Pension fund management

Accounting for Plan Sponsors—Trends in the Discount Rate and Expected Return on Plan Assets

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Five years after the introduction of new accounting rules, both the discount rate and expected return on plan assets—two basic rates used to calculate pension expenses—have decreased in line with falling interest rates and investment returns. Since plan sponsors tend to adjust these rates based on financial conditions and debt burden, the downtrend persists to this day.

Five years after introduction of the new accounting rules, the funding ratio (ratio of plan assets to liabilities) has improved as a result of: (1) lower debt levels due to plan revisions, and (2) asset growth due to improved investment returns. This paper examines trends in the basic rates used by plan sponsors to calculate pension expenses—the discount rate, or rate at which estimated future benefits are discounted to present value, and the expected rate of return on plan assets.

Exhibit 1 shows the discount rate's distribution fiscal 2000 to 2005 at 985 listed companies (with fiscal year ending in March and uninterrupted data available). In fiscal 2000, the discount rate ranged from 1.4% to 4.5%, with a median value of 3.0%. The median value dropped to 2.2% in fiscal 2003, where it has remained.

Exhibit 1　Distribution of Discount Rate

(FY)	2000	2001	2002	2003	2004	2005
Maximum	4.5%	4.5%	4.5%	3.5%	3.5%	3.5%
25-percentile	3.5%	3.0%	2.5%	2.5%	2.5%	2.5%
Median	3.0%	2.5%	2.2%	2.0%	2.0%	2.0%
75-percentile	3.0%	2.8%	2.5%	2.2%	2.0%	2.0%
Minimum	1.4%	1.0%	1.0%	1.0%	1.0%	1.0%

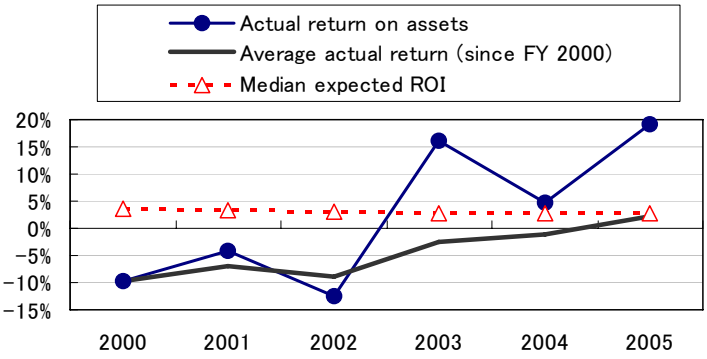
According to the *Working Guideline for Retirement Benefit Accounting (Interim Report),* discount rates are set in reference to the yield on long-term bonds with low risk. "Long-term" can also be based on the average period to payment of future benefits, approximated using the average remaining years of service. Another factor that may come into play is fluctuation of the yield on notes of five years or less. In April 2000, the average yield (60-month moving average) stood at 2.3% for the 10-year JGB and 3.0% for the 20-year JGB, falling to 1.4% and 2.0% respectively in April 2003, and then leveling off. Similar to the discount rate, the expected return fell until fiscal 2002, and then leveled off from fiscal 2003 (Exhibit 2).

Exhibit 2　Distribution of Expected Return

(FY)	2000	2001	2002	2003	2004	2005
Maximum	7.50%	6.60%	6.60%	6.00%	6.00%	6.00%
25-percentile	4.00%	3.70%	3.50%	3.00%	2.84%	2.50%
Median	3.50%	3.00%	2.50%	2.50%	2.20%	2.20%
75-percentile	3.00%	2.00%	2.00%	1.50%	1.50%	1.60%
Minimum	0.50%	0.50%	0.50%	0.50%	0.40%	0.40%

From fiscal 2000 to 2002, the median expected return greatly exceeded the actual return of the Employees' Pension Fund (EPF). However, the actual return has been higher since fiscal 2003 due to the stock market recovery. For the six-year period to fiscal 2005, the average actual return is 2.25%, or approximately the same as the median expected return (Exhibit 3). As a result, positive and negative actuarial disparities in each year should have offset each other over the six-year period. Thus while criticism is heard in the U.S that expected returns are set arbitrarily high, this does not apply in Japan's case.

Exhibit 3　Expected Return and Actual Return on Plan Assets (EPF)



Source: Dzta on actual return of the Employees' Pension Fund was obtained from the Pension Fund Association

By plan sponsor, we found significant correlations between the discount rate and expected return in each year. For instance, in fiscal 2005, when the discount rate rose 1%, the expected return also rose 0.8%. According to accounting rules, the expected return is calculated based on asset allocations and expected returns for each asset class. Thus no connection should arise with the discount rate or background interest rate. However, the existence of a correlation suggests that common factors are influencing the discount rate and expected return.

To examine this possibility, we performed a single regression analysis on the discount rate and expected return using four different explanatory variables: (1) ratio of shareholders' equity to total assets; (2) ratio of plan assets to benefit obligations; (3) ratio of benefit obligations to shareholders' equity; and (4) ratio of funding shortfall to shareholders' equity. Our results show that the expected return is positively correlated with the benefit obligation ratio and underfunding ratio, and negatively correlated with the shareholders' equity ratio and funding ratio. On the other hand, the discount rate is negatively correlated with shareholders' equity ratio and funding ratio, and in fiscal 2004 and 2005, is positively correlated with the benefit obligation ratio and underfunding ratio (Exhibit 4).

Basic rates must be set based on objective standards such as the long-term bond yield in the case of the discount rate, and expected asset class returns in the case of the expected return on plan assets. However, management is allowed a certain amount of discretion. As a result, the discount rate and expected return tend to increase when benefit obligations and underfunding grow with respect to shareholders' equity, or when the shareholders' equity ratio or funding ratio decrease. We confirmed the persistence of this tendency in fiscal 2005, five years into the new accounting rules.

Exhibit 4　Single Regression Analysis

Explanatory variable		Discount rate (explained var.)						Expected return (explained var.)					
		00	01	02	03	04	05	00	01	02	03	04	05
Shareholders' equity/total assets	(−)		*	***	**	**		**	**	*			
Plan assets/plan liabilities	(−)		***		*		**	***	**				**
Benefit obligation/share. equity	(+)		*			***	***	***	*	***	*	***	***
Underfunding/share. equity	(+)					**	**	***	***	***	*	***	***

* Significant at 1% level　　** Significant at 5% level　　** Significant at 10% level