CAMBRIDGE ASSOCIATES LLC

# U.S. MARKET COMMENT

# PENSION FUND DEFICITS: ENTERING THE RADAR SCREENS OF ALL INVESTORS

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**Pension Fund Deficits: Entering the Radar Screens of All Investors**
**Introduction**

The deficit status of corporate pension funds has been a festering problem over the past few years—as plans assets were hit hard by the bear market in equities, plan liabilities soared due to falling interest rates. By fiscal year-end 2003, pension deficits are expected to be three times the peak deficit level reached in the early 1990s. Pension funds will swing back to cost centers from profit centers for many companies, as negative performance hits the bottom line, return expectations are lowered, and cash contributions become necessary. This is just starting to impact S&P 500 earnings, but the bigger story could be a shift in asset allocation since pension funds are still expecting 8% to 9% returns in a low return environment.

**That was then…This is now**

In the 1990s, the growth in defined benefit (DB) pension plan assets significantly exceeded the growth in liabilities, and corporate profits received a triple bonus. First, according to FASB rules, corporations can claim as income the difference between expected gains on pension assets and the estimated annual service cost as income. The expected gain is determined by multiplying a multi-year trailing average asset value (usually three to five years) by the long-term return assumption for plan assets (currently, 9.2% for S&P 500 firms). Obviously, such gains grew exponentially in the 1990s. Secondly, the differences between actual returns and expected returns are placed in a separate account to be amortized over 15 years, and these accounts were flush with surpluses by 1999. These two factors alone combined to add one percentage point to the 9% annual growth in operating earnings over the period 1995-2000. Finally, cash contributions fell in concert with large surpluses—corporations contributed just 2% of assets to pensions in the 1990s, compared to 13% in 1980 and an average of 7.1% throughout the 1980s.

Since 2000, pension assets have fallen, while liabilities have soared. According to the Ryan Labs Pension Asset and Liability indices, over the period 2000-02, pension assets returned -18% while pension liabilities appreciated 55%.[1] Pension liabilities are discounted by a proxy for current interest rates—most corporate pension funds use the yield on the Moody's AA corporate bond index, which has fallen from 7.8% at year-end 1999 to 6.25% as of April 30, 2003. However, since shifts in the discount rate tend to occur with a significant lag, pension funds are still in the process of reducing the rate from 7.25% to 6.75%. As a result, the negative returns and rising liabilities are just starting to plague aggregate earnings for the S&P 500—pension expenses are expected to soar from $1 billion in 2002 to $15 billion in 2003, or 3.0% of expected operating earnings.

**The Distribution of Deficits**

The 360 companies in the S&P 500 with DB pension plans have swung from a $292 billion aggregate surplus position in 1999 to a *deficit* of $250 billion in 2002 and expected deficits of $250 billion to $300 billion in 2003. However, the 20 firms with the largest deficits are expected to account for $122 billion, or nearly half the total deficits, while the

[1] The Ryan Labs Pension Asset Index is comprised of stable mix of 60% S&P 500/5% EAFE/30% LB Agg./5% cash.

largest 100 deficits would account for $216 billion (see Table A). In addition, the 25 firms most at risk need an 11.8% return on average to avoid funding calls and have an average deficit to market cap ratio of -94%. In other words, on average, the pension plan has a claim on almost all of the equity in these firms. Finally, while most of the largest deficits are in the transportation and manufacturing industries, some older tech and telecom firms—Xerox, Lucent, and Unisys—are also at risk (see Table B).

## Implications

### Financial

Although the handful of firms with very large deficits may indeed suffer serious financial consequences, the impact on the equity market as a whole appears to be relatively minor. For example, in 2003 pension funds are expected to make minimum cash contributions of $40 billion—representing 5.4% of 2002 cash flow for the S&P 500—while General Motors (GM) alone is expected to make a contribution of $5 billion. From a balance sheet perspective, firms must recognize any unfunded liabilities in excess of the minimum liability on their balance sheet, which typically results in an offsetting charge to shareholder's equity. GM took a charge of $9.5 billion against shareholder's equity in 2001 to reflect an increase in underfunded pension liabilities, while more recently Lucent, Boeing, and Maytag have taken charges of $3 billion, $4 billion, and $114 million, respectively. On the earnings front, pension funds are expected to lower their return assumptions from 9.2% on average to 8.2% on average—given $1 trillion in aggregate assets, this 100-basis point reduction lowers earnings by $10 billion all else equal, though the quality of earnings increases. In addition, ratings agencies have expressed their intention to take pension fund deficits into consideration when downgrading firms, which could hit earnings and cash flow through higher interest costs. Finally, the firms in the worst shape could use bankruptcy as an escape route. However, this path has become more congested since the Pension Benefit Guarantee Corporation swung from a $7.7 billion surplus in 2001 to a $3.6 billion deficit in 2002.

### Asset Allocation

While it's nearly impossible to project the financial implications of today's deficits several years down the road—especially since these will be determined primarily by market conditions—the longer-term implications for non-pension institutional investors could be a shift in pensions' asset allocation. The quick and seemingly easy response for firms with the most battered plans would be to immunize the liability by matching pension assets with promised benefits; that is, investing the pension fund 100% in long-duration, high-quality bonds. Not only can a bout of severe inflation challenge the merits of such a strategy, but it's a particularly poor option for firms with significantly underfunded plans today, since moving entirely to bonds would effectively lock in the deficits. In addition, this would require lowering return expectations in line with current interest rates—a move that is unlikely as long as expected pension gains remain on the income statement. In fact, thus far asset allocation has remained largely unchanged and pensions are actually 3% under their equity target of 60% (see Table C). Therefore, one could argue that U.S. pension funds, which collectively have $3.6

trillion in plan assets and $1.6 trillion in domestic equity—equivalent to 17% of the total capitalization of the U.S. equity market—will underpin an equity market rally if and when they rebalance back to targets. Alternatively, pension funds could seek to diversify their asset allocation. Most likely this would involve reducing public equity weights and adding to allocations in private equity, hedge funds, and other alternative asset classes with low correlations to stocks and bonds.

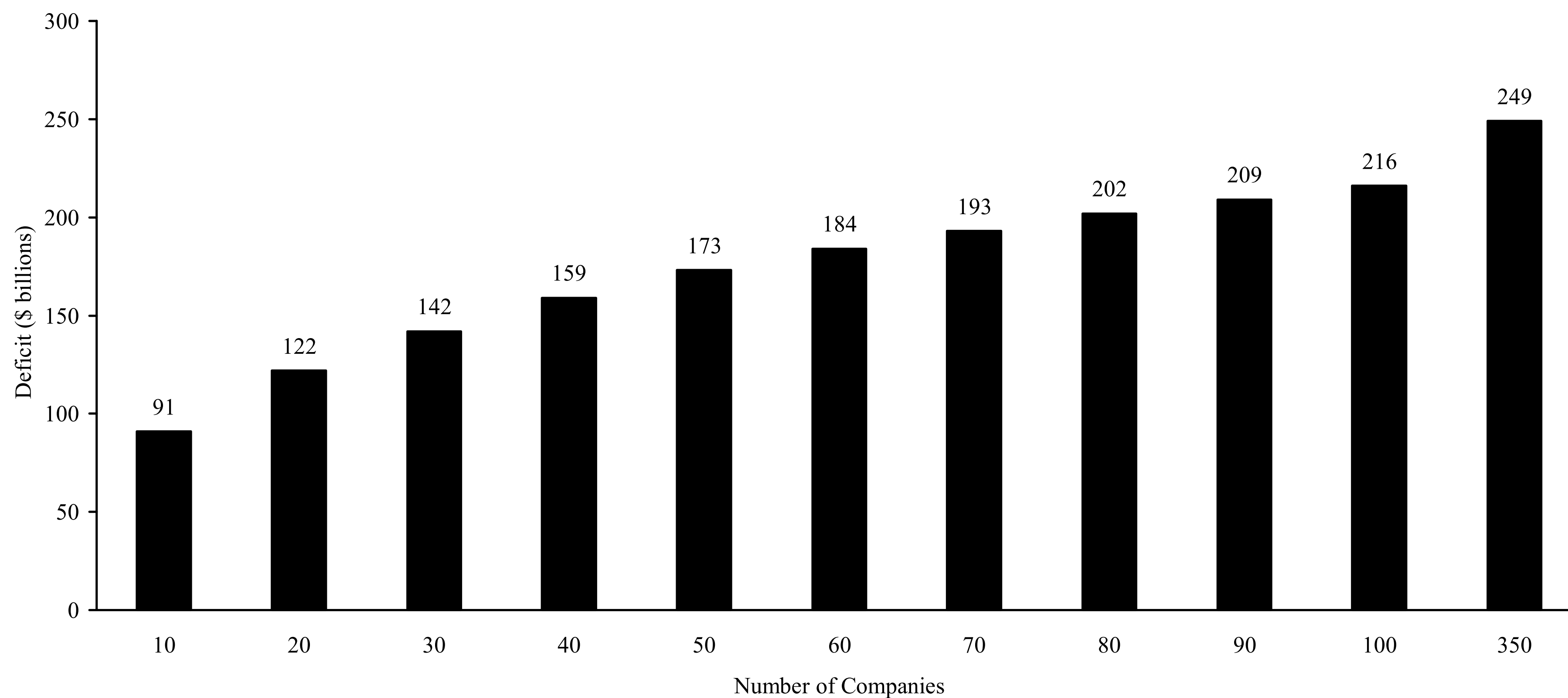
While the near-term changes are likely to be contingent on market performance, even a small long-term reduction in the allocation to public equities would result in a significant shift in dollar terms. Based on today's asset levels, a movement from 57% to 50% public equities would unleash approximately $250 billion of capital for redeployment, most likely into absolute return, private equity, and venture capital strategies. However, since this is largely a "what if" possibility and likely to occur over an *extended* time period, the impact on any one market is impossible to determine. Generally speaking, if more assets are allocated to relatively illiquid asset classes, either the supply of opportunities must rise to meet demand or prices must rise in accordance with more dollars chasing each opportunity. The equilibrium may be somewhere in between, but such a shift could result in slightly lower returns for some alternative assets.

**Conclusion**

Although the massive pension fund deficits of a handful of firms could have significant consequences for their shareholders, it appears that the market as a whole is unlikely to suffer severe effects. While firms that need to make large cash contributions should trade at a discount to the market—since capital is effectively being transferred from shareholders to employees—pension deficits are only making a minor dent in the total earnings of the S&P 500. Whether the earnings drag increases enough to warrant a discount in overall market valuations will depend largely on the performance of the markets themselves. Any changes in asset allocation are likely to occur gradually, as the pension funds most wounded by the recent storm seek some diversity insurance in less correlated asset classes. However, this remains only a possibility in a long-term scenario and, as with many "crises" of this nature, the hype may turn out to be heavier than the hit.

**Table A**

**DISTRIBUTION OF S&P 500 PENSION DEFICITS IN 2003**




Source: Morgan Stanley.

Note: Data based on 2003 expected deficit and the following assumptions: 8% return on assets and 6.75% discount rate in 2003.

## Table B

## S&P 500 COMPANIES LEAST AND MOST AT RISK FOR FUNDING PENSIONS

### 25 Companies Least at Risk from Pension Related Funding Calls
### Percent (%)

| Company | | Surplus (Deficit)/MCAP F2002E | Surplus (Deficit)/MCAP F2003E | PBO/MCAP F2002E | PBO/MCAP F2003E | Funded Ratio F2002E | Funded Ratio F2003E | Required Actual Return If Discount Rate is 6.75% |
|---|---|---|---|---|---|---|---|---|
| MeadWestvaco | E | 16.4 | 17.4 | 28.8 | 30.2 | 156.8 | 157.5 | 0.0 |
| NICOR Inc. | E | 5.9 | 6.1 | 16.2 | 15.8 | 136.5 | 138.8 | 0.0 |
| Peoples Energy | A | 5.5 | 2.7 | 29.9 | 27.1 | 118.3 | 110.1 | 0.0 |
| Xcel Energy Inc. | E | 4.4 | 4.0 | 58.6 | 59.7 | 107.5 | 106.7 | 1.4 |
| BellSouth | E | 3.0 | 3.1 | 25.3 | 24.5 | 112.0 | 112.7 | 0.0 |
| Verizon Communications | E | 2.3 | 2.3 | 35.4 | 34.8 | 106.6 | 106.5 | 1.6 |
| AT&T Corp | E | 1.8 | 1.6 | 74.4 | 75.0 | 102.4 | 102.1 | 3.2 |
| Norfolk Southern Corp. | A | 1.3 | 1.4 | 17.6 | 17.5 | 107.2 | 107.8 | 0.5 |
| Prudential Financial | E | 1.2 | 0.8 | 39.3 | 40.3 | 103.0 | 101.9 | 5.9 |
| Weyerhaeuser Corp. | E | 0.6 | 0.3 | 28.3 | 28.9 | 102.1 | 101.0 | 6.7 |
| Kerr-McGee | E | 0.6 | 0.4 | 25.2 | 25.0 | 102.2 | 101.4 | 6.2 |
| SBC Communications Inc. | E | 0.5 | 0.2 | 26.9 | 23.6 | 102.0 | 101.0 | 6.4 |
| Southern Co. | E | 0.4 | 0.2 | 21.4 | 22.6 | 101.9 | 100.9 | 4.5 |
| Dominion Resources | E | 0.3 | 0.0 | 18.5 | 19.2 | 101.6 | 100.2 | 7.6 |
| El Paso Corp. | E | 0.0 | -0.3 | 50.5 | 51.4 | 100.0 | 99.4 | 8.4 |
| PPL Corporation | E | -0.4 | -0.9 | 25.7 | 27.1 | 98.4 | 96.8 | 9.6 |
| Pitney-Bowes | E | -1.0 | -1.3 | 18.7 | 19.1 | 94.4 | 93.2 | 9.2 |
| Crane Company | E | -1.4 | -1.9 | 33.5 | 35.2 | 95.9 | 94.6 | 9.5 |
| Allied Waste Industries | E | -1.4 | -1.4 | 14.6 | 14.8 | 90.5 | 90.8 | 7.6 |
| Rohm & Haas | E | -1.7 | -2.4 | 24.6 | 25.6 | 92.9 | 90.7 | 10.6 |
| General Dynamics | E | -2.6 | -3.3 | 35.5 | 37.2 | 92.7 | 91.1 | 10.0 |
| John Hancock Financial | E | -2.7 | -3.0 | 26.8 | 27.4 | 90.0 | 89.0 | 9.1 |
| Edison Int'l | E | -5.3 | -7.1 | 65.2 | 66.9 | 91.9 | 89.4 | 10.8 |
| Textron Inc. | A | -5.7 | -7.0 | 73.5 | 75.5 | 92.3 | 90.8 | 9.7 |
| Donnelley (R.R.) & Sons | A | -6.0 | -7.9 | 66.4 | 67.7 | 90.9 | 88.4 | 10.2 |
| Average | | 0.6 | 0.2 | 35.2 | 35.7 | 103.6 | 102.5 | 5.9 |

### 25 Companies Most at Risk from Pension Related Funding Calls

| Company | | Surplus (Deficit)/MCAP F2002E | Surplus (Deficit)/MCAP F2003E | PBO/MCAP F2002E | PBO/MCAP F2003E | Funded Ratio F2002E | Funded Ratio F2003E | Required Actual Return If Discount Rate is 6.75% |
|---|---|---|---|---|---|---|---|---|
| Delta Air Lines | E | -353.6 | -390.0 | 814.7 | 844.6 | 56.6 | 53.8 | 15.5 |
| AMR Corp. | E | -333.6 | -377.7 | 818.0 | 863.4 | 59.2 | 56.2 | 16.8 |
| Goodyear Tire & Rubber | E | -186.9 | -206.0 | 485.0 | 488.9 | 61.5 | 57.9 | 13.9 |
| McDermott International | E | -152.6 | -166.2 | 707.7 | 726.0 | 78.4 | 77.1 | 10.2 |
| General Motors | E | -116.5 | -126.3 | 438.2 | 439.8 | 73.4 | 71.3 | 10.6 |
| Delphi Automotive System | A | -90.9 | -93.3 | 216.1 | 230.0 | 57.9 | 59.4 | 10.0 |
| Avaya Inc. | A | -89.4 | -98.4 | 307.0 | 310.9 | 70.9 | 68.3 | 8.2 |
| Visteon Corp. | A | -78.4 | -89.9 | 191.2 | 207.6 | 59.0 | 56.7 | 18.1 |
| Ford Motor (New) | E | -77.4 | -82.1 | 317.0 | 323.9 | 75.6 | 74.7 | 9.7 |
| Cummins Inc. | E | -76.8 | -85.6 | 202.2 | 207.1 | 62.0 | 58.7 | 14.6 |
| Navistar International | A | -67.4 | -83.9 | 242.7 | 252.7 | 72.2 | 66.8 | 17.0 |
| USX -U.S. Steel Group | E | -54.4 | -56.3 | 577.8 | 563.5 | 90.6 | 90.0 | 2.4 |
| CMS Energy | E | -46.6 | -52.3 | 99.9 | 102.0 | 53.3 | 48.7 | 18.1 |
| Hercules, Inc. | E | -44.8 | -49.3 | 160.2 | 159.5 | 72.0 | 69.1 | 11.4 |
| Boise Cascade | E | -40.9 | -45.4 | 109.0 | 113.2 | 62.5 | 59.9 | 14.2 |
| Dana Corp | A | -39.3 | -44.3 | 160.7 | 162.3 | 75.5 | 72.7 | 11.7 |
| Allegheny Technologies | E | -38.0 | -41.4 | 374.2 | 377.9 | 89.9 | 89.0 | 8.7 |
| Lucent Technologies | A | -36.6 | -35.7 | 647.9 | 620.1 | 94.3 | 94.3 | 4.7 |
| Xerox Corp. | E | -32.9 | -37.2 | 129.2 | 129.5 | 74.5 | 71.3 | 12.0 |
| Goodrich (B.F.) | A | -29.2 | -33.4 | 135.6 | 138.0 | 78.5 | 75.8 | 11.2 |
| Georgia-Pacific Group | E | -28.2 | -33.5 | 104.9 | 109.7 | 73.1 | 69.5 | 11.1 |
| Unisys Corp. | A | -27.8 | -29.7 | 169.4 | 171.1 | 83.6 | 82.7 | 9.0 |
| Boeing Company | A | -27.1 | -30.0 | 136.4 | 140.1 | 80.2 | 78.5 | 7.3 |
| Raytheon Co. | E | -26.4 | -32.2 | 93.0 | 96.6 | 71.6 | 66.7 | 16.2 |
| Alleghney Energy Inc. | E | -25.1 | -27.9 | 92.8 | 96.0 | 73.0 | 70.9 | 11.9 |
| Average | | -84.8 | -93.9 | 309.2 | 315.0 | 72.0 | 69.6 | 11.8 |

Source: Morgan Stanley.

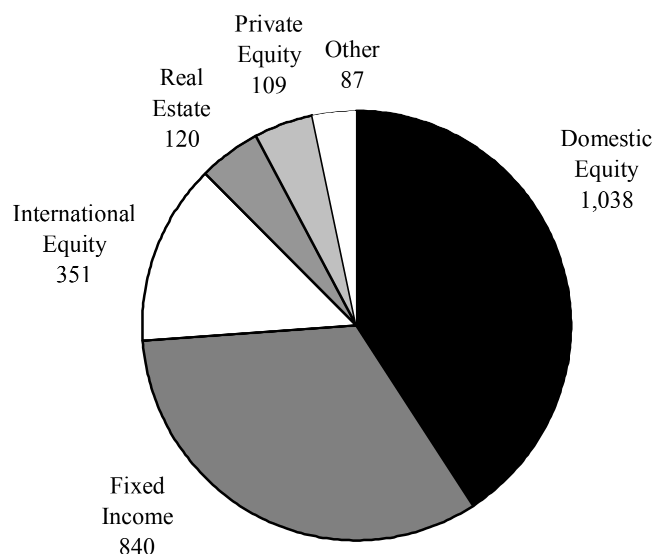
Notes: "A" denotes actual numbers based on information found in the company's 10K report. "E" denotes Morgan Stanley Estimates. PBO denotes projected benefit obligation. MCAP denotes market capitalization.

**Table C**

## PENSION FUND ASSET ALLOCATION VS. ALL CAMBRIDGE ASSOCIATES ENDOWMENTS

| Defined Benefit | Top 200 Plans | | | Top 1,000 Plans | | | CA-All Endowments |
|---|---|---|---|---|---|---|---|
| Asset Allocation (%) | Dec-02 | Sep-02 | Sep-01 | Dec-02 | Sep-02 | Sep-01 | Dec-02 |
| Stocks | 56.4 | 54.6 | 56.6 | 57.0 | 55.2 | 56.9 | 43.6 |
| Domestic | 42.4 | 40.8 | 43.2 | 43.6 | 42.0 | 44.0 | 30.9 |
| International | 14.0 | 13.8 | 13.4 | 13.4 | 13.2 | 12.9 | 12.7 |
| Fixed Income | 31.8 | 33.0 | 31.4 | 31.7 | 32.9 | 31.8 | 25.9 |
| Domestic | 30.2 | 31.3 | 29.9 | 30.1 | 31.2 | 30.3 | 22.8 |
| International | 1.6 | 1.7 | 1.5 | 1.6 | 1.7 | 1.5 | 3.2 |
| Cash | 1.7 | 1.8 | 1.9 | 1.8 | 1.9 | 1.9 | 4.1 |
| Real Estate | 4.4 | 4.7 | 4.2 | 4.0 | 4.3 | 3.9 | 4.1 |
| Mortgages | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.0 |
| Private Equity | 4.1 | 4.3 | 4.4 | 3.6 | 3.8 | 3.8 | 6.3 |
| Other | 0.7 | 0.7 | 0.6 | 0.9 | 1.0 | 0.8 | 15.9 |
| Total | 2,677 | 2,545 | 2,855 | 3,415 | 3,243 | 3,611 | |

**Asset Allocation for Top 200 Defined Benefit Plans**
**As of September 30, 2002**
**($ billions)**




Sources: Cambridge Associates Member Investment Database, Goldman Sachs, and *Pensions & Investments Age,* January 2001 and 2002.

Notes: Figures may not total due to rounding. Private equity includes venture capital and non-venture private equity. For the Cambridge Associates all endowments asset allocation, real estate includes both private and public real estate. Mortgages include mortgage real estate and faculty mortgages. Other includes marketable alternatives and oil and gas to match up with pension asset allocation categories.