real Estate | 0 | 0 | 0 | (37) | (37) | 82% |
| **Health Care** | | **$14,938** | **$3,547** | **($11,391)** | **($9,493)** | **($20,884)** | **78%** |
| | Health Care Equipment & Services | 2,877 | 239 | (2,638) | (2,528) | (5,166) | 77% |
| | Pharmaceuticals, Biotechnology & Life Sciences | 12,061 | 3,308 | (8,753) | (6,965) | (15,718) | 78% |
| **Industrials** | | **$55,228** | **$10,424** | **($44,804)** | **($19,664)** | **($64,468)** | **83%** |
| | Capital Goods | 48,754 | 9,531 | (39,223) | (17,928) | (57,151) | 83% |
| | Commercial Services & Supplies | 901 | 246 | (655) | 214 | (441) | 94% |
| | Transportation | 5,573 | 647 | (4,926) | (1,950) | (6,876) | 82% |
| **Information Technology** | | **$18,037** | **$2,889** | **($15,148)** | **($6,026)** | **($21,174)** | **89%** |
| | Software & Services | 415 | 92 | (323) | (2,930) | (3,253) | 86% |
| | Technology Hardware & Equipment | 16,948 | 2,468 | (14,480) | (2,249) | (16,729) | 90% |
| | Semiconductors & Semiconductor Equipment | 674 | 329 | (345) | (847) | (1,192) | 76% |
| **Materials** | | **$18,809** | **$1,467** | **($17,342)** | **($11,764)** | **($29,106)** | **77%** |
| **Telecommunication Services** | | **$79,256** | **$23,075** | **($56,181)** | **$11,002** | **($45,179)** | **76%** |
| **Utilities** | | **$31,177** | **$13,922** | **($17,255)** | **($5,495)** | **($22,750)** | **83%** |
| **Total** | | **$404,932** | **$94,753** | **($310,179)** | **($86,797)** | **($396,976)** | **79%** |

Source: Company 2005 10Ks, Merrill Lynch estimates

Table 4: GASB 45 disclosure timeline

| | Size of Government by Annual Revenues |
|---|---|
| FY after 12/15/06 | > $100mn |
| FY after 12/15/07 | $10mn<>$100mn |
| FY after 12/15/08 | <$10mn |

Source: www.gasb.org/pub/index.html

### Governments now must also face OPEB disclosures

Coincidentally, state and local governments will now need to account for their liabilities on their financial statements. The timeline for these new GASB 45 disclosures differs depending on the size of the government's annual revenues. For fiscal years after 15 December 2006, governments with annual revenues greater than $100mn will need to comply with the new requirements (Table 4). Preliminary estimates of the size of the burden facing state governments and municipalities range from $700bn to $1trn[3].

## Traditional analysis of the corporate pension problem

Table 5 looks at the projected top-30 underfunded plans (in dollars). We compare the plan assets with the projected benefit obligation (PBO) to arrive at the surplus/(deficit). The PBO in relation to the 31 August 2006 market capitalization is an important consideration for perspective vis-à-vis the corporate capital structure.

Table 5: Top-30 underfunded pension plans ($mn) projected to 12/31/2006

| | Projected 12/31/06 Pension Status | | | | | |
|---|---|---|---|---|---|---|
| Company | PBO | Assets | Surplus / (deficit) | Funded Status | 8/31/06 Market Cap | PBO / Market Cap (%) |
| Exxon Mobil Corp. | $30,181 | $21,600 | ($8,581) | 72% | $409,425 | 7% |
| Ford Motor | 73,399 | 66,243 | (7,156) | 90% | 15,702 | 467% |
| Lockheed Martin Corp. | 28,691 | 25,085 | (3,606) | 87% | 35,673 | 80% |
| Raytheon Co. (New) | 16,295 | 13,341 | (2,954) | 82% | 21,064 | 77% |
| Pfizer, Inc. | 15,339 | 12,936 | (2,403) | 84% | 201,943 | 8% |
| Procter & Gamble | 5,692 | 3,297 | (2,395) | 58% | 203,123 | 3% |
| Goodyear Tire & Rubber | 7,898 | 5,560 | (2,338) | 70% | 2,410 | 328% |
| Du Pont (E.I.) | 22,368 | 20,299 | (2,069) | 91% | 36,823 | 61% |
| United Technologies | 20,796 | 18,914 | (1,882) | 91% | 63,392 | 33% |
| International Paper | 9,411 | 7,578 | (1,833) | 81% | 17,140 | 55% |
| ConocoPhillips | 6,320 | 4,536 | (1,784) | 72% | 104,700 | 6% |
| Motorola Inc. | 7,036 | 5,378 | (1,658) | 76% | 57,747 | 12% |
| Dow Chemical | 15,522 | 13,917 | (1,605) | 90% | 36,670 | 42% |
| Johnson & Johnson | 10,593 | 9,044 | (1,549) | 85% | 191,460 | 6% |
| Alcoa Inc | 11,152 | 9,698 | (1,454) | 87% | 24,876 | 45% |
| Sears Holdings Corporation | 7,199 | 5,776 | (1,423) | 80% | 22,544 | 32% |
| Electronic Data Systems | 8,706 | 7,286 | (1,420) | 84% | 12,354 | 70% |
| Xerox Corp. | 10,039 | 8,738 | (1,301) | 87% | 14,708 | 68% |
| Chevron Corp. | 11,856 | 10,560 | (1,296) | 89% | 142,745 | 8% |
| Aon Corp. | 6,027 | 4,793 | (1,234) | 80% | 11,016 | 55% |
| Tyco International | 5,683 | 4,490 | (1,193) | 79% | 53,257 | 11% |
| FedEx Corporation | 10,971 | 9,784 | (1,187) | 89% | 30,826 | 36% |
| General Motors | 106,327 | 105,142 | (1,185) | 99% | 16,503 | 644% |
| Walt Disney Co. | 5,066 | 3,889 | (1,177) | 77% | 65,077 | 8% |
| Sara Lee Corp. | 5,514 | 4,381 | (1,133) | 79% | 12,641 | 44% |
| Northrop Grumman Corp. | 20,915 | 19,787 | (1,128) | 95% | 22,967 | 91% |
| CBS Corp. | 5,178 | 4,093 | (1,085) | 79% | 22,055 | 23% |
| Kimberly-Clark | 5,411 | 4,375 | (1,036) | 81% | 29,194 | 19% |
| Caterpillar Inc. | 12,797 | 11,786 | (1,011) | 92% | 44,430 | 29% |
| Altria Group, Inc. | 18,270 | 17,321 | (949) | 95% | 174,421 | 10% |

Source: Company 2005 10Ks, FactSet, Merrill Lynch estimates

[3] *See Retirement Costs: The Soaring Challenge* (Cruise – 19 June 2006).

## A better measure of the problem

Recognizing that companies with large international workforces may be underfunded for fiscal efficiency, a more appropriate measure of the funding problem is to compare the deficit with the amount of cash on the balance sheet. With this comparison, the picture changes dramatically (Table 6). Companies such as Exxon, Ford, and GM drop from the above list.

In Pensions & Endowments 8 (*Issue Debt to Fund Pension Plan Deficits – Cash Flow and P&L Impact*, 13 October 2005), we showed that the tax-arbitrage of issuing debt to fund the pension plan is a value-add proposition. We still believe that as financial transparency continues to improve, corporations (and governments) will issue debt to fund their deficits. Of course, this strategy must be weighed in light of the company's credit rating, viewpoint on the optimal use of cash, and their specific corporate tax rate.

**Table 6: Revised status based on ability to fund ($mn)**

| | Projected 12/31/06 Pension Status | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Company | PBO | Assets | [A] Surplus / (deficit) | Funded Status | 8/31/06 Market Cap | PBO / Market Cap (%) | [B] 2Q 06 Cash on B/S | [B] + [A] Adjusted Cash | Debt / Total Capital [1] | S&P Credit Rating |
| Raytheon Co. (New) | $16,295 | $13,341 | ($2,954) | 82% | $21,064 | 77% | $925 | ($2,029) | 0.43 | BBB |
| International Paper | 9,411 | 7,578 | (1,833) | 81% | 17,140 | 55% | 274 | (1,559) | 0.66 | BBB |
| Du Pont (E.I.) | 22,368 | 20,299 | (2,069) | 91% | 36,823 | 61% | 827 | (1,242) | 0.64 | A |
| ConocoPhillips | 6,320 | 4,536 | (1,784) | 72% | 104,700 | 6% | 654 | (1,130) | 0.29 | A- |
| Alcoa Inc | 11,152 | 9,698 | (1,454) | 87% | 24,876 | 45% | 453 | (1,001) | 0.45 | A- |
| Kimberly-Clark | 5,411 | 4,375 | (1,036) | 81% | 29,194 | 19% | 337 | (699) | 0.45 | AA- |
| Air Products & Chemicals | 2,810 | 2,053 | (757) | 73% | 14,861 | 19% | 61 | (697) | 0.44 | A |
| Goodyear Tire & Rubber | 7,898 | 5,560 | (2,338) | 70% | 2,410 | 328% | 1,788 | (550) | 0.95 | B+ |
| Parker-Hannifin | 2,624 | 1,977 | (647) | 75% | 8,909 | 29% | 172 | (475) | 0.32 | A |
| Molson Coors Brewing Comp | 4,527 | 3,984 | (543) | 88% | 6,043 | 75% | 80 | (463) | 0.38 | BBB |
| Anheuser-Busch | 3,189 | 2,518 | (671) | 79% | 38,161 | 8% | 223 | (449) | 0.73 | A+ |
| Exelon Corp. | 10,108 | 9,337 | (771) | 92% | 40,765 | 25% | 330 | (441) | 0.66 | BBB+ |
| Ameren Corporation | 3,074 | 2,605 | (469) | 85% | 10,996 | 28% | 51 | (418) | 0.54 | BBB+ *- |
| Ball Corp. | 1,370 | 911 | (459) | 66% | 4,223 | 32% | 53 | (407) | 0.77 | BB+ |
| Pinnacle West Capital | 1,635 | 1,219 | (416) | 75% | 4,557 | 36% | 16 | (400) | 0.55 | BBB- |
| Rockwell Collins | 2,716 | 2,210 | (506) | 81% | 8,970 | 30% | 121 | (385) | 0.49 | A |
| Northrop Grumman Corp. | 20,915 | 19,787 | (1,128) | 95% | 22,967 | 91% | 751 | (377) | 0.37 | BBB+ |
| Caterpillar Inc. | 12,797 | 11,786 | (1,011) | 92% | 44,430 | 29% | 648 | (363) | 0.85 | A |
| Coca-Cola Enterprises | 3,022 | 2,511 | (511) | 83% | 10,575 | 29% | 161 | (350) | 0.67 | A |
| Keyspan Energy | 2,717 | 2,350 | (367) | 86% | 7,173 | 38% | 46 | (321) | 0.58 | A *- |
| Burlington Northern Santa Fe | 1,793 | 1,410 | (383) | 79% | 24,414 | 7% | 73 | (310) | 0.44 | BBB+ |
| Goodrich Corporation | 3,387 | 2,869 | (518) | 85% | 4,826 | 70% | 208 | (310) | 0.59 | BBB |
| Rockwell Automation, Inc. | 2,550 | 1,904 | (646) | 75% | 10,008 | 25% | 339 | (307) | 0.59 | A |
| New York Times Cl. A | 1,572 | 1,232 | (340) | 78% | 3,262 | 48% | 41 | (299) | 0.55 | A- |
| Public Serv. Enterprise Inc. | 3,768 | 3,293 | (475) | 87% | 17,608 | 21% | 211 | (264) | 0.70 | BBB |
| American Standard | 1,716 | 1,254 | (462) | 73% | 8,494 | 20% | 233 | (229) | 0.78 | BBB |
| Consolidated Edison | 8,044 | 7,735 | (309) | 96% | 11,355 | 71% | 81 | (228) | 0.61 | A |
| Lockheed Martin Corp. | 28,691 | 25,085 | (3,606) | 87% | 35,673 | 80% | 3,386 | (220) | 0.69 | BBB+ |
| TXU Corp. | 2,443 | 2,108 | (335) | 86% | 30,617 | 8% | 115 | (220) | 0.98 | BBB- |
| Praxair, Inc. | 1,657 | 1,417 | (240) | 86% | 18,550 | 9% | 21 | (219) | 0.47 | A |

Source: Company 2005 10Ks, FactSet, Merrill Lynch estimates

## Pension plan asset allocation at 31 December 2005

FAS Statement No. 132 - *Employers' Disclosures about Pensions and Other Postretirement Benefits* - was recently amended, requiring corporations to list the percentage allocation of total plan assets of their pension and OPEB plans in the notes to their annual financial statement. We extracted each company's total pension asset allocation and present it by sector and industry group in Table 7 below. The "other" asset class in Table 7 is composed of alternative investments (including real estate, private equity, hedge funds, and interest rate swaps). From this disclosure, we are able to get a general sense of the overall risk corporations are taking in their pension plans (ie, % of equities).

**Table 7: Sector/industry group pension asset allocation as of 12/31/2005**

| | | 12/31/2005 | | |
|---|---|---|---|---|
| **Sector** | **Industry Group** | **Equity %** | **Fixed %** | **Other %** |
| **Consumer Discretionary** | | **64.3%** | **27.8%** | **7.9%** |
| | Automobiles & Components | 60.8% | 29.7% | 9.5% |
| | Consumer Durables & Apparel | 64.7% | 25.0% | 10.3% |
| | Consumer Services | 62.2% | 32.4% | 5.4% |
| | Media | 64.3% | 31.0% | 4.8% |
| | Retailing | 65.9% | 25.2% | 8.9% |
| **Consumer Staples** | | **65.1%** | **28.8%** | **6.1%** |
| | Food & Staples Retailing | 67.8% | 28.1% | 4.1% |
| | Food Beverage & Tobacco | 63.9% | 28.6% | 7.4% |
| | Household & Personal Products | 67.2% | 30.1% | 2.7% |
| **Energy** | | **65.1%** | **29.5%** | **5.4%** |
| **Financials** | | **63.4%** | **29.6%** | **7.1%** |
| | Banks | 69.5% | 25.9% | 4.6% |
| | Diversified Financials | 61.0% | 30.7% | 8.2% |
| | Insurance | 59.6% | 33.1% | 7.3% |
| | Real Estate | 55.0% | 23.5% | 21.5% |
| **Health Care** | | **64.2%** | **28.5%** | **7.3%** |
| | Health Care Equipment & Services | 63.6% | 30.3% | 6.2% |
| | Pharmaceuticals, Biotechnology & Life Sciences | 64.9% | 26.6% | 8.5% |
| **Industrials** | | **66.5%** | **26.7%** | **6.7%** |
| | Capital Goods | 65.2% | 26.5% | 8.2% |
| | Commercial Services & Supplies | 70.4% | 27.9% | 1.7% |
| | Transportation | 69.7% | 26.7% | 3.6% |
| **Information Technology** | | **60.1%** | **34.9%** | **5.0%** |
| | Software & Services | 59.0% | 35.3% | 5.7% |
| | Technology Hardware & Equipment | 60.1% | 34.1% | 5.8% |
| | Semiconductors & Semiconductor Equipment | 61.2% | 36.2% | 2.6% |
| **Materials** | | **61.3%** | **28.4%** | **10.3%** |
| **Telecommunication Services** | | **62.3%** | **27.4%** | **10.3%** |
| **Utilities** | | **63.6%** | **30.9%** | **5.4%** |
| **Total** | | **63.8%** | **29.3%** | **6.9%** |

Source: Company 2005 10Ks, Merrill Lynch

# 3. Phase one impact

The primary goal of FASB's phase one standard is to bring the pension and OPEB funded status out of the footnotes and on to the balance sheet. This will result in a one-time charge to shareholder equity for fiscal years ending after 15 December 2006. In addition, future fluctuations in funding levels will now create additional balance sheet volatility. Future mark-to-market fluctuations in the funded status will also impact shareholder equity.

In the previous section, we estimated the projected pension underfunding or deficit of the entire S&P 500 at $87bn. In aggregate, this estimated amount will appear as a liability on the balance sheets of corporate America at the end of this year. However, many of these plans appear overfunded (ie, surplus), because an aggregate prepaid asset of $156bn is currently showing on the balance sheet. When this aggregate prepaid pension asset (currently on the balance sheet) is replaced by the off-balance-sheet deficit of $87bn, this will result in a (pre-tax) $243bn reduction to shareholder equity. In general, this $243bn charge to equity represents the recognition of unrecognized losses[4] and unrecognized prior service costs.

The estimated aggregate pre-tax charge to equity (using the same assumptions in section 2) at 31 December 2006 is projected to equal $334bn (Table 8).

**Table 8: S&P 500 pre-tax phase one hit to shareholder equity at 12/31/2006 ($bn)**

| | | |
|---|---|---|
| **Pension** | | |
| Reported balance sheet asset/(liability) | $156 | |
| Add: Off-balance sheet deficit/(surplus) | 87 | |
| Total pre-tax hit to shareholder equity | | $243 |
| | | |
| **OPEB** | | |
| Reported balance sheet asset/(liability) | ($219) | |
| Add: Off-balance sheet deficit/(surplus) | 310 | |
| Total pre-tax hit to shareholder equity | | $92 |
| | | |
| Total pre-tax hit to shareholder equity | | $334 |

Source: Company 2005 10Ks, Merrill Lynch estimates

***Additional funding will not improve the balance sheet impact at year-end!***

## Contributions impact funded status not the hit to equity!

In section 2, we estimated 2006 contributions at $62bn. But what if sponsors were to actually make larger contributions from either free cash flow or the proceeds of a debt issuance?

Unfortunately, additional funding does not impact the end-of-year charge to equity as the amount of deferred losses (that need to be recognized) do not change. Exhibit 4 (Appendix A) looks at a specific example and highlights the fact that the 31 December 2006 charge to equity is unaffected by contributions.

The phase one charge to equity represents the "true-up" of past or cumulative accounting sins. **Corporations can not fund their way out of this one!**

[4] If a fully funded $1bn pension plan assumes its assets will earn 10% or $100mn, and the plan loses 10%, this $200mn loss is placed off balance sheet as an unrecognized loss in the footnotes. Only a very small portion of this unrecognized loss is amortized into income each year under current FAS 87 pension accounting rules. Please see exhibit 1 in appendix A and the glossary for further details.

## PBO for phase one! Maybe ABO in phase two?

Following the release of the phase one exposure draft on 31 March 2006, more than 200 comment letters were received by FASB. Clearly, the number one topic focused on whether the PBO or accumulated benefit obligation (ABO) should be reported on the balance sheet. For a number of reasons, beyond the scope of this report, the PBO camp won the day. The decision to use ABO will be revisited in phase two. However, this is critical because, under ERISA, pension benefits "accrued" or accumulated to date can not be taken away. On the other hand, non-contractually guaranteed OPEB benefits can be retroactively rescinded (ie, PBO=ABO=0).

The figures shown throughout this report reflect the higher PBO value. Thus, our figures potentially overstate a number of companies that have frozen their plan. The PBO drops down to the ABO value when a company (hard) freezes its pension plan. In Pensions & Endowments 13 (5 June 2006), we identified a number of companies that have recently frozen their pension plan. Table 9 below updates the list of corporate plan freezes since our 5 June 2006 report. For these companies, a figure closer to their ABO is likely more accurate; appropriate adjustments should be made for these specific situations as the charge to equity will not be as severe. Second, the projected 31 December 2006 figures do not reflect any other settlement or curtailment of benefits that may have occurred in 2006.

**Table 9: Corporate pension plan freezes**

| Company Name | Type of Freeze | Description of Plan Freeze | Date Announced | Effective Date |
|---|---|---|---|---|
| Albertson Inc. | Hard | all employees stop accruing benefits | 5/3/2006 | 5/28/2006 |
| Alliant Techsystems | Partial | Closed to newly hired non-union workers | 9/7/2006 | 1/1/2007 |
| Aluminum Co. of America | Partial | Closed to new U.S. employees | 1/16/2006 | 3/1/2006 |
| Aon Corp. | Partial | Closed to new U.S. employees | 10/28/2003 | 1/1/2004 |
| Circuit City Stores Inc. | Partial | all employees w/ exceptions stop accruing benefits | 10/28/2004 | 2/28/2005 |
| Coca-Cola Bottling Co. Consolidated | Hard | all employees stop accruing benefits | 2/27/2006 | 6/30/2006 |
| Delphi Corp. | Hard | all employees stop accruing benefits | 3/31/2006 | 10/1/2006 & 1/1/2007 |
| Dupont Co. | Partial | Closed to new employees and future accruals are cut to 1/3 current level for current employees | 8/28/2006 | 1/1/2007 & 1/1/2008 |
| Ferro Corp. | Hard | all employees stop accruing benefits | 2/15/2006 | 3/31/2006 |
| General Motors Corp | Partial | U.S. salaried employees hired on or after Jan. 1, 2001 will stop accruing benefits | 3/7/2006 | 1/1/2007 |
| Hewlett-Packard Co. | Partial | Closed to new employees and frozen for U.S. employees under the minimum age+service requirement | 7/19/2005 | 12/31/2006 |
| Hospira Inc. | Hard | all U.S. non-union employees stop accruing benefits | 2Q 2004 | 12/31/2004 |
| International Business Machines Corp. | Hard | all U.S. employees stop accruing benefits | 1/5/2006 | 12/31/2007 |
| Lockheed Martin Corp. | Partial | Closed to new non-union employees | 10/6/2005 | 1/1/2006 |
| Milliken and Co. | Hard | all employees stop accruing benefits | Nov-2005 | 12/31/2005 |
| Motorola Inc. | Partial | Closed to new U.S. employees | 12/17/2004 | 1/1/2005 |
| NCR Corp. | Hard | all employees stop accruing benefits | 9/27/2006 | 12/31/2006 |
| Nissan North America Inc. | Partial | Closed to new employees | Jan-2006 | Jan-2006 |
| Northwest Airlines Corp. | Hard | Salaried employees stop accruing benefits | 8/20/2005 | 8/31/2005 |
| Russell Corp. | Hard | all U.S. non-union employees stop accruing benefits | 1/19/2006 | 4/1/2006 |
| Sears Holdings Corp. | Hard | all Sears employees stop accruing benefits | May-2005 | 1/1/2006 |
| Sprint Nextel Corp. | Partial | Freeze benefit for employees not designated to work for Embarq | Nov-2006 | 12/31/2005 |
| Tenneco Inc. | Partial | nearly all U.S.-based salary and non-union hourly employees stop accruing benefits | 8/23/2006 | 1/1/2007 |
| Verizon Communications Inc. | Partial | all Verizon managers stop accruing benefits | 12/5/2005 | 6/30/2006 |

Source: Center for Retirement Research at Boston College, company filings, company press releases, Merrill Lynch

## Charge to shareholder equity "should" be net of tax

FAS 158 states that the charge to equity should be reported net of tax. Table 8 above shows an aggregate pretax reduction of $334bn. Assuming a 35% corporate tax rate, this generates an $117bn total tax benefit for the affected companies in the S&P 500. Thus, the total projected tax-adjusted hit to equity equals $217bn (Table 10) or an aggregate reduction of 6%.

*Please refer to Appendix A for a specific example.*

**Table 10: 12/31/2006 projected hit to equity ($mn where applicable)**

| Sector | Industry Group | 2Q '06 Shareholders' Equity | 12/31/2006 Projected<br>Pension hit to Equity | OPEB hit to Equity | Total hit to Equity | Reduction in Equity |
|---|---|---|---|---|---|---|
| **Consumer Discretionary** | | **$360,723** | **($30,824)** | **($24,854)** | **($55,678)** | **15%** |
| | Automobiles & Components | 36,358 | (25,657) | (24,031) | (49,688) | 137% |
| | Consumer Durables & Apparel | 33,659 | (865) | (533) | (1,398) | 4% |
| | Consumer Services | 11,433 | (108) | (5) | (113) | 1% |
| | Media | 215,327 | (2,404) | (340) | (2,745) | 1% |
| | Retailing | 63,947 | (1,791) | 56 | (1,735) | 3% |
| **Consumer Staples** | | **$250,834** | **($10,968)** | **($2,191)** | **($13,158)** | **5%** |
| | Food & Staples Retailing | 37,194 | (672) | (89) | (761) | 2% |
| | Food Beverage & Tobacco | 140,780 | (9,003) | (1,642) | (10,644) | 8% |
| | Household & Personal Products | 72,860 | (1,293) | (460) | (1,753) | 2% |
| **Energy** | | **$438,413** | **($7,248)** | **($2,137)** | **($9,386)** | **2%** |
| **Financials** | | **$1,128,329** | **($16,322)** | **($1,231)** | **($17,553)** | **2%** |
| | Banks | 284,289 | (3,804) | (344) | (4,148) | 1% |
| | Diversified Financials | 538,825 | (6,933) | (610) | (7,542) | 1% |
| | Insurance | 297,753 | (5,564) | (277) | (5,841) | 2% |
| | Real Estate | 7,462 | (21) | 0 | (21) | 0% |
| **Health Care** | | **$313,638** | **($11,671)** | **($2,208)** | **($13,879)** | **4%** |
| | Health Care Equipment & Services | 97,340 | (1,915) | (188) | (2,103) | 2% |
| | Pharmaceuticals, Biotechnology & Life Sciences | 216,297 | (9,756) | (2,020) | (11,776) | 5% |
| **Industrials** | | **$429,503** | **($38,348)** | **($6,731)** | **($45,080)** | **10%** |
| | Capital Goods | 332,335 | (33,981) | (6,302) | (40,283) | 12% |
| | Commercial Services & Supplies | 17,082 | (577) | 202 | (374) | 2% |
| | Transportation | 80,086 | (3,790) | (632) | (4,422) | 6% |
| **Information Technology** | | **$252,769** | **($16,281)** | **($1,027)** | **($17,308)** | **7%** |
| | Software & Services | 37,472 | (1,253) | (43) | (1,296) | 3% |
| | Technology Hardware & Equipment | 143,821 | (14,469) | (842) | (15,311) | 11% |
| | Semiconductors & Semiconductor Equipment | 71,476 | (559) | (142) | (701) | 1% |
| **Materials** | | **$127,297** | **($7,177)** | **$658** | **($6,519)** | **5%** |
| **Telecommunication Services** | | **$197,470** | **($9,465)** | **($14,276)** | **($23,741)** | **12%** |
| **Utilities** | | **$195,965** | **($9,407)** | **($5,507)** | **($14,914)** | **8%** |
| **Total** | | **$3,694,941** | **($157,713)** | **($59,503)** | **($217,216)** | **6%** |

Source: Company 2005 10Ks, FactSet, Merrill Lynch estimates

*The charge to equity could impact loan covenants and the ability to pay dividends!*

## The hit to equity is between $217bn and $334bn

In Table 11, we estimate the top-30 largest reductions in shareholder equity at 31 December 2006 from the implementation of phase one. In the table, we use the latest available end of 2Q shareholder equity. Based on our projections, we see that five companies have their equity wiped out. This is an important consideration because lower reported book values and greater leverage could impact loan covenants and the ability to pay dividends.

It is important to keep in mind that the starting (2Q06) shareholder equity figure can radically alter the results in the table (for example, Hercules would drop off the list if we had used 4Q05 figures). It is also critical to remember that we assume a constant corporate tax rate of 35% throughout this report. However, a number of companies will likely not be able to generate enough taxable income to apply it against their deferred tax asset. In these situations, a tax adjustment for the phase one hit to equity may not be possible, resulting in a larger charge to equity than we have estimated.

**Table 11: Top-30 largest percentage reduction in shareholder equity at 12/31/2006**

| | | 12/31/2006 Projected | | | |
|---|---|---|---|---|---|
| Company | 2Q '06 Shareholders' Equity | Pension Hit to Equity | OPEB Hit to Equity | Total Hit to Equity | Reduction in Equity |
| Hercules, Inc. | 19 | (36) | (37) | (73) | 386% |
| General Motors | 11,640 | (19,053) | (16,399) | (35,452) | 305% |
| Goodyear Tire & Rubber | $222 | ($195) | ($380) | ($575) | 259% |
| Lucent Technologies | 683 | (1,220) | (21) | (1,241) | 182% |
| Moody's Corp | 21 | (31) | (1) | (32) | 154% |
| Ford Motor | 14,619 | (5,811) | (7,246) | (13,057) | 89% |
| Boeing Company | 10,369 | (6,985) | (1,080) | (8,065) | 78% |
| UST Inc. | 74 | (56) | 1 | (55) | 75% |
| TXU Corp. | 589 | (148) | (207) | (355) | 60% |
| Pitney-Bowes | 895 | (390) | (16) | (406) | 45% |
| Lockheed Martin Corp. | 7,658 | (2,751) | (315) | (3,066) | 40% |
| Eastman Kodak | 1,875 | (257) | (444) | (701) | 37% |
| Kellogg Co. | 2,169 | (456) | (251) | (707) | 33% |
| CenterPoint Energy | 1,504 | (419) | (63) | (482) | 32% |
| Caterpillar Inc. | 8,633 | (1,599) | (1,083) | (2,682) | 31% |
| Deere & Co. | 7,569 | (1,372) | (975) | (2,347) | 31% |
| International Bus. Machines | 33,549 | (9,910) | (380) | (10,289) | 31% |
| CONSOL Energy Inc. | 1,219 | (38) | (311) | (349) | 29% |
| Textron | 3,022 | (597) | (129) | (726) | 24% |
| Colgate-Palmolive | 1,596 | (269) | (111) | (379) | 24% |
| Du Pont (E.I.) | 10,195 | (2,797) | 374 | (2,422) | 24% |
| NCR Corp. | 2,121 | (517) | 27 | (491) | 23% |
| Heinz (H.J.) | 2,164 | (446) | (42) | (489) | 23% |
| ITT Corporation | 3,027 | (558) | (119) | (677) | 22% |
| 3M Company | 11,522 | (2,068) | (449) | (2,518) | 22% |
| Verizon Communications | 44,779 | (2,884) | (6,833) | (9,717) | 22% |
| Consolidated Edison | 7,588 | (1,305) | (301) | (1,606) | 21% |
| Penney (J.C.) | 3,905 | (719) | (32) | (751) | 19% |
| AT&T Inc. | 55,469 | (5,439) | (4,207) | (9,646) | 17% |
| American Standard | 905 | (92) | (59) | (151) | 17% |

Source: Company 2005 10Ks, FactSet, Merrill Lynch estimates

# 4. Porting pension alpha

In past reports, we spoke often of both the FASB and the International Accounting Standards Board's (IASB) commitment to move to a more transparent structure (*see Pensions & Endowments 9 – 14 September 2005 – as one example*). Since the 15 June 2005, Securities and Exchange Commission (SEC) Staff report, the FASB and IASB have increased their commitment to addressing the accounting treatment of the following off-balance-sheet items: leases, special purpose entities (SPE), DB plans, and OPEB arrangements. In fact, my Merrill Lynch colleague, Rich Bernstein (US strategist), has also repeatedly stressed the need to improve the quality of the financial announcements on which stocks trade. We both continue to stress that the most transparent markets are the most competitive markets.

With the funded status of pension and OPEB plans reflected in the financial statements, balance sheet volatility will increase. International convergence of accounting standards and further (phase two) reforms will increase income statement volatility.

Switching gears, in Pensions & Endowments 14 (4 August 2006), we pointed out that special industry relief and phase-in periods could decrease the level of funding over the next few years. However, with these transitional effects marginalized after four years, both the magnitude and volatility of contributions should increase. So to the extent that the smoothing mechanisms in both the accounting and funding rules hide the true economic volatility of the pension plan, this transparency gap should close over the next few years. As corporate America continues to de-risk their balance sheets, we will continue to witness long-term structural shifts from equities to long duration bonds and derivative overlays in the pension plan.

## Do the capital markets reflect opaque standards?

In this section, we are more focused on the trillion dollar question: *Does a company's stock price reflect the size and risk of its pension and OPEB plans?* There is a wide range of academic views on this topic with the majority suggesting this risk is only partially reflected[5].

With the exception of a few headline companies, we make the assumption that investors have largely not anticipated the impact of off-balance-sheet liabilities and will potentially experience a valuation and earnings drag when the full effects of accounting reforms unfold over the next few years. Clearly, this is not an immediate occurrence, but rather something that will be gradually incorporated over time.

## Building a pension-adjusted beta formula

The fundamental premise is that pension accounting with its smoothing mechanisms, corridors, long amortization periods, and footnote reporting of pension assets and liabilities, largely masks the equity exposure (ie, risk) in the pension plan. In an attempt to quantify both (a) the size and (b) the degree of equity investment in the pension plan, we start by using each company's observed five-year historical beta. Beta is simply a statistical measure and clearly the choice of our starting beta can yield a very different picture. As well, the beta for a company can fluctuate wildly over a short period. This abstract analysis is simply meant to get us thinking about the hidden risks buried in the footnotes.

[5] Here is a sample of literature: *Do a Firm's Equity Returns reflect the Risk of Its Pension Plan* (2006: Jin, Merton & Bodie), *The Corporate Governance of Defined Benefit Pension Plans* (2005: Cocco and Volpin), *Pension Plan Funding and Stock Market Efficiency* (2006: Franzoni and Marin), *Did Pension Plan Accounting Contribute to a Stock Market Bubble?* (2003: Coronado and Sharpe)

That is, we want to focus on the *delta* or change in beta when we incorporate the size and risk of the pension plan. *Please refer to Appendix B for the Merrill Lynch definition of beta and one methodology for computing a pension-adjusted beta*.

### a) Size of pension plan versus capital structure

For example, a company's pension plan that is twice the size of its balance sheet is typically riskier than an identical company without a pension plan. Thus, the formula must look at the relative size of the pension plan assets versus the size of the parent's balance sheet. We have used the projected assets as of 31 December 2006. We use the latest 31 August 2006 market cap in the denominator of the calculation.

### b) Pension plan asset allocation

What if a company's pension plan was 100% invested in duration-matched bonds? Because pension assets would track their liabilities, their stock price would better reflect their core operations. Now what if the company invested 100% of its pension assets in equities? In essence, a $1 invested in the company is another $1 invested in the S&P 500. Current pension accounting rules make it difficult to distinguish between core earnings and pension earnings and this additional leverage is largely ignored.

Table 12 derives a pension-adjusted beta based on the premise outlined above.

**Table 12: Pension-adjusted beta**

| Sector | Industry Group | Pension Plan [A] Assets [1] | Pension Plan [B] Equity % Allocation | Pension Plan [C]=[A]*[B] $ Amount Equities | [D] 8/31/06 Market Cap | [E]=[C]/[D] Plan Equities / Market Cap | [F] 5 year beta | [E]+[F] Pension adjusted beta | % increase in beta |
|---|---|---|---|---|---|---|---|---|---|
| **Consumer Discretionary** | | **$241,666** | **68%** | **$164,825** | **$750,537** | **0.22** | **1.05** | **1.27** | **21%** |
| | Automobiles & Components | 180,282 | 65% | 117,959 | 64,357 | 1.83 | 1.19 | 3.03 | 154% |
| | Consumer Durables & Apparel | 18,662 | 70% | 13,030 | 92,481 | 0.14 | 1.01 | 1.15 | 14% |
| | Consumer Services | 1,404 | 65% | 911 | 47,358 | 0.02 | 0.87 | 0.88 | 2% |
| | Media | 22,385 | 67% | 14,919 | 376,490 | 0.04 | 1.08 | 1.12 | 4% |
| | Retailing | 18,933 | 70% | 13,321 | 169,850 | 0.08 | 1.01 | 1.09 | 8% |
| **Consumer Staples** | | **$81,572** | **68%** | **$55,550** | **$1,082,646** | **0.05** | **0.65** | **0.71** | **8%** |
| | Food & Staples Retailing | 6,461 | 70% | 4,510 | 133,823 | 0.03 | 0.82 | 0.85 | 4% |
| | Food Beverage & Tobacco | 63,540 | 68% | 42,965 | 655,925 | 0.07 | 0.69 | 0.75 | 10% |
| | Household & Personal Products | 11,571 | 69% | 7,928 | 292,897 | 0.03 | 0.51 | 0.53 | 5% |
| **Energy** | | **$55,292** | **68%** | **$37,506** | **$1,157,594** | **0.03** | **0.84** | **0.87** | **4%** |
| **Financials** | | **$135,934** | **67%** | **$90,955** | **$2,237,229** | **0.04** | **0.97** | **1.01** | **4%** |
| | Banks | 27,000 | 72% | 19,382 | 567,729 | 0.03 | 0.72 | 0.75 | 5% |
| | Diversified Financials | 57,275 | 65% | 37,375 | 1,134,428 | 0.03 | 1.14 | 1.17 | 3% |
| | Insurance | 51,492 | 63% | 32,551 | 513,656 | 0.06 | 0.90 | 0.97 | 7% |
| | Real Estate | 167 | 66% | 110 | 21,415 | 0.01 | 0.72 | 0.73 | 1% |
| **Health Care** | | **$70,102** | **68%** | **$47,629** | **$1,166,282** | **0.04** | **0.70** | **0.74** | **6%** |
| | Health Care Equipment & Services | 16,913 | 67% | 11,281 | 325,631 | 0.03 | 0.65 | 0.69 | 5% |
| | Pharmaceuticals, Biotechnology & Life Sciences | 53,189 | 69% | 36,839 | 840,652 | 0.04 | 0.72 | 0.76 | 6% |
| **Industrials** | | **$311,724** | **70%** | **$217,840** | **$1,274,282** | **0.17** | **0.93** | **1.10** | **18%** |
| | Capital Goods | 273,967 | 69% | 189,937 | 1,023,379 | 0.19 | 0.95 | 1.14 | 19% |
| | Commercial Services & Supplies | 6,590 | 71% | 4,688 | 50,044 | 0.09 | 0.89 | 0.98 | 11% |
| | Transportation | 31,167 | 72% | 22,289 | 200,858 | 0.11 | 0.80 | 0.91 | 14% |
| **Information Technology** | | **$177,187** | **63%** | **$110,934** | **$780,599** | **0.14** | **1.70** | **1.84** | **8%** |
| | Software & Services | 19,466 | 62% | 12,001 | 98,404 | 0.12 | 1.26 | 1.38 | 10% |
| | Technology Hardware & Equipment | 154,255 | 63% | 97,219 | 448,024 | 0.22 | 1.70 | 1.92 | 13% |
| | Semiconductors & Semiconductor Equipment | 3,466 | 63% | 2,177 | 234,171 | 0.01 | 1.88 | 1.88 | 0% |
| **Materials** | | **$94,109** | **66%** | **$62,553** | **$340,892** | **0.18** | **1.07** | **1.26** | **17%** |
| **Telecommunication Services** | | **$120,331** | **69%** | **$83,209** | **$400,792** | **0.21** | **1.20** | **1.41** | **17%** |
| **Utilities** | | **$94,380** | **66%** | **$62,631** | **$417,625** | **0.15** | **0.73** | **0.88** | **20%** |

Source: Company 2005 10Ks, FactSet, Merrill Lynch estimates

1. We used each company's actual 31 December 2005 asset allocation and assumed that 50% of the allocations to "other" assets were "equity-like" in nature.

### Pension-adjusted beta should not be weighed heavily

To reiterate, the purpose of this analysis is to provide one very crude rule of thumb in understanding the hidden risks of a pension plan. In situations where the pension plan is a multiple of the company (ie, GM and Ford), one could make a strong case that their beta already incorporates the pension plan information to a large extent. In these situations the pension-adjusted beta could be greatly overstated.

Table 13 below looks at the top-30 largest estimated increases to beta when we incorporate the size and risk (ie, percentage in equities) of the pension plan.

**Table 13: Top-30 largest adjustment to beta**

| | Pension Plan | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Company | [A] Assets [1] | [B] Equity % Allocation | [C]=[A]*[B] $ Amount Equities | [D] 8/31/06 Market Cap | [E]=[C]/[D] Plan Equities / Market Cap | [F] 5 year beta | [E]+[F] Pension adjusted beta | % increase in beta |
| Lockheed Martin Corp. | $25,085 | 64% | $15,929 | 35,673 | 0.45 | 0.13 | 0.58 | 343% |
| General Motors | 105,142 | 58% | 61,364 | 16,503 | 3.72 | 1.20 | 4.92 | 310% |
| Northrop Grumman Corp. | 19,787 | 64% | 12,565 | 22,967 | 0.55 | 0.20 | 0.75 | 274% |
| Ford Motor | 66,243 | 70% | 46,646 | 15,702 | 2.97 | 1.56 | 4.53 | 190% |
| Unisys Corp. | 6,485 | 67% | 4,367 | 1,835 | 2.38 | 1.93 | 4.31 | 123% |
| Consolidated Edison | 7,735 | 70% | 5,376 | 11,355 | 0.47 | 0.40 | 0.87 | 118% |
| Sears Holdings Corporation | 5,776 | 47% | 2,715 | 22,544 | 0.12 | 0.13 | 0.25 | 93% |
| Goodyear Tire & Rubber | 5,560 | 62% | 3,465 | 2,410 | 1.44 | 1.63 | 3.07 | 88% |
| Lucent Technologies | 33,120 | 69% | 22,687 | 10,438 | 2.17 | 2.61 | 4.78 | 83% |
| Raytheon Co. (New) | 13,341 | 72% | 9,539 | 21,064 | 0.45 | 0.57 | 1.02 | 79% |
| Southern Co. | 6,227 | 77% | 4,764 | 25,430 | 0.19 | 0.25 | 0.44 | 75% |
| Pactiv Corp. | 3,665 | 70% | 2,566 | 3,773 | 0.68 | 0.92 | 1.60 | 74% |
| Eastman Kodak | 9,475 | 54% | 5,137 | 6,110 | 0.84 | 1.24 | 2.08 | 68% |
| ITT Corporation | 4,692 | 78% | 3,648 | 9,054 | 0.40 | 0.71 | 1.11 | 57% |
| Boeing Company | 44,508 | 65% | 28,930 | 59,888 | 0.48 | 1.01 | 1.49 | 48% |
| Molson Coors Brewing Company | 3,984 | 69% | 2,743 | 6,043 | 0.45 | 0.99 | 1.44 | 46% |
| Aon Corp. | 4,793 | 62% | 2,990 | 11,016 | 0.27 | 0.60 | 0.87 | 45% |
| Hercules, Inc. | 1,557 | 62% | 958 | 1,773 | 0.54 | 1.24 | 1.78 | 44% |
| Marsh & McLennan | 8,860 | 63% | 5,582 | 14,373 | 0.39 | 0.91 | 1.30 | 43% |
| DTE Energy Co. | 2,732 | 71% | 1,926 | 7,420 | 0.26 | 0.62 | 0.88 | 42% |
| Ryder System | 1,255 | 78% | 973 | 3,015 | 0.32 | 0.79 | 1.11 | 41% |
| MeadWestvaco Corporation | 3,183 | 68% | 2,164 | 4,628 | 0.47 | 1.17 | 1.64 | 40% |
| General Dynamics | 7,174 | 97% | 6,959 | 27,269 | 0.26 | 0.64 | 0.90 | 40% |
| PG&E Corp. | 8,536 | 65% | 5,548 | 14,557 | 0.38 | 1.00 | 1.38 | 38% |
| Ball Corp. | 911 | 65% | 592 | 4,223 | 0.14 | 0.37 | 0.51 | 38% |
| New York Times Cl. A | 1,232 | 77% | 942 | 3,262 | 0.29 | 0.79 | 1.08 | 37% |
| Keyspan Energy | 2,350 | 69% | 1,622 | 7,173 | 0.23 | 0.62 | 0.85 | 36% |
| Peoples Energy | 503 | 70% | 350 | 1,628 | 0.21 | 0.61 | 0.82 | 35% |
| Du Pont (E.I.) | 20,299 | 65% | 13,093 | 36,823 | 0.36 | 1.01 | 1.37 | 35% |
| NiSource Inc. | 2,091 | 70% | 1,454 | 5,772 | 0.25 | 0.73 | 0.98 | 35% |

Source: Company 2005 10Ks, FactSet, Merrill Lynch estimates

## Debt-to-equity ratios

There are a vast number of metrics we could use to analyze how key ratios will change from the impact of phase one. We close by estimating how the debt-to-equity ratios will change as a result of the phase one impact (Table 14).

**Table 14: Change in debt-to-equity ratios from phase one**

| Sector | Industry Group | 2Q '06 Debt / Equity | 2Q '06 Debt / Equity (post-Phase 1) | % increase in Debt/Equity |
|---|---|---|---|---|
| **Consumer Discretionary** | | **108%** | **169%** | **56%** |
| | Automobiles & Components | 578% | -2387% | N/A |
| | Consumer Durables & Apparel | 81% | 105% | 29% |
| | Consumer Services | 134% | 138% | 3% |
| | Media | 47% | 51% | 9% |
| | Retailing | 56% | 64% | 14% |
| **Consumer Staples** | | **76%** | **92%** | **21%** |
| | Food & Staples Retailing | 82% | 89% | 9% |
| | Food Beverage & Tobacco | 79% | 100% | 27% |
| | Household & Personal Products | 69% | 79% | 15% |
| **Energy** | | **32%** | **40%** | **24%** |
| **Financials** | | **390%** | **397%** | **2%** |
| | Banks | 274% | 279% | 2% |
| | Diversified Financials | 623% | 633% | 2% |
| | Insurance | 83% | 88% | 6% |
| | Real Estate | 128% | 129% | 1% |
| **Health Care** | | **31%** | **39%** | **27%** |
| | Health Care Equipment & Services | 34% | 40% | 18% |
| | Pharmaceuticals, Biotechnology & Life Sciences | 29% | 39% | 32% |
| **Industrials** | | **141%** | **174%** | **24%** |
| | Capital Goods | 164% | 206% | 26% |
| | Commercial Services & Supplies | 141% | 147% | 4% |
| | Transportation | 47% | 59% | 25% |
| **Information Technology** | | **29%** | **40%** | **39%** |
| | Software & Services | 40% | 51% | 26% |
| | Technology Hardware & Equipment | 37% | 55% | 47% |
| | Semiconductors & Semiconductor Equipment | 6% | 8% | 29% |
| **Materials** | | **68%** | **96%** | **41%** |
| **Telecommunication Services** | | **72%** | **108%** | **50%** |
| **Utilities** | | **143%** | **168%** | **17%** |

Source: Company 2005 10Ks, FactSet, Merrill Lynch estimates

# Appendix A – Specific example

We use Boeing as an example to illustrate the charge to equity resulting from FASB's new standard. Exhibit 1 looks at the *hypothetical* charge to equity at *31 December, 2005*. The remaining exhibits in this appendix forecast the expected hit to equity at *31 December 2006* based on one hypothetical set of capital market assumptions.

## Charge to equity – 31 December 2005

The figures shown in Exhibit 1 below were extracted from the notes to the financial statement in Boeing's 2005 10K. The first step is to determine the amount of pension and OPEB underfunding (ie, net liability) that comes out of the footnotes and on to the balance sheet. In this example, it is simply $9.674bn (ie, $1.699 for pension plus $7.975 for OPEB) at 31 December 2005.

Second, in order to determine the charge to equity, one must reverse out the amounts already recognized on the balance sheet. Unfortunately, you can not simply extract the "*net amount recognized*" (also shown in the footnotes). Because Boeing already recognized a portion of the accrued liability (ie, $2.948bn), we need to back this out. That is, as other comprehensive income (OCI) is already part of shareholder equity, we must ignore this item in determining the net asset/(liability) actually reported on the balance sheet. From Exhibit 1, the net asset on the balance sheet equals $3.661bn. This results in a total pre-tax shareholder hit of $13.335bn ($9.674bn plus $3.661bn). As a final step, we need to tax adjust this figure to arrive at a net shareholder impact. For simplicity, we have assumed a corporate tax rate of 35% for all of the companies in the S&P 500. Thus, the total net (post-tax) charge to shareholder equity equals $8.668bn (ie, $13.335 * .65). Our tax adjustments ignore any company-specific deferred tax items. This could dramatically alter the results and would need to be assessed under FAS 109.

**Exhibit 1: Impact of phase one for Boeing at 31 December 2005 ($mn)**

| | Pensions | | OPEB | |
|---|---|---|---|---|
| | **2005** | **2004** | **2005** | **2004** |
| **Reconciliation of funded status to net amounts recognized** | | | | |
| Funded status-plan assets less than projected benefit obligation | **($1,699)** | ($3,804) | **($7,975)** | ($8,063) |
| Unrecognized net actuarial loss | **12,989** | 13,756 | **2,333** | 2,676 |
| Unrecognized prior service costs | **1,368** | 1,365 | **(557)** | (762) |
| Adjustment for fourth quarter contributions | **10** | 752 | **141** | 135 |
| Net amount recognized | **$12,668** | $12,069 | **($6,059)** | ($6,014) |
| **Amounts recognized in statement of financial position consist of:** | | | | |
| Prepaid benefit cost | **$13,251** | $12,588 | | |
| Intangible asset | **66** | 225 | | |
| Accumulated other comprehensive loss | **2,948** | 3,169 | | |
| Accounts payable and other liabilities | **(649)** | (744) | **($70)** | ($55) |
| Accrued retiree health care | | | **(5,989)** | (5,959) |
| Accrued pension plan liability | **(2,948)** | (3,169) | | |
| Net amount recognized | **$12,668** | $12,069 | **($6,059)** | ($6,014) |
| Accumulated other comprehensive loss [1] | **2,948** | 3,169 | | |
| Net asset/(liability) on balance sheet | **$9,720** | $8,900 | **($6,059)** | ($6,014) |
| **Net Shareholder Equity adjustment at 12/31/2005** | **Pensions** | **OPEB** | **Total** | |
| Reported Shareholder Equity (Pre-Phase 1) | | | | $11,059 |
| Net asset/(liability) on balance sheet | $9,720 | ($6,059) | $3,661 | |
| Add : Off Balance deficit/(surplus) | 1,699 | 7,975 | 9,674 | |
| Total Shareholder Equity Hit (pre-tax) | $11,419 | $1,916 | $13,335 | |
| Tax effect (35%) | (3,997) | (671) | (4,667) | |
| Net Shareholder equity hit (post-tax) | | | | 8,668 |
| Adjusted Shareholder Equity | | | | $2,391 |

[1] Accumulated Other Comprehensive Loss is already part of Shareholder Equity so we exclude it when determining the Net asset/(liability) on balance sheet.

Source: Boeing 2005 10K, Merrill Lynch estimates

# Projected 2006 funded status

In order to estimate the charge to equity at 31 December 2006 (following page), we need to roll the figures forward to the end of 2006.

## Projecting the change in benefit obligation (liabilities)

We have assumed that all companies will increase their discount rate by ***25***bp at 31 December 2006 (ie, Boeing's discount rate would hypothetically increase from 5.50% to 5.75%). We assumed a liability duration for all plans of 12.0 years. Generally speaking, a rise in interest rates results in a liability gain. For Boeing's pension plan, this results in a liability gain of ***$1.352***bn (Exhibit 2). The details of this calculation (and other key assumptions) are shown in the footnotes to this exhibit.

## Projecting the change in plan assets

For all S&P 500 companies, we have assumed 2006 plan returns equal ***5%***. The details of the actual return on plan assets are shown and the methodology is also explained in the footnotes. Clearly, specific individual company results will differ significantly.

**Exhibit 2: Boeing estimated 2006 pension/OPEB funded status ($mn)**

| | Pensions | | OPEB | |
|---|---|---|---|---|
| | **2006** | **2005** | **2006** | **2005** |
| | **Projected** | **Actual** | **Projected** | **Actual** |
| **Change in benefit obligation** | | | | |
| Beginning balance | **$45,183** | $42,781 | **$8,057** | $8,135 |
| Service cost[1] | **960** | 910 | **155** | 147 |
| Interest cost[2] | **2,473** | 2,457 | **437** | 454 |
| Actuarial loss/(gain) [3] | **(1,352)** | 2,778 | **(241)** | 326 |
| Other [4] | **0** | (1,492) | **0** | (503) |
| Benefits paid [5] | **(2,372)** | (2,251) | **(529)** | (502) |
| Ending balance[6] | **$44,892** | $45,183 | **$7,879** | $8,057 |
| **Change in plan assets** | | | | |
| Beginning balance at fair value | **$43,484** | $38,977 | **$82** | $72 |
| Actual return on plan assets [7] | **2,146** | 5,460 | **4** | 7 |
| Contribution [8] | **1,250** | 2,616 | **529** | 16 |
| Other | **0** | (1,361) | **0** | 0 |
| Benefits paid | **(2,372)** | (2,208) | **(529)** | (13) |
| Ending balance at fair value | **$44,508** | $43,484 | **$86** | $82 |
| **Reconciliation of funded status to net amounts recognized** | | | | |
| Net amount recognized | **$13,300** | $12,668 | **($6,272)** | ($6,059) |
| **Assumptions (End of Period)** | **2006** | **2005** | | |
| Discount rate: Pension and OPEB | **5.75%** | **5.50%** | | |
| Expected return on plan assets | **8.50%** | **8.50%** | | |

[1] 2006 Service cost = 2005 Service cost * (1+last year's discount rate). Pension: $960=$910*(1+ 5.50%)

[2] The Interest cost assumes the service cost is beg. of year and benefit payments occur mid-yr. Interest Cost: $2,473 = (45,183+960)*5.5%-2,372*5.5%/2

[3] Simply the balancing item once all other items are know n. See Ending Balance calculation below .

[4] Assumes no settlement/curtailment/acquisitions/dispositions, or amendments etc. in 2006.

[5] Estimated 2006 benefits w ere taken from company 10K pension footnotes.

[6] Step 1: Calculate Beg. PBO & Svc. Cost at new **5.75**% discount rate. = (PBO+Service cost){1 - Assumed duration * (Δ discount rates)} $**44,759**=(45,183+960){1-12.0*.25%}
Step 2: Project Step 1 to Year-end. $**44,892** = $44,759 * 1.0575 - (1+5.75%/2)*2,372

[7] The 2006 return estimate of 5% is roughly based on a generic asset mix of 2/3's equity & 1/3 bonds to 30 September 2006 and assumes no additional return to 31 December 2006. Actual return on plan assets assume contributions and benefit payments occur mid-year. "Actual" Projected Return = $43,484*5% + (1,250-2,372)*5%/2= $2,146

[8] Pension contributions w ere assumed equal to a 5 yr amortization of any unfunded obligation for 2005 plus service cost. ($1,250 = $910 + $1,699/5)

Source: Boeing 2005 10K, Merrill Lynch estimates

## Estimating the 2006 expense

Exhibit 3 forecasts the 2006 net periodic benefit cost. The key figure in this exhibit is the *expected return on plan assets*. We see that in Boeing's case the use of an assumed rate of return of 8.5% on its pension assets would hypothetically result in a $3.648bn income boost. However, as stated above, assuming Boeing's "actual" return for 2006 is 5%, this produces investment income of $2.146bn (Exhibit 2). Thus, from a pension accounting perspective, this results in an asset *loss* of **$1.502bn** (ie, $3.648 less $2.146).

Incidentally, FASB Chairman Bob Herz refers to the expected return on plan assets as: "Public Enemy #1". We can expect that this will be fixed in phase two.

**Exhibit 3: Boeing estimated 2006 pension/OPEB expense**

| | Pensions | | OPEB | |
|---|---|---|---|---|
| | **2006** | **2005** | **2006** | **2005** |
| | **Projected** | **Actual** | **Projected** | **Actual** |
| **Components of net periodic benefit cost/(income)** | | | | |
| Service cost | **$960** | $910 | **155** | 147 |
| Interest cost | **2,473** | 2,457 | **437** | 454 |
| Expected return on plan assets[1] | **(3,648)** | (3,515) | **(7)** | (7) |
| Amortization of net transition asset | **0** | 0 | **0** | 0 |
| Amortization of prior service costs | **185** | 185 | **(110)** | (110) |
| Recognized net actuarial loss/(gain) [2] | **638** | 714 | **127** | 161 |
| Other | **0** | 552 | **0** | (96) |
| Net periodic benefit cost/(income) | **$608** | $1,303 | **602** | 549 |

[1] The expected return of $3,648 was calculated in the same way as the actual return in the previous exhibit except the assumed rate of 8.5% is used.

[2] We used the 2004 pension disclosures to calculate the estimated remaining service life. This service life is then used to determine the 2006 amortization of net actuarial loss/(gain). For companies where this could not be determined, we assumed the remaining service life was 12.0.

Source: Boeing 2005 10K, Merrill Lynch estimates

## Charge to equity – 31 December 2006

Exhibit 4 shows two methods to project the net charge to equity to 31 December 2006. This table provides a sound check and balance. We see that the net charge to equity decreases from $8.668bn (12/31/2005) to $8.065bn (12/31/2006) if the two key capital market assumptions (ie, discount rates increase by ***25***bp and plan assets return ***5%***) are met. This exhibit also clearly shows that the charge to equity is unaffected by the magnitude of the contribution. Hypothetically, if Boeing increases its pension contribution by $384mn, the first reconciliation is unaffected. Although the deficit is wiped out in the second reconciliation, the asset on the balance sheet increases by a like amount.

**Exhibit 4: Boeing estimated 2006 FASB phase one shareholder equity hit ($mn)**

| | Pensions | OPEB | Total (pre-tax) | Total (post-tax) [1] |
|---|---|---|---|---|
| **12/31/2005 Phase 1 Charge to Equity** | **$11,419** | **$1,916** | **$13,335** | **$8,668** |
| **2006 loss/(gain) [2]** | **150** | **(238)** | **(88)** | |
| **2006 Amortizations** | **(823)** | **(17)** | **(840)** | |
| **12/31/2006 Phase 1 Charge to Equity** | **$10,746** | **$1,661** | **$12,407** | **$8,065** |
| | | | | |
| **12/31/2005 Net Asset/(Liability) on balance sheet** | **$9,720** | **($6,059)** | **$3,661** | |
| **Contribution** | **1,250** | **529** | **1,779** | |
| **Pension Income/(Expense)** | **(608)** | **(602)** | **(1,210)** | |
| **12/31/2006 Net Asset/(Liability) on balance sheet** | **$10,362** | **($6,132)** | **$4,230** | |
| **Add: Off balance deficit/(surplus)** | **384** | **7,793** | **8,177** | |
| **12/31/2006 Phase 1 Charge to Equity** | **$10,746** | **$1,661** | **$12,407** | **$8,065** |

[1] Tax adjusted at an assumed 35% corporate tax rate.

[2] For pension: liability gain of $1,352 plus asset loss of ($1,502) = net loss of ($150).

Source: Boeing 2005 10K, Merrill Lynch estimates

*For a more in-depth educational primer on the balance sheet impact of this standard, please refer to Pensions & Endowments 11 – 4 April 2006.*

# Appendix B – Pension beta

## Merrill Lynch five-year historical beta methodology

Merrill Lynch employs a standard-regression estimate because no empirical evidence has shown other methods to be statistically superior. In standard regressions, recent returns carry no more weight than earlier returns. Monthly differencing intervals provide a large number of observations during a five-year period, and it is the method that has been most thoroughly tested.

In calculations, returns on the securities and on the S&P 500 are represented by percentage price changes, excluding dividends. Studies have shown that betas based on simple price returns are almost identical to those based on total returns (prices and dividends). Because dividend data is not as readily available as price data, collection of total returns data would considerably delay accurate beta calculations. Merrill Lynch believes that the immediate availability of returns excluding dividends outweighs the alleged superiority of returns including dividends.

## Methodology for computing pension-adjusted beta

$B_u = \frac{Cov(M,S)}{Var(M)}$ ; $B_u$ = **Raw Beta**

$B_A = \frac{Cov\{M,S+FM\}}{Var(M)}$ ; $B_A$ = **Pension Adjusted Beta**

Cov = Covariance
Var = Variance
M = Market (S&P 500)
S=Specific Company

$F = \frac{\text{\$ amount of Equity in Pension Plan}}{\text{Market Cap. of S}}$

For example company S has Mkt Cap= $100.
Their pension plan has $100 but 50% is in equities
**Thus F= 0.50**

**General Formula:**

**Cov(ax+by,cx+dy) = acVar(x)+bdVar(y)+(ad+bc)Cov(x,y)**

Let: a=1 x=M
b=0 y=S
c=F
d=1

Substituting into the general formula we get:

$$\frac{Cov\{M,S+FM\}}{Var(M)} = \frac{Fvar(M)+Cov(M,S)}{Var(M)}$$

$$B_A = F + B_u$$

# Glossary

**ABO –** Accumulated Benefit Obligation – present value of future obligations for retirees, terminated vested and active employees. Differs from PBO as assumes no wage inflation for active employees.

**Actual return on plan assets –** actual market return received on plan assets during the period.

**Actuarial gain/loss** – reflects actual versus expected experience (ex. fewer deaths than assumed) and changes in assumptions (ex. revised mortality table).

**Benefits paid** – pension payments to retirees plus lump-sums, when plan permits.

**Defined benefit plans** – the employer provides specified benefits to retirees. The employer bears the investment risk, thus creating a long-term liability for a company.

**Defined contribution plans** – the employer is obligated to make set contributions to a pension fund. In this case the employee bears the investment risk.

**Discount rate** – rate used to calculate the present value of obligations. For accounting, in line with the yield on Moody's Corporate AA bonds. Under ERISA, Congress has proposed a rate tied to a modified three-segment yield curve.

**ERISA** – Employee Retirement Income Security Act of 1974. Determines level of statutory required contributions.

**Expected return on plan assets** – an assumed annual return on plan assets based on the expected long-term rate of return on plan assets. For purposes of this calculation plan assets can be smoothed up to 5 years. Flows through the P&L as an income item.

**Funded status** – difference between the FVPA and PBO. When the FVPA is greater (less) than the PBO the plan is over (under) funded. Financial economics would suggest that assets greater than ABO are overfunded.

**FVPA** – Fair value of the plan assets – value of pension plan assets in a current sale between a willing buyer and willing seller (ie, not forced liquidation).

**Interest cost –** increase in the PBO and Service Cost due to the passage of time.

**ITO –** Initial Transition Obligation **–** unfunded liability or surplus existing when corporations adopted FAS 87 or FAS 106. For most US pension plans, the unamortized ITO balance is $0 or an insignificant amount.

**Minimum Pension Liability –** the minimum pension liability must be reported on the balance sheet when the plan is unfunded on an ABO basis.

**OCI charge** – Other Comprehensive Income charge – potential charge taken against equity account when the minimum liability rule is triggered.

**OPEB** – Other Post Employment Benefits – aside from pension, such as healthcare. Usually pay-as-you-go schemes.

**PBGC** – Pension Benefit Guarantee Corporation – insures the pensions of workers and retirees in private sector DB pension plans.

**PBO** – Projected Benefit Obligation – the present value of the future benefits due to current retirees and terminated vested and the projected benefit rights of current employees' based on their expected retirement date and final salary level.

**Pension Cost or Pension Expense** – net credit/cost recognized in employer's P&L as the cost of the pension plan for that period.

**Plan freeze** – new employees are not covered in the DB plan. Additional benefits may continue to accrue for some plan participants in the future.

**Prior service cost –** unamortized portion of plan amendments for plan improvements in respect of prior service.

**Service Cost -** the annual cost for the upcoming year for service accruals for all active employees.

**UGL** – Unrecognized Gain or Loss – the cumulative net gain (loss) that has not been recognized in income as part of the net periodic pension cost. This amount is held off the balance sheet. Comprises the cumulative difference between the expected and actual returns, and actuarial gains/losses.

Source: Merrill Lynch

# Report history

### Pensions and Endowments (P&E) series

| Report title | Date released | Description |
|---|---|---|
| P&E: 1 Put aside "Hoary Chestnuts" to compare DB & DC plans. | 29-Jul-04 | Looked at the long-term advantages of sponsoring a DB plan. |
| P&E 2: The Sticker Shock of Terminally Funding a DB plan | 14-Sep-04 | Showed that the cost of shutting down a plan is very expensive at this time. |
| P&E 3: Strategies to Dampen Funded-Status Volatility | 9-Nov-04 | Looks at the "middle-ground" between PE1 & PE2 and explores strategies to dampen volatility. |
| P&E 4: Swapping the Paradigm | 19-Jan-05 | Shows how interest rate swaps are used to mitigate interest rate risk exposure. |
| P&E 5: DB Reform- A Catalyst for a change in behavior | 10-Feb-05 | Outlined the Bush Administration's Pension Reform Bill. |
| P&E 6: Treasury Discusses Yield Curve for Pension Discounting | 11-Mar-05 | On 3/10/2005 the Treasury released its proposal to value liabilities with a Yield-curve approach. |
| P&E 7: The Power of Portable Alpha | 22-Apr-05 | An educational Primer on Portable Alpha. |
| Portable Alpha: Why Now? Evolution & Trends in Execution | 24-Jun-05 | Stand alone portable alpha report. |
| P&E 8: Issue Debt to Fund Plan Deficits and Capitalize on the Pension-Debt-Arbitrage | 8-Aug-05 | Investigates why it makes sense now for a company to issue debt and use the proceeds to fund the pension deficit. |
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| P&E 9: Capital Market Implications of US Pension Reforms | 14-Sep-05 | Updates the status of US pension reforms and explores the potential capital market implications. |
| P&E 10: The Optimal Asset Allocation under Proposed Pension Law | 17-Jan-06 | Recommends the Optimal Asset Allocation under Proposed Pension Law. |
| P&E 11: Phase One Pension Accounting Primer | 4-Apr-06 | FASB exposure draft to place all pension & OPEB deficits on balance sheet at the end of 2006. |
| P&E 12: US, Canada, & UK extend pension funding relief | 11-May-06 | Provides an update on pension funding relief in the US, Canada and the UK. |
| P&E 13: The trend to freeze pension plans | 5-Jun-06 | Examines the history, current landscape and accounting considerations of a plan freeze. |
| P&E 14: US funding reform almost final | 4-Aug-06 | Provides a full detailed analysis of the Pension Protection Act of 2006 |

### Co-authored Reports

| Title | Date released | Description | Co-author |
|---|---|---|---|
| Creating Liability-Driven Pension Benchmarks | 14-Nov-05 | Recommends liability based benchmarks for pension plans. | Phil Galdi |
| The Credit Monitor: It's Back – Pensions, a 2006 Topic | 2-Dec-05 | Investigates the credit market implication of Pension reform. | Mary Rooney |
| Aerospace & Defense: Potential risks from pension reform | 2-May-06 | Investigates the impact pension reforms will have on the aerospace & defense sector. | Ronald Epstein |
| Rules of construction for constant maturity swap indices | 23-Jun-06 | Merrill Lynch launches new constant maturity swap indices to better measure the performance of liability-driven investment (LDI) strategies. | Phil Galdi |

*There is also an extensive "Pension Perspectives" series available upon request.*

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