



# Wilshire Consulting

## 2007 Report on Corporate Pension Funding Levels

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## Summary of Findings

- The financial health of corporate pension plans experienced a substantial improvement in 2006. Defined benefit pension assets for S&P 500 companies grew \$132.5 billion, from \$1,112.2 billion to \$1,244.6 billion, while liabilities increased \$32.3 billion, from \$1,195.7 billion to \$1,228.0 billion. As a result, the aggregate funding ratio (assets divided by liabilities) for all plans combined increased from 93% to 101% and a \$83.5 billion deficit at the beginning of the year changed to a \$16.6 billion surplus. (Exhibit 1)
- Seventy-one percent of corporate pension plans are under-funded, which is notably lower than the 83% reported for the previous year. The median (50th percentile) corporate funded ratio is 91%, which is an improvement from last year's 85%. (Exhibit 3)
- A fourth consecutive year of positive equity returns contributed to the increase in pension assets. The median 2006 investment return was +11.5%, building on returns of +8.5% in 2005, +10.8% in 2004, and +17.1% in 2003.
- Although the interest rates used to discount future benefits rose moderately, lowering the present value of liabilities, the overall change in liabilities was an increase. The median discount rate rose from 5.62% to 5.75%, while total liabilities increased 2.7% for the year. (Exhibit 9)
- The combined pension expense for S&P 500 companies was \$35.3 billion for 2006, up from \$30.5 billion a year ago. Regular annual pension expense accruals from employee service and interest expense on existing liabilities totaled \$96.0 billion in 2006, slightly higher than the \$91.3 billion a year ago. (Exhibit 10)
- S&P 500 companies contributed \$36.3 billion into their defined benefit plans in 2006 which was less than the \$46.3 billion contributed in 2005.
- Aggregate benefit payments from corporate pension plans increased slightly during the past year. Benefit payments totaled \$73.6 billion in 2006, compared to \$68.9 billion during the previous year.
- The distribution of pension liabilities and assets of S&P 500 companies is relatively concentrated among the largest plans. As of the end of fiscal year 2006, over half of the total pension assets and liabilities were held by the 21 and 24 largest plans when ranked by asset and liability size, respectively. Conversely, the smallest 100 plans when ranked by asset and liability size made up 2.1% and 1.8% of the total asset and liability pool, respectively. (Exhibit 6)

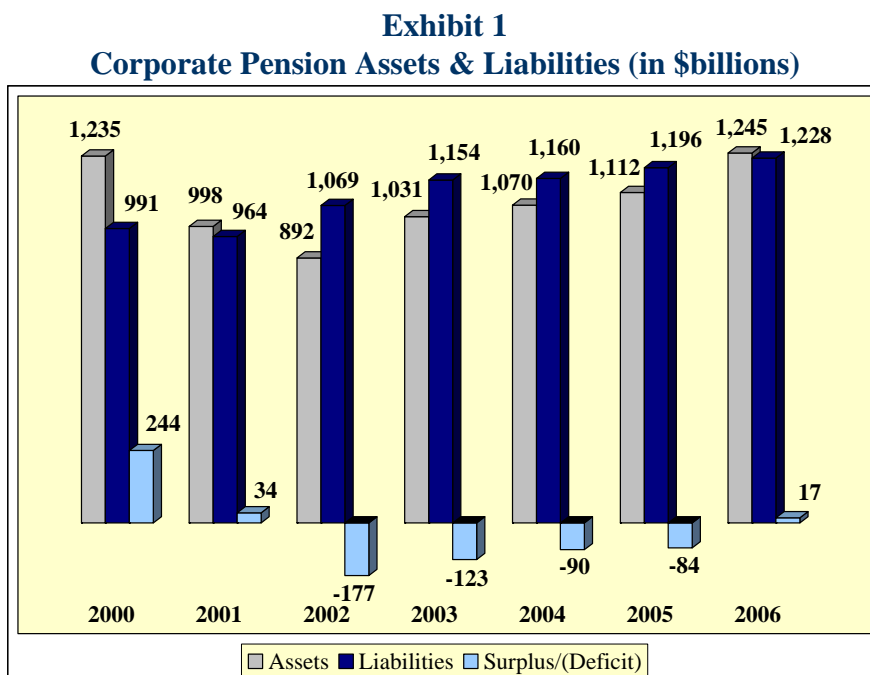
## Financial Overview

### *The Data*

This is Wilshire Consulting’s seventh study covering defined benefit plans sponsored by S&P 500 companies. Wilshire’s practice is to collect data on US pensions from 10-K filings for companies in the S&P 500 at fiscal year-end. All data for fiscal years 2005 and 2006 are based on S&P 500 constituents as of year-end 2006 and, therefore, may differ slightly from the list of companies represented in earlier years.

### *Assets, Liabilities, and Funding Ratios*

The financial health, as measured by the aggregate funding ratio, of corporate pension plans improved notably in 2006, according to our latest survey of 330<sup>1</sup> companies in the S&P 500 Index that maintain defined benefit plans. Exhibit 1 shows the change in aggregated assets, liabilities, and surplus (assets minus liabilities) for the surveyed companies from 2000 to the most recent 2006 fiscal reporting year.

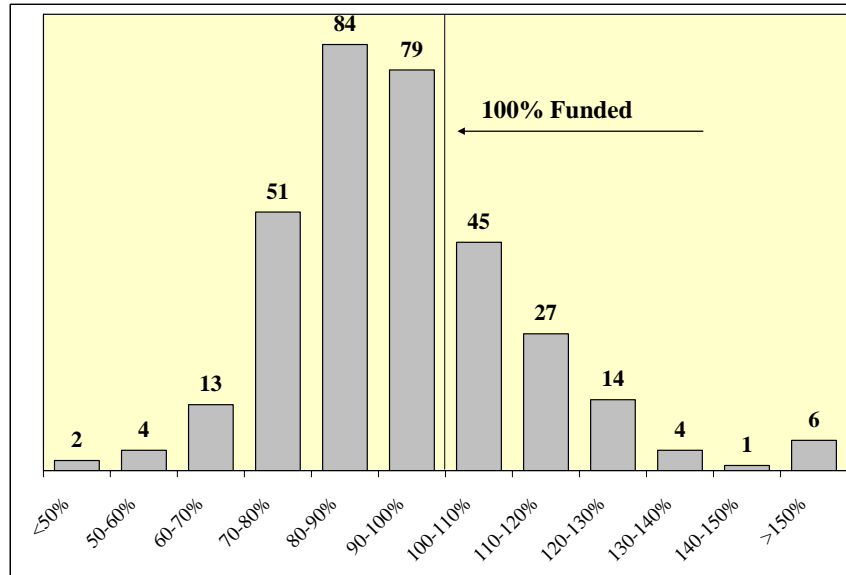


Pension “surplus,” the difference between the market value of assets and liabilities, increased \$100.1 billion, from a deficit of \$83.5 billion at the end of 2005 to a surplus of \$16.6 billion at the end of 2006. At the same time the aggregate “funding ratio,” equal to assets divided by liabilities, increased markedly from 93% to 101%.

<sup>1</sup> AES Corp., Bausch & Lomb, Big Lots, Inc., Federated Dept. Stores, J.C. Penney, Sears Holding Corp., Spectra Energy Corp., Tiffany & Co., and TJX Companies Inc. were included in Wilshire’s 2006 report but did not file their Form 10-K before this report’s data collection deadline. The 2005 results for these nine plans were included in the aggregate 2006 data.

The aggregate figures in Exhibit 1 mask considerable differences among individual corporate plans. Exhibit 2 shows a histogram of funding ratios for the 330 corporate pension plans in our study.

**Exhibit 2**  
**Distribution of 330 Corporate DB Pension Plans by Funding Ratio**



Only 97 of the 330 corporations, or 29%, have pension assets that equal or exceed liabilities. This is notably higher compared to last year's 17% and an improvement upon the 11% low observed in 2002. In contrast, the percentage of corporations with assets below liabilities was 89% in 2002 and a considerably lower 71% in 2006.

Exhibit 3 displays graphically how the distribution of corporate pension funding ratios has changed over the past seven years. Four lines are charted, three corresponding to a percentile rank and one corresponding to the aggregate funding ratio. The 50<sup>th</sup> percentile, or median, corporate funding ratio has declined steadily from 112% at the end of 2000 to 78% at the end of 2002, and has improved notably to 91% at the end of 2006. The change in aggregate funding ratio experienced a pattern similar to the median funding ratio over the same period.

In 2000, the 125% aggregate funding ratio translated into a \$199 billion surplus. The bear market coupled with falling interest rates over the following two years worsened the financial condition of corporate pension plans by \$376 billion (\$199 billion surplus in 2000 to \$177 billion deficit in 2002). The improving stock market over the subsequent four years improved the financial condition of corporate pension plans by \$193.6 billion (\$177 billion deficit in 2002 to \$16.6 billion surplus in 2006), despite a declining interest rate environment for most of that period.

**Exhibit 3**  
**Corporate Funding Ratios**

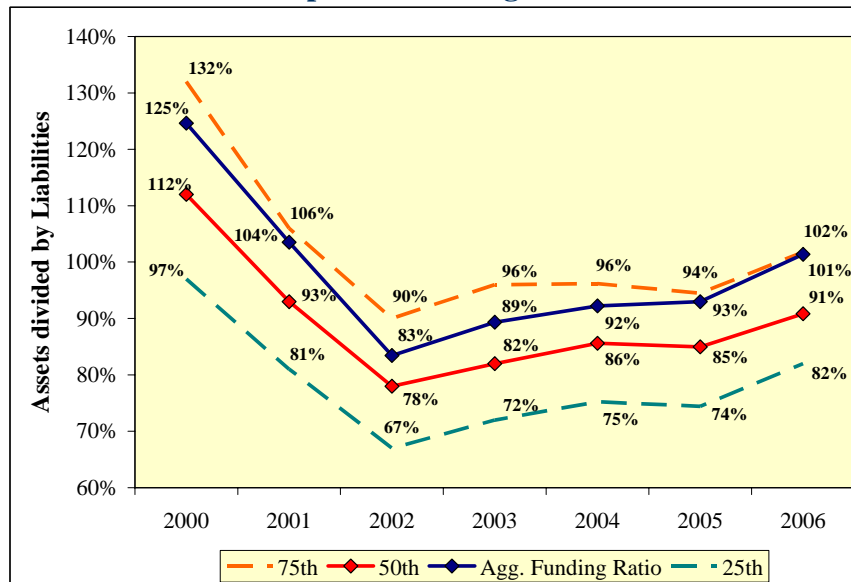
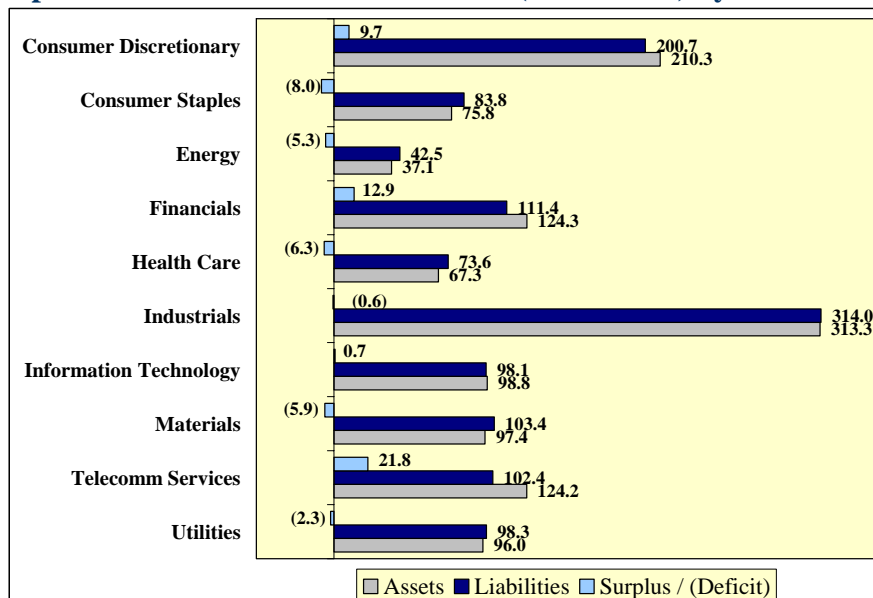


Exhibit 4 shows the combined assets, liabilities, and surplus for the surveyed companies, broken down into their Global Industry Classification Standards (GICS) sectors for the 2006 fiscal reporting year.

**Exhibit 4**  
**Corporate Pension Assets & Liabilities (in \$billions) by GICS Sector**

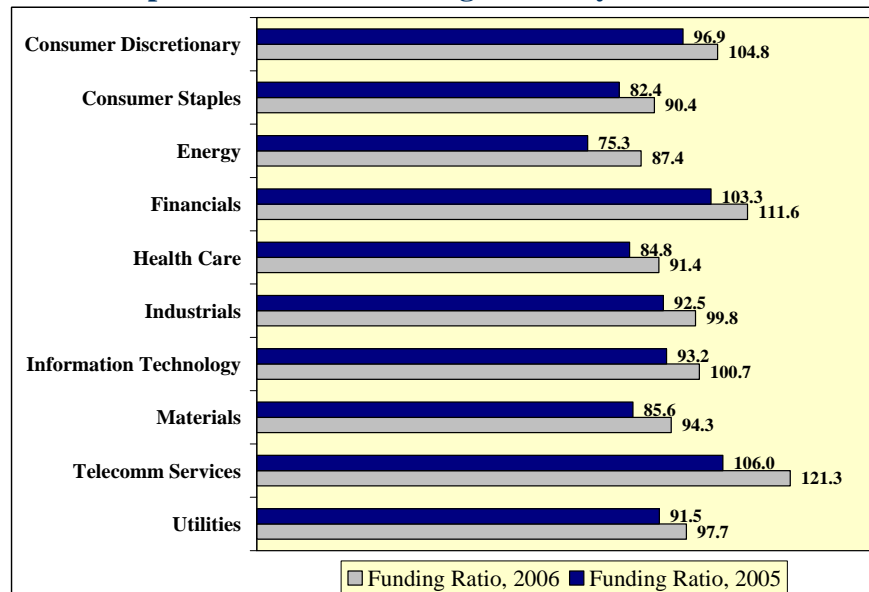


The number of sectors with a surplus doubled from two to four, as the consumer discretionary and information technology sectors joined financials and telecommunications services sectors by

moving into the black in 2006. AT&T, which comprises a staggering 55.8% of total assets and 54.6% of total liabilities within the telecommunications services sector, contributed 61.0% (\$13.3 billion) of the \$21.8 billion surplus. Bank of America, JPMorgan Chase & Company and Prudential Financial had similar influences within the financials sector as they represented a combined 29.9% and 25.9% of total assets and liabilities, respectively. Excluding their combined contribution to the industry’s \$12.9 billion pension surplus, the financial services sector would have been over-funded by \$4.5 billion.

Exhibit 5 summarizes the funding ratios for the surveyed companies in 2006 and 2005, broken down by their GICS sectors.

**Exhibit 5**  
**Corporate Pension Funding Ratios by GICS Sector**



The telecommunications services sector had the highest funding ratio, at 121.3%, while the energy sector had the lowest funding ratio, at 87.4%. However, the energy sector accounted for the smallest proportion of assets and liabilities in the surveyed companies, approximately 3.0% and 3.5%, respectively. All sectors experienced improvements in their funding ratios over the past year with the telecommunications services sector leading the way with a 15.3% improvement.

*The Concentration of Plan Assets and Liabilities*

While the aggregated pool of S&P 500 defined benefit plans is fully funded this year, the concentration of assets and liabilities within this set of plans indicates that a relatively small subset of plans has an overwhelming impact on the entire pool of plans. Exhibit 6 outlines the concentration of plan assets and liabilities when ranked by size and provides funding ratio data for the subset of plans examined.

**Exhibit 6**

**Concentration of 330 Corporate DB Pension Plans by Assets and Liabilities**

	<u>Assets</u>	<u>Liabilities</u>	<u>Median Funded Ratio</u>	<u>Funded Ratio Range</u>
25 Largest Plans	54.0%	51.1%	97.5%	81.8 - 132.4%
100 Smallest Plans	1.8%	2.1%	84.9%	4.3 - 221.9%

The largest 25 plans when ranked by assets and liabilities represent 54.0% and 51.1% of assets and liabilities, respectively, of the total 330 plans. The median funded ratios stand at 97.5% and 84.9% for the 25 largest and 100 smallest plans, respectively.

Exhibit 7 plots the vast majority of 330 plans sampled in this study based on their funded ratio and plan liability size. While the trend line appears to suggest there is some relationship between liability size and funding ratio, the relationship is less pronounced when the few largest plans are removed from this scatter plot.

**Exhibit 7**

**Liability Size and Funding Ratio**

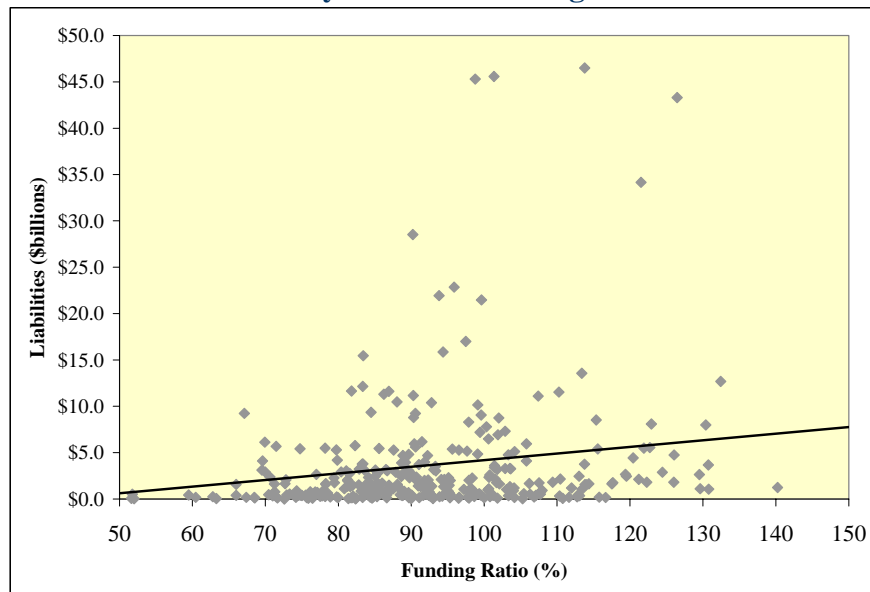


Exhibit 8 provides a combined accounting for the S&P 500 corporate pension plans for the 2006 fiscal year.

**Exhibit 8**  
**Change in Assets & Liabilities for 2006**

	<u>In Billions</u>	<u>% of BOY</u>
Liabilities - Beginning of Year (BOY)	\$ 1,195.7	
plus service costs	30.1	2.5%
plus interest costs	65.9	5.5%
minus benefit payments	(73.6)	-6.2%
plus actuarial losses (gains)	(16.3)	-1.4%
other	26.2	2.2%
Liabilities - End of Year (EOY)	\$ 1,228.0	2.7%
Assets - Beginning of Year (BOY)	\$ 1,112.2	
plus contributions	36.3	3.3%
plus actual return on assets	144.5	13.0%
minus benefit payments	(73.6)	-6.6%
other	25.2	2.3%
Assets - End of Year (EOY)	\$ 1,244.6	11.9%

*Note: 13.0 % actual return on assets is based on beginning of year asset value.*

*Pension Plan Liabilities*

There are three recurring items that annually affect the growth in liabilities. The first item is service cost. This cost arises from employees earning additional benefits from another year of service. Service cost, which changes little from year to year, added \$30.1 billion or 2.5% to aggregate pension liabilities in 2006. The second item is interest cost. Liabilities are determined by discounting expected future benefit payments. As each year passes, liabilities increase by the annualized interest cost because there is one less year to discount future benefits. This cost item should also remain predictable from year to year. Thirdly, liabilities are reduced by benefits paid during the year since they represent a payment against the company's pension liability.

If these recurring items were the only changes, then corporate pension liabilities would have grown \$22.4 billion, or 1.9%. Instead, liabilities increased \$32.3 billion, or 2.7%, in 2006. A large portion of the difference lies primarily within the "actuarial losses" category. Actuarial losses refer to changes in liabilities, either negative or positive, which arise when actual experience differs from actuarial assumptions. During the first five of the last six years companies have had to report large actuarial losses because the discount rate applied to benefits in valuing liabilities has fallen. However, this year marks a turnaround in the direction of the median discount rate as the median rate has moved higher. A higher discount rate decreases the accounting liability. Exhibit 9 illustrates the drop in discount rates over the first five of the last six years with a slight reversal in 2006.

**Exhibit 9**  
**FAS 87 Discount Rate by Percentile**

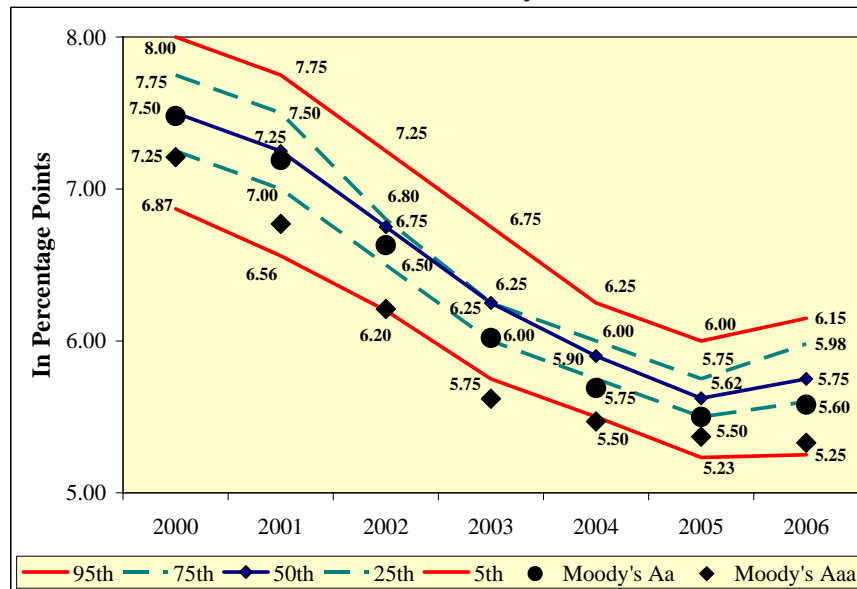


Exhibit 9 shows the distribution of discount rates used by S&P 500 companies from 2000 to 2006. The median, or 50<sup>th</sup> percentile, discount rate has fallen from 7.5% in 2000 to 5.75% in 2006. Rising discount rates produced actuarial gains totaling \$16.3 billion, or 1.4% of liabilities, in 2006 (see Exhibit 8). As a generalization, a 1% decrease (increase) in the discount rate causes a 10% increase (decrease) in pension liabilities. In other words, pension plans accounting liabilities have an average duration of 10 years.

Each year companies select a FAS 87 discount rate that approximates a settlement rate for their pension liabilities, taking into consideration the current rates of return on high-quality fixed income investments. The Moody's Aa and Aaa corporate bond yields are generally thought to be fair estimates for pension liability settlement rates. The Moody's Aa corporate bond yield has fallen from 7.5% at end-of-year 2000 to 5.6% at end-of-year 2006. As interest rates fell companies were forced to lower their discount rates, thereby increasing total pension liabilities. Exhibit 9 includes these corporate bond yields with the historical distribution of discount rates.

The final item that affects liabilities in Exhibit 6 is "other." In 2006, this line item was responsible for a \$26.2 billion, or 2.2%, increase in liabilities. Large dollar figures in the "other" category are often the result of companies acquiring other pension plans, as would occur if the company purchased another company that also had a pension plan. When that happens, there is a corresponding entry into the "other" category under assets. The primary contributor to this net amount during 2006 is AT&T, where its charge to the "other" category was \$11.7 billion, in connection with its acquisition of BellSouth.

### *Pension Plan Assets*

There are three recurring items that annually cause changes in plan assets. The first is corporate contributions to the pension plan, which totaled \$36.3 billion or 3.3% of assets during 2006. In an ideal world where the contribution and financial reporting actuarial methods and assumptions were identical and all assumptions were perfectly accurate, contributions would be at a level equal to service costs, as companies pay for new benefits earned during the year. This would occur when assets equal liabilities and when assets earn a return equal to the discount rate used to value liabilities. If assets are below liabilities or asset returns fall below the discount rate, then corporate contributions will climb to levels that could substantially exceed service costs. In 2006, the \$36.3 billion in company contributions exceeded the \$30.1 billion in aggregate service costs because many companies with assets less than liabilities either chose, or were required, to make contributions well above their service costs. For example, Exxon Mobil Corp. contributed \$2.4 billion although its service cost was only \$335 million. Similarly, Bank of America Corp. contributed \$2.2 billion although its service cost was only \$306 million.

The second item is the actual return on plan assets, which equaled a gain of \$144.5 billion. The aggregate actual return as a percentage of beginning of year assets has been +13.0%, +8.5%, +11.7%, +17.3%, -8.9%, and -7.8% for the six prior years from 2006 through 2001, respectively. During the past year, the asset return exceeded the increase in liabilities which contributed to a modest increase in the aggregate funding ratio.

The third recurring item is benefit payments, which totaled \$73.6 billion in 2006 and reduced assets and liabilities by the same amount. The final item is “other” and largely represents assets of pension plans from companies that were acquired. As previously mentioned, the primary contributor to this net amount during 2006 is AT&T, where its charge to the “other” category was \$18.2 billion, in connection with its acquisition of BellSouth.

### *The Impact of Pension Expense (Income) on Corporate Earnings*

Much has been written about the impact of pension expense (income) on corporate earnings. This past year also marked the passage of the Pension Protection Act<sup>2</sup> which created a more defined and stricter set of guidelines for public companies sponsoring DB plans. Exhibit 10 provides an aggregate accounting of pension expense (income) for the 330 S&P 500 companies in our study.

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<sup>2</sup> For more information on the Pension Protection Act please refer to Wilshire Consulting’s “Pension Protection Act of 2006” research note.

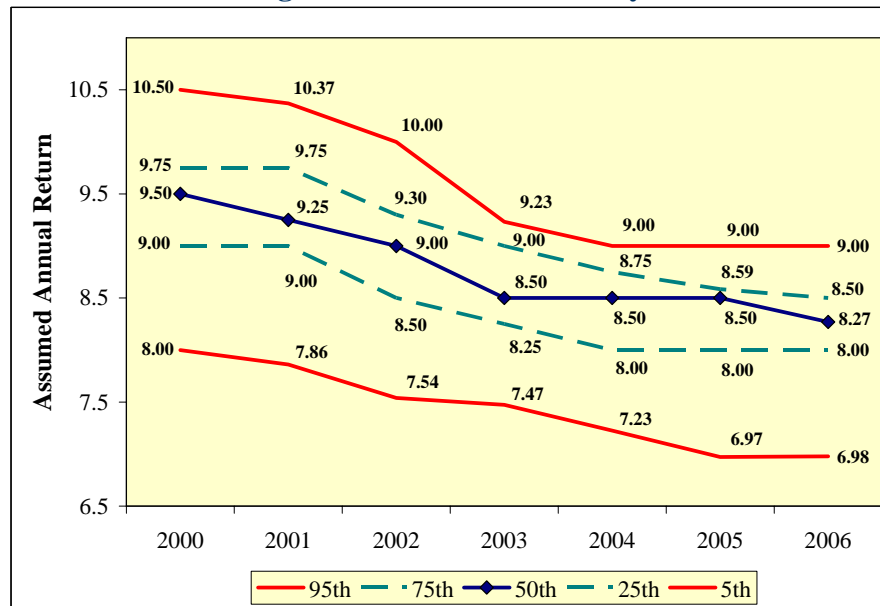
**Exhibit 10**  
**Calculation of 2006 Pension Expense (Income)**

	<u>In Billions</u>
Service Costs	\$ 30.1
plus Interest Costs	65.9
minus Expected Return on Plan Assets	(87.8)
plus (minus) Losses (Gains)	27.1
equals Pension Expense (Income)	\$ 35.3

There are four items that make up pension expense (income). The first two are service costs and interest costs, which were described in Exhibit 8. There is some controversy surrounding the third item, the “expected return on plan assets.” Market value accounting might suggest that service costs and interest costs be offset by the actual return on assets – a \$144.5 billion gain – in calculating pension expense (income). If this were so, pension income would equal \$21.4 billion in 2006. Instead, pension expense was \$35.3 billion in 2006 because asset returns are smoothed. In other words, to reduce the short-term volatility of asset returns on corporate net income, only a portion of the \$144.5 billion asset gain during 2006 will be recognized during the current year, similar to the amortization of the \$104.1 billion asset gain during the previous year.

The expected rate of return for pension assets has been coming down in recent years (see Exhibit 11). The median expected return was 9.50% at the end of 2000 and fell to 8.27% at the end of 2006. The expected return assumption is multiplied by the level of assets to arrive at a dollar value of expected investment earnings that is credited against service and interest costs. In 2006, companies collectively expected their assets to earn \$87.8 billion, and it was this number that was used in the calculation of pension expense and corporate net income, even though pension plans incurred actual gains of \$144.5 billion, which represents a \$56.7 billion net gain. However, differences between accounting earnings and market-based earnings cannot continue unabated. Once these differences exceed 10% of assets, they must be amortized over time and appear in the expense calculation as “Losses” or “Gains,” the fourth item in Exhibit 10.

**Exhibit 11**  
**FAS 87 Long-Run Return on Assets by Percentile**



Although the median “expected return on plan assets” assumption has fallen over the past six years, from 9.50% in 2000 to 8.27% in 2006, many pension accounting critics believe that this assumption is still too high. Wilshire Consulting’s long-term forecast for the return on corporate pension assets is approximately 7.6%<sup>3</sup>, based on the typical asset allocation, though individual pension plan expected returns could vary considerably depending upon their own asset allocation. Also, Wilshire Consulting’s asset class return forecast is for the next ten years while the horizon for the assumed return in corporate financial statements is an unspecified long term period. Finally, Wilshire Consulting’s assumed returns are for the asset classes with no consideration of potential value added from successful active management.

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*We would like to thank Alex Browning, Andrew Chen, Tom Granger, Amy Hemphill, Jerry Hsu, Serjik Markarian, Valerie Snodgrass, and Gary Tom for their helpful contributions.*

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<sup>3</sup> Based on an average asset allocation for all corporate DB plans according to Greenwich Associates’ “2005 Market Dynamics Report.”

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