



USAID
FROM THE AMERICAN PEOPLE

TAPRII
TECHNICAL ASSISTANCE
FOR POLICY REFORM

Explanation of Standardized Actuarial Valuation Report for Pension Funds

by Michael Sze

August, 2007

EXPLANATION OF STANDARDIZED ACTUARIAL VALUATION REPORT FOR PENSION FUNDS

TECHNICAL ASSISTANCE FOR POLICY REFORM II

CONTRACT NUMBER: 263-C-00-05-00063-00

BEARINGPOINT, INC.

USAID/EGYPT POLICY AND PRIVATE SECTOR OFFICE

AUGUST 2007

AUTHOR: MICHAEL SZE, PHD., FSA, CFA

SO 16 < OR ACTIVITY TITLE AND ASSOCIATED NUMBER >

DISCLAIMER:

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

CONTENTS

- Introduction
- Principal purposes of an actuarial valuation report for pension funds
- Essential characteristics of a good actuarial report
- Principal sections of an actuarial valuation report
 - Summary
 - Funding requirements
 - Assets and liabilities
 - Ongoing funding and solvency bases
 - Contributions
 - Experience analysis
 - Appendix
 - Personnel information
 - pension fund provisions
 - Actuarial methods and assumptions
 - Detailed valuation results
 - Certification of input data and pension fund provisions
 - Actuarial certificate
- Additional sections of a good actuarial valuation report
 - Past trends on
 - Demography
 - Assets and liabilities
 - Contribution rates
 - Major pension fund provision changes in last 5 years
 - Merger, spinoff
 - Partial termination, early retirement window
 - Pension fund improvements, benefit reduction (for each change, show impact on demography, funded status, and contribution).

Introduction

Currently in Egypt, there is no standardized method for the valuation actuarial liability. A common method used is first to calculate the value of project retirement benefits for the participants, then offset that with the value of expected future contributions. What remains is considered to be the liabilities for the benefits earned for past service of the employees. Under this method, by artificially increasing the expected future contributions, the liabilities for past service may be severely understated. As a consequence, many pension funds are severely underfunded on a pension fund termination basis, and yet the pension funds are showing high surpluses on an ongoing pension fund valuation. Such phenomenon leads to continued under contribution, and over generous benefit increases and early retirement windows.

In order to rectify the situation, and stop further deterioration of the funding status of the pension funds, we propose two changes:

- The introduction of a standardized actuarial valuation report
- The introduction of solvency actuarial valuations

By standardizing the actuarial report format, errors in actuarial valuation method and results become more transparent, and remedies can be imposed more easily. Solvency valuations are performed to directly determine the liability for past service benefits using standardized actuarial method and assumptions. These liabilities reflect the liabilities of the pension fund if the pension fund were to terminate on the actuarial valuation date. Comparison of the solvency liabilities of the pension fund to the market assets of the pension fund provides an accurate measure of the funded status of the pension fund. Introduction of these two measures helps the supervisory authority to analyze the pension funds more systematically. By a direct comparison of the funded status of the pension funds, the supervisory authority is able to pin-point the more risky pension funds and direct more attention to them. The introduction of a standardized actuarial valuation report is an essential step for risk based supervision of pension funds.

The focus of this report is on the standardized actuarial valuation report. A separate report will focus on the methodology of the solvency actuarial valuation.

Principal Purposes of an Actuarial Valuation Report

The principal purposes of an actuarial valuation report is to provide a useful summary of benefits and the financial status of the pension fund to the stake holders of the pension fund. The stake holders of the pension fund include: the pension fund sponsor, the participants of the pension fund, the investors of the pension fund sponsoring company, and the pension regulators.

The report shows how assets and liabilities of the pension fund are determined, and how the funding contributions are calculated.

The report is filed with the regulators, who analyze the funded status of the pension fund, and compare it to other pension funds to determine the riskiness of the pension fund. Based on such a risk assessment, the regulator can better determine the intensity of supervision required for the pension fund.

The pension fund sponsor uses the report as a pension funding tool for benefit security of the participants, as well as the corporate financing obligations towards the pension fund.

The investors evaluate the funded status of the pension fund as a part of the assessment of the risk for investing in of the sponsoring company.

The actuarial report is required to be filed with the regulator on a regular basis. If the pension fund has no solvency deficiency, a report may be filed once every three years. If the pension fund has a solvency deficiency, a report must be filed every year. A report must be filed to cover major pension fund provision changes including: pension fund merger, spinoff, partial or full pension fund termination, early retirement window, major pension fund provision improvements or benefit decreases.

Essential Characteristics of a Good Actuarial Report

A good actuarial report must present clear, concise, complete, and reliable information for the intended users of the report. The calculations must be performed using reliable and complete participant data provided by the pension fund sponsor, and asset information provided by the pension board. There must be a complete and concise summary of pension fund provisions provided by the pension fund sponsor. The actuarial method and assumptions used must be reasonable and conform to generally accepted actuarial principles and practice.

There should be clear, concise, and complete documentation of results. The report must be clear enough so that any intelligent non-actuary should be able to understand the results of the report. The report must not be overburdened with irrelevant details. The report must also provide enough details for another actuary to verify results. The report must clearly identify the purposes of the actuarial valuation and the intended users of the document, and clearly address the information needed by the users.

Summary Section

This section include two main pages:

- The signature page, and
- The summary page

The signature page should provide the following information:

- pension fund name, sponsor name, date of valuation
- Purpose of the actuarial valuation report
- Period the report is intended to cover
- Source of input data, and verification performed
- Verification of pension fund provisions
- Certification of actuarial method and assumptions
- Certification of actuarial valuation results

The summary page should provide the following informations

- Dates of current and last actuarial valuations
- Comparison of ongoing funding and solvency results on these dates
 - Liabilities
 - Assets
 - Unfunded liabilities
 - Normal cost
 - Minimum and Maximum contributions
 - Funded status of the pension fund
- Comparison of demographic data
- Summary of actuarial method and major assumptions

Asset/Liability Section

The purpose of this section is to provide information on the basis of the calculation of liabilities as of the valuation date, as well as the valuation results before and after all pension fund provision changes. Thus the following information must be provided:

- A summary of major changes in pension fund provision, valuation method, and actuarial assumptions
- Asset and liability results
 - Before all changes
 - After pension fund provision changes
 - After method and assumption changes
- Liability results must be presented for both ongoing valuation and solvency valuation
- The resulting funded status of the pension fund must be shown

Asset Section

This section shows the asset values presented in the pension board report as well as the development of the asset values used in the ongoing valuation and the solvency valuation.

The pension board statement of assets should show the distribution of assets on book and market bases into the different asset classes

The development of ongoing valuation assets should start from the asset value in the previous valuation, updating it with contributions, payments, and investment return, including adjustment to arrive at this year's asset value. The solvency assets should be based on the market value of assets.

Contribution Section

This section summarizes the development of the maximum and minimum contributions of the pension fund for the coming year. The development of each contribution include the following:

- Normal cost
- Payment for ongoing unfunded liabilities
- Payment for solvency deficiencies
- Payment for liabilities from pension fund provision changes
- Extra payment for unfunded portion of distributions

For minimum contribution,

- The payment for ongoing unfunded liabilities is based on a 15-year amortization of the unfunded liability.
- The solvency deficiencies are amortized over 5 years.
- Increase in liabilities for regular pension fund provision changes may be amortized over 15 years.
- Increase in unfunded liabilities due to early retirement window must be funded in full in the year the early retirement window is granted.
- Extra payment for unfunded portion of lump sum distribution should be in proportion of the unfunded percentage.

For maximum contribution, all unfunded liabilities are paid in the current year.

Interest is added to the contributions to reflect timing of the contributions.

Experience Analysis Section

This is a very important section of the report. This shows how the assets and liabilities progressed from the last valuation to the current valuation. Where there are heavy actuarial losses, the reason for the losses must be investigated. In a severe situation, regulatory intervention is required. The following describes the common steps in an experience analysis:

- Start with the assets and liabilities values in the last actuarial valuation,
- Add in contributions, expected investment returns, and subtract payment to derive the following expected values
- Expected values on valuation date of
 - Assets
 - Liabilities
 - Surplus/(unfunded liabilities)
- Compare these expected values to the actual values to determine gains/losses
 - If the expected assets are greater than the actual assets, there is an actuarial loss due to assets performing worse than expected
 - If the expected assets are less than the actual assets, there is an actuarial gain due to assets performing better than expected
 - If the expected liabilities are higher than the actuarial liabilities, there is an actuarial gain due to demographic experience being more favourable than assumed in the actuarial assumptions.
 - If the expected liabilities are lower than the actuarial liabilities, there is an actuarial loss due to demographic experience being less favourable than assumed in the actuarial assumptions
- Perform analysis to determine the major factors for the experience gain/loss
- Impact of each factor on gain/loss
- Determine the impact of these factors on
 - Employee benefits
 - Ongoing funded status
 - Solvency funded status
- Determine the impact on maximum and minimum contributions

Demography Section

Since most benefits are paid in the form of lump sum payouts, there are no retirees and terminated vested employees. Three sets of demographic information are provided for the active employees:

- Three tables by age and benefit service (5-year service groups)
 - Table 1: Number of fund participants
 - Table 2: Average pay
 - Table 3: Average contributory service
- Reconciliation of data from last valuation
 - New, terminations, disabled, deaths, retirees
 - Number, pay, service, benefit, distribution

Pension Fund Provisions Section

The following information is usually included in this section:

- Effective date
- Eligibility for participation
- Normal retirement benefit
 - Eligibility
 - Effective date of benefits
 - Benefit type: flat rate/ benefit rate
 - Benefit form: annuity/ lump sum
 - Note: there may be multiple competing formulas
- Early retirement benefit
 - Eligibility for unreduced benefit
 - Eligibility for reduced benefit, and reductions
- Disability benefit
 - Eligibility
 - Benefit rate and reductions
- Death benefit
 - Eligibility
 - Benefit rate and reductions
- Termination benefits
 - Eligibility
 - Benefit rate and reductions
- pension fund termination benefits
 - Eligibility
 - Benefit rate and reductions
- Fund participant contribution rate
- Employer contribution rate

Actuarial Method and Assumptions Section

- Asset valuation method
 - For ongoing valuation only
 - Solvency calculation based on market values
- Actuarial method for liabilities
 - For ongoing valuation only
 - Solvency calculations use accrued benefit method
- Mortality, termination, disability assumptions
 - For ongoing valuation only
 - None for solvency valuation
- Interest rates for ongoing and for solvency
- Salary scale
- For ongoing valuation only
- Only for benefits based on projected pay
- None for solvency valuation
- Expense assumption

Valuation Results Section

This section includes three schedules of information:

- Ongoing valuation results for benefits based on projected pay
- Ongoing valuation results for benefits not based on projected pay
- Solvency calculation results

For ongoing valuation, the following information is provided for each group of active fund participants:

- For each age from 20 to 60, the following details are provided
 - Number of fund participants
 - Average pay
 - Average service
 - Average contribution plus interest
 - Present value of projected benefits
 - Present value of future contributions
 - Actuarial liability
 - Normal cost
 - Average accrued benefit
 - Solvency liability

For solvency valuation, the following information is provided for each group of active fund participants:

- For each age from 20 to 60, the following details are provided
 - Number of fund participants
 - Average pay
 - Average benefit and contributory services
 - Average contribution plus interest
 - Average accrued benefit
 - Average contributory accrued benefit
 - Solvency liability
 - Contributory solvency liability

Information on 10 fund participants with the highest solvency liabilities

- For each of these fund participant, the following details are provided
 - Name of the fund participant
 - Pay
 - Service
 - Contribution plus interest

- Accrued benefits
- Solvency liability

APPENDIX

A sample actuarial valuation report is attached.

Technical Assistance for Policy Reform II
BearingPoint, Inc,
18 El Sad El Aali Street, 18th Floor,
Dokki, Giza
Egypt
Country Code: 12311
Phone: +2 02 335 5507
Fax: +2 02 337 7684
Web address: www.usaideconomic.org.eg