ISSUES IN ACCOUNTING AND REPORTING OF THE NATIONAL PENSION FUND OF KOREA

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In this paper, we introduce the new accounting standards for social insurance in the United States for the National Pension Fund (NPF) of Korea. Required supplementary stewardship information (RSSI) in annual reports of social insurance programs includes various actuarial estimates that shows annual surplus or deficit of the plan, and actuarial present values that are needed to pay all promised benefit payments to participants during the projection period. Current annual report of the NPF does not provide any actuarial estimates that are important in assessing the long-term sustainability of the program. We suggest that the National Pension Corporation adopt social insurance accounting standards and provide both long-range actuarial estimates and actuarial present values of the NPF in order to enhance public trust toward the NPF.

I. INTRODUCTION

Korea is rapidly moving into an aging society. According to studies by the Korea Development Institute (KDI), reported in newspapers,[1] population of senior citizens aged 65 or older is projected to account for 14 percent of the total population by the year 2019, almost a twofold increase from 7.2 percent in 2000. In preparations for the aging society, the Korean government established the National Pension Scheme (NPS) in 1988.

Since its establishment, the sustainability of the National Pension has become an important public issue. Several studies have projected that the National Pension Fund (NPF) may be exhausted before the year 2050. For example, Tchoe (2002) reported that the NPF would be depleted by the year 2044, four years faster than his previous projection that the NPF would sustain until the year 2048. This significant change in his projection was attributed to a new population projection and low rates of return in financial markets. Yet, the general public often had limited access to details of those studies which typically use complicated economic and statistical models. In addition, the

[1] See, for example, *Korea Times* on May 28, 2002, May 31, 2002, December 8, 2002 and January 2, 2003.

current accounting standards in Korea have not incorporated important pension accounting elements.

As a result, annual reports of the NPF do not provide information regarding long-term sustainability of the National Pension. Inadequacy and insufficiency of information regarding the plan sustainability often contribute to lack of public confidence of the National Pension Scheme. In order to build up public trust, the National Pension Corporation (NPC) has established and implemented the "National Pension Vision 2010," which includes publication of annual reports of the NPF for the public, disclosure of periodic long-range projection of the NPF and/or introduction of pension accounting for the NPF. Yun and Kang (2002) reviewed long-term projection methods of Canada, Japan and the United States, and proposed a framework for the Report of Long-term Financial Balances of the National Pension Fund ("provisional title") to be published by the National Pension Corporation in 2003.

A plan for providing long-range actuarial information including the cost of the program and long-range estimates of future costs and obligations to participants of the National Pension will certainly be a significant progress in enhancing public trust toward the National Pension Scheme. It is also important for policy makers and plan administrators to reform the National Pension Scheme, if necessary.[2]

Long-range actuarial estimates provide information for long-term financial status of a plan. Most of long-range actuarial value projection models, including Tchoe (2002) and Yun and Kang (2002), focus on the identification of the year in which the plan exhausts its fund. However, long-range estimates do not show the required amount for the plan to pay the promised future benefits to all participants for the long-rage projection period. For example, Tchoe's study predicts that the NPF runs out of assets by the year 2044, but it does not show how much additional funds (or assets) are required today in order to make all promised benefit payments to participants for the long-term period, for example, for the next 50 years[3], as Yun and Kang (2002) proposed in their study, considering long-range economic and demographic data availability from

[2] The appropriate accounting for public pension costs is also an important issue to government accounts, public deficits and debt. Gillion et al. (2000) discuss various issues of pension costs on government debt, both explicit and implicit debt in Chapter 14 of *Social Security Pensions: Development and Reform.*

[3] Canada projects estimates for a 100-year period, United States projects estimates for a 75-year period and Japan uses a 60-year projection period.

the Bureau of Statistics of Korea.

In August 1999, the Federal Accounting Standards Advisory Board (FASAB) of the United States issued the Statements of Federal Financial Accounting Standards (SFFAS) No. 17, *Accounting for Social Insurance,* as the new accounting standards for U. S. federal social insurance programs to be effective for reporting periods that begin after September 30, 1999. Therefore, for example, the 2000 Social Security Trust Report for the fiscal year that ended on September 30, 2000 was the first report that was prepared under the new accounting standards. The purpose of the SFFAS No. 17 is to establish standards for reporting information on social insurance programs that will assist users in evaluating operations and aid in assessing the government's financial conditions and the sufficiency of future budgetary resources to sustain program services and meet obligations as they come due.

There are five federal social insurance programs in the U.S. that are subject to the SFFAS No. 17 standards: Old-Age, Survivors, and Disability Insurance (OASDI or "Social Security"), Hospital Insurance (HI) and Supplementary Medical Insurance (SMI), known collectively as "Medicare," Railroad Retirement benefits, Black Lung benefits, and Unemployment Insurance (UI) for the general public. The SFFAS No. 17 is applicable only to these federal social insurance programs. SFFAS No. 17 was a very significant development in accounting for social insurance, particularly for Social Security in the United States. SFFAS No. 17 can become a protocol for accounting standards for national pension plans in many countries that feature defined benefit types of social insurance, because few countries established separate accounting standards for their national pension or social security plans.

The primary objective of this paper is to introduce the new accounting standards for the U.S. Social Security for the National Pension Fund of Korea. This paper briefly describes background of the accounting for U.S. social insurance and discusses key elements of social insurance accounting. The social insurance accounting standards requires the social insurance program administrators to include various long-range actuarial estimates in the financial report as required supplementary stewardship information (RSSI). One of important RSSI is the "statement of social insurance" that is based on actuarial *present* values (APV). For example, the Social Security annual

report is required to include the Statement of Social Security that is composed of the actuarial present value of future payments during the 75-year period, the actuarial present value of future contributions and income during the same period, and the net of the two actuarial present values.

This paper is organized as follows: Section II discusses problems of the current annual report of the NPF; Section III describes the accounting standards for the U.S. Social Security; and Section IV presents a summary and suggestions for the NPF reporting.

II. CURRENT ACCOUNTING STANDARDS FOR THE NATIONAL PENSION FUND

The National Pension Fund was established by the Minister of Health and Welfare under the National Pension Act in order to “serve as a reserve fund to secure the finances necessary for the National Pension plan and to meet the pension benefits” (Article 82). The National Pension Corporation, under the delegation of authority by the Minister of Health and Welfare, manages and operates the NPF. Chapter Six of the Act and Chapter Six of Enforcement Decree of the Act contain various regulations of the NPF management and operation. For example, Article 83-4 of the Act states, “the Minister of Health and Welfare shall balance the account of the NPF to evaluate the operation results of the NPF and review the status of the NPF,” and Article 53 of the Enforcement Decree states, “the accounting of the NPF shall be based on the facts of the case and administered in accordance with the principles of business accounting.” Accordingly, the Ministry of Health and Welfare established the Special Accounting Standards for the NPF, which are consistent with business accounting standards.

The NPF Special Accounting standards require the annual report of the NPF to include the following financial statements: the trial balance, the balance sheet, the income statement, the statement of retained earnings, the statement of cash flows, and various detailed account statements and supplementary documents. In addition to required statements, the annual report of the NPF typically includes the summary of the report, the management discussion, the auditor’s report, and other supplementary data.

While the annual report of the NPF meets the requirements of the NPF accounting standards that are consistent with business accounting standards, it does not provide

any important information regarding the long-term financial status of the NPF. For example, the balance sheet of the NPF reports assets, liabilities and capital (equivalent to National Pension Fund) as of the end of the fiscal year. Assets are composed of current assets and long-term (invested) assets. Liabilities generally include short-term obligations such as unpaid expenses and unpaid benefits to plan participants, and they are relatively a very small amount. Capital or National Pension Fund is composed of contributed-capital, earnings surplus (retained earnings) and capital adjustments. The largest element of capital is the pension contributions reserve which is the difference between the participants' contribution to the National Pension Fund and actual pension benefit payments to participants. However, annual reports of the NPF do not include any actuarial information that is pertinent to assessing the sustainability of the plan. It is because the current business accounting standards in Korea has not established standards for pension accounting. Consequently, the NPF Special Accounting standards are not consistent with international pension accounting standards.

Table 1
National Pension Fund
Balance Sheet (Abridged)
December 31, 2002

(In Billions)

Assets		Liabilities and Capital	
I. Current Assets	4,870	I. Current Liabilities	3,590
Money market securities	354	Unpaid pension benefits	0
Accrued investment income	1,156	Unpaid expenses	801
Securities	3,360	Prepaid contributions	2,789
Other prepaid expenses	4	II. Long-term Liabilities	0
II. Invested Assets	91,187	Total Liabilities	3,590
Invested securities	66,526	I. Contributed Capital	62,279
Deposits to Public Capital Management Fund	24,221	Pension contribution reserve	62,248
Other loans and investments	440	Other transfer & surplus	31
III. Other Assets	354	II. Earnings Surplus	32,122
Investments in real estate	208	Earnings reserve	32,122
Investments in welfare sector	89	III. Capital Adjustments	2,006
Others	57	Total Capital (NPF)	96,407
Total Assets	96,411	Total Liabilities & Capital	96,411

Table 1 shows the balance sheet of the NPF as of December 31, 2002. The fair value of the NPF was over 96 trillion Korea *won* (or approximately 80 billion U.S. dollars) at the end of 2002. However, it does not provide any indication for the long-run sustainability of the NPF.

III. ACCOUNTING STANDARDS FOR U.S. SOCIAL SECURITY: SFFAS NO. 17

1. BACKGROUND OF THE ACCOUNTING FOR U.S. SOCIAL INSURANCE

Since the 1950s, there have been debates in the accounting community about how to apply accrual concepts in measuring costs and liabilities resulting from defined benefit type programs. Prior to the SFFAS No. 17, Social Security (Old-Age, Survivors, and Disability Insurance: OASDI) and other federal social insurance programs often used accounting standards similar to FASB Statement of Financial Accounting Standards (SFAS or FASB) No. 87, *Employer's Accounting for Pensions*, and followed accounting standards in other FASAB statements such as SFFAS No. 5, *Accounting for Liabilities of the Federal Government,* and SFFAS No. 8, *Supplementary Stewardship Reporting*.

In adopting the SFFAS No. 17, the Federal Accounting Standards Advisory Board (FASAB) agreed that liabilities from federal social insurance programs should be considered as non-exchange transactions obligations, different from exchange transactions obligations that are subject to SFFAS No. 5. In an exchange transaction, a liability is recognized when one party receives goods or services in return for a promise to provide money or other resources in the future. However, for a non-exchange transaction, a liability is recognized for any unpaid amounts due and payable as of the reporting date, including estimates of claims incurred but not yet reported.[4]

The FASAB also required the use of the open group method[5] in estimating liabilities of federal social insurance programs, while FASB No. 87 and Government Accounting Standards Board (GASB) No. 25, *Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contributions Plans,* were based on

[4] SFFAS No. 17, paragraphs 60 – 63.
[5] SFFAS No. 17, par. 72 and 91.

the closed group method of estimation. In an open group method, liabilities (and surpluses) are estimated as the actuarial present values (APV) of future benefits for and future contributions and tax income from or on behalf of all current and future participants during the projection period normally used by the programs. For example, the OASDI (i.e., Social Security) program uses a 75-year projection period. Meanwhile, the closed group measure represents the actuarial net present value of (a) the future benefit payments to current participants, (b) future contributions to be made by them and their employers, and (c) the accumulated excess of cash receipts over cash disbursements within the social insurance program represented by fund balance at the valuation date.

2. KEY ACCOUNTING AND REPORTING STANDARDS OF THE SFFAS NO. 17

1). Expense & Liability Recognition: The expense recognized for the reporting period should be the benefits paid during the reporting period plus any increase (or less any decrease) in the liability from the end of the prior period to the end of the current period. The liability should be social insurance benefits due and payable to or on behalf of beneficiaries at the end of the reporting period, including claims incurred but not reported.[6]

The Social Security Administration (SSA) is required to provide the financial statements for all funds and accounts under SSA control[7] including OASI Trust Fund and DI Trust Fund. Required financial statements are the consolidated balance sheet, the consolidate statement of net cost for the year (income statement), the consolidated statement of changes in net position for the year, the combined statement of budgetary resources for the year, and the consolidated statement of financing for the year. SSA is also required to provide the financial statements for the major programs such as OASI and DI programs. The financial statements must be prepared on an accrual basis, in conformity with generally accepted accounting principles (GAAP) of the United States.

[6] SFFAS No. 17, par. 22.
[7] Currently, three trust funds, three deposit funds, and five general fund appropriations are under SSA control.

Table 2
Old-age, Survivors and Disability Trust Fund
Consolidated Balance Sheet
September 30, 2002

	(In Billions)
Assets	
Intragovernmental:	
Fund Balance with Treasury	$ 0*
Investments	1,329
Interest Receivable, Net	20
Accounts Receivable, Net	1
Other	0
Total Intragovernmental	1,350
Accounts Receivable, Net	3
Property, Plant and Equipment, Net	1
Total Assets	**$1,354**
Liabilities	
Intragovernmental:	
Accrued Railroad Retirement Interchange	$ 4
Other	1
Total Intragovernmental	5
Benefits Due and Payable	51
Accounts Payable	0
Total	56
Net Position	
Unexpended Appropriations	0
Cumulative Results of Operations	1,298
Total Net Position	1,298
Total Liabilities and Net Position	**$1,354**

* Rounded figure of less than $0.5 billion.

Table 2 shows the consolidated balance sheet of the OASDI Trust Fund as of September 30, 2002.[8] The balance sheet is composed of assets, liabilities and net position of the Trust Fund. The primary assets of the OASDI Trust fund are investments in U.S. Treasury securities. It is because that, under provisions of the Social Security

[8] Author prepared the consolidate balance sheet of the OASDI from the SSA's FY2002 Performance and Accountability Report. SSA, however, prepares balance sheets of OASI Trust Fund and DI Trust Fund separately.

Act, Trust fund balances may be invested only in interest-bearing obligations of the U. S. or in obligations guaranteed as to both principal and interest by the U.S. These investments consist of U.S. Treasury special issues and bonds. Special issues are special public debt obligations for purchase exclusively by the trust funds and for which interest is computed semi-annually (June and December). Net position of Trust fund is currently available assets held in the Trust fund for Social Security benefits. As of September 30, 2002, OASDI Trust fund held $1,354 billion of assets for benefit payments. During the fiscal year 2002, SSA paid out $453 billion of benefit payments to OASDI program beneficiaries.[9] While the Trust fund currently holds sufficient assets to pay benefits now, however, the Trust fund is projected to become exhausted by 2041. The balance sheet of the OASDI Trust fund shows the current status of assets, liabilities and net position of the fund only, but provides no information for the future financial status of the program.

2). Required Supplementary Stewardship Information (RSSI): The entity responsible for the social insurance program should include in its financial report, as required supplementary stewardship information (RSSI), a clear and concise description of the program, how it is financed, how benefits are calculated, and its financial and actuarial status. The description should include a discussion of the long-term sustainability and financial condition of the program. A display should illustrate and the discussion should explain the trend revealed in the data. The entity should consider both narrative and graphic presentations. The projections and estimates used should be based on the entity's best estimates of demographic and economic assumptions, taking each factor individually and incorporating future changes mandated by current law. Significant assumptions should be disclosed. RSSI should include the following measures and data:[10]

(1) Cashflow Projections – Projections of cashflow for those persons who are participating or eventually will participate in the program as contributors ("total cash

[9] Consolidated Statement of Net Cost for the year ended September 30, 2002.
[10] SFFAS No. 17, par. 27.

inflow") or beneficiaries ("total cash outflow") during a projection period sufficient to illustrate long-term sustainability. For example, traditionally the Social Security program has used a projection period of 10 years for relatively short-term and 75 years for long-term projections. The narrative accompanying the cashflow data should include identification of any year or years during the projection period when cash outflow exceeds inflow (the "cross-over points"), and an explanation of the significance of the cross-over points. The actuarial estimate should also be provided as a percentage of taxable payroll and Gross Domestic Product (GDP).

Social Security Administration's FY 2002 Performance and Accountability Report ("SSA's 2002 Report") provides actuarial estimates of OASDI annual income, income excluding interest, and expenditures for 2002–2041 in nominal dollars. These estimates are only reported through 2041, the year that the OASDI trust funds are projected to become exhausted.[11] The estimates are for the open group population, all persons projected to participate in the OASDI program as covered workers or beneficiaries, or both, during that period. Thus, the estimates include payments from, and on behalf of, workers who will enter covered employment during the period as well as those already in covered employment at the beginning of that period. They also include expenditures made to, and on behalf of, such workers during that period.

SSA's 2002 Report shows that estimated expenditures start to exceed income (including interest) in 2027. This occurs because of a variety of factors including the retirement of the "baby boom" generation, the relatively small number of people born during the subsequent period of low birth rates, and the projected increases in life expectancy, which increase the average number of years of receiving benefits relative to the average number of years of paying taxes. Estimated expenditures start to exceed income excluding interest even earlier, in 2017. At that time, to meet all OASDI expenditures on a timely basis, the trust funds would begin to redeem assets (Treasury securities). To finance this redemption, the government would have to increase its borrowing from the public, raise taxes (other than OASDI payroll taxes), and/or reduce expenditures (other than OASDI expenditures). The government, of course, could avert

[11] SSA's FY 2002 Performance and Accountability Report, p. 80.

this redemption by changing the law to increase OASDI taxes and/or reduce OASDI benefits.

(2) Ratio of Contributors to Beneficiaries – With respect to the OASDI and HI programs, the ratio of the number of contributors to the number of beneficiaries (commonly called the "dependency ratio") during the same projection period as for cashflow projections (e.g., 75 years), using the program managers' best estimate.

SSA's 2002 Report provides the estimated number of covered workers per OASDI beneficiary using the Trustees' intermediate assumptions. As defined by the Trustees, covered workers are persons having earnings creditable for OASDI purposes on the basis of services for wages in covered employment and/or on the basis of receipts from covered self-employment. The estimated number of workers per beneficiary will decline from 3.4 in 2001 to 2.1 in 2037 and 1.8 in 2076.

(3) Actuarial Present Values (APV) – The actuarial present value of future contributions and tax income during the projection period should be subtracted from the actuarial present value of future expenditures for the projection period related to benefit payments to derive a total excess of future benefit payments over future contributions and tax income. These actuarial present values should be reported in the *Statement of Social Insurance* of the entity.

Table 3 shows the Statement of Social Insurance of OASDI for the 75-year projection period beginning January 1, 2002. The actuarial present value of future income was $25.3 trillion and the actuarial present value of future expenditures was $29.9 trillion, respectively. While the 75-year projected deficit of the Social Security Trust Fund was $4.6 trillion, but the Trust Fund only needs additional $3.4 trillion in order to pay the current OASDI benefits until 2076, because the Trust Fund had $1.2 trillion of assets[12] in the fair market value, as of January 1, 2002.

Table 3
Statement of Social Insurance

[12] Total assets for OASDI at the end of the fiscal year 2002 as of September 30, 2002 were $1.35 trillion, according to the Consolidated Balance Sheet in the SSA's 2002 Report.

Old-Age, Survivors and Disability Insurance
75-Year Projection as of January 1, 2002
(In billions)

	Estimates from Prior Years				
	2002	**2001**	**2000**	**1999**	**1998**
Actuarial present value[1] for the 75-year projection period of estimated future income (excluding interest)[2] received from or on behalf of:					
Current participants[3] who, at the start of projection period:					
Have not yet attained retirement eligibility age (Ages 15-61)	$13,048	$12,349	$11,335	$10,325	$9,482
Have attained retirement eligibility age (Age 62 and over)	348	309	266	235	204
Those expected to become participants (Under Age 15)[4]	11,893	11,035	10,088	9,033	8,727
All participants	25,289	23,693	21,688	19,593	18,413
Actuarial present value[1] for the 75-year projection period of estimated future expenditures[5] paid to or on behalf of:					
Current participants[3] who, at the start of projection period:					
Have not yet attained retirement eligibility age (Ages 15-61)	20,210	18,944	17,217	15,676	14,605
Have attained retirement eligibility age (Age 62 and over)	4,402	4,255	4,020	3,856	3,659
Those expected to become participants (Under Age 15)[4]	5,240	4,700	4,297	3,758	3,719
All participants	29,851	27,899	25,534	23,291	21,983
Actuarial present value[1] for the 75-year projection period of estimated future excess of income (excluding interest) over expenditures	-$4,562	-$4,207	-$3,845	-$3,698	-$3,570
Trust Fund Assets[6] at Start of Period	1,213	1,049	896	763	656
Actuarial Present Value[1] for the 75-year Projection Period of Estimated Future Excess[7] of Income (excluding interest) and Trust Fund Assets at Start of Period Over Expenditures	-$3,350	-$3,157	-$2,949	-$2,935	-$2,914

Footnotes to the Statement of Social Insurance

[1] Present values are computed on the basis of the intermediate economic and demographic assumptions specified in the Report of the Board of Trustees for the year shown and over the 75-year projection period beginning January 1 of that year. Totals do not necessarily equal the sum of the rounded components.

[2] Income (excluding interest) consists of payroll taxes from employers, employees, and self-employed persons; revenue from Federal income-taxation of OASDI benefits; and miscellaneous reimbursements from the General Fund of the Treasury.

[3] Current participants are the "closed group" of individuals age 15 and over at the start of the period. To calculate the actuarial present value of the excess of future income (excluding interest) from or on behalf of these individuals over future expenditures for them or on their behalf, subtract the actuarial present value of future expenditures for them or on their behalf from the actuarial present value of future income (excluding interest) from them or on their behalf. The projection period for the closed group would theoretically include all future working and retirement years, a period which may exceed 75 years in some instances. While the estimates are limited to the 75-year projection period, the present value of future income and expenditures for the closed group participants beyond 75 years is not material.

[4] Includes births during the period.

[5] Expenditures include benefit payments, administrative expenses, net transfers with the Railroad Retirement program, and vocational rehabilitation expenses for disabled beneficiaries.

[6] Trust fund assets represent the accumulated excess of all past income, including interest on trust fund assets, over all past expenditures for the social insurance program. The assets are invested only in securities backed by the full faith and credit of the Federal Government.

[7] If this excess is positive, it represents the estimated trust fund assets (expressed in present value dollars) at the end of the 75-year projection period; if negative, the absolute value of the excess represents the magnitude of the unfunded obligation of the program over the 75-year projection period. The calculation of the actuarial balance used for analysis by the Social Security trustees differs from the calculation of the amount presented on this line. The trustees' actuarial balance is expressed as a percentage of the taxable payroll and includes the cost of attaining a target fund balance equal to the estimated next year's expenditures at the end of the period.

(**Source**: *SSA's FY 2002 Performance and Accountability Report*)

(4) Sensitivity Analysis – For all programs except unemployment Insurance (UI) illustrate the sensitivity of the projections and present values to changes in the most significant economic and demographic assumptions, including GDP, labor force, unemployment, average wages and self-employment earnings, interest rates on Treasury securities, productivity, inflation, fertility, mortality, net immigration, marriage, divorce, retirement patterns and disability incidence and termination. Because perfect long-range projections of these factors are impossible, the OASDI and Medicare programs are required to report the sensitivity of the long-range projections to changes in assumptions by analyzing, at a minimum, the following six key variables: total fertility rate, death rate, net immigration, real-wage differential, consumer price index, and real interest rate.[13] The Medicare program is required to analyze the health care cost factors and their trend, in addition to above key factors. In this section, we describe the

[13] SFFAS No. 17, par. 27 (4) (a).

sensitivity of the long-range projections to changes in assumptions of two factors: the fertility rate and the death rate.

Table 4 shows the present value of the estimated excess of OASDI income over expenditures for the 75-year period, using various assumptions about the ultimate total fertility rate. The total fertility rate for any year is the average number of children who would be born to a woman in her lifetime if she were to experience the birth rate by age observed in, or assumed for, the selected year, and if she were to survive the entire childbearing period. These assumptions are 1.7, 1.95 and 2.2 children per woman, where 1.95 is the intermediate assumption in the 2002 Trustees Report. The total fertility rate is assumed to change gradually from its current level and to reach the selected ultimate value in 2026.

Table 4
Present Value of Estimated Excess of OASDI Income over Expenditures with Various Ultimate Total Fertility Rate Assumptions
Valuation Period: 2002 – 2076

	Low	Intermediate	High
Ultimate Total Fertility Rate (%)	1.7	1.95	2.2
Present Value of Estimated Excess (In billions)	-$5,041	-$4,562	-$4,102

(**Source**: *SSA's FY 2002 Performance and Accountability Report*)

Table 4 demonstrates that, if the ultimate total fertility rate is changed from 1.95 children per woman to 1.7, the shortfall for the period of estimated OASDI income relative to expenditures would increase to $5,041 billion from $4,562 billion; if the ultimate rate were changed to 2.2, the shortfall would decrease to $4,102 billion.

Similarly, Table 5 shows the present values of the estimated excess of OASDI income over expenditures for the 75-year period, using various assumptions about future reductions in death rates. The analysis was developed by varying the percentage decrease assumed to occur during 2001 - 2076 in death rates by age, sex, and cause of death. The decreases assumed for this period, summarized as changes in the age-sex-

adjusted death rate, are 0.32, 0.75 and 1.33 percent per year[14], where 0.75 percent is the intermediate assumption in the 2002 Trustees Report. These assumptions, however, do not apply uniformly to all ages. Some variation by age was assumed in recognition of historical patterns and to ensure that, in terms of the financial status of the OASDI program, estimates based on the summarized 0.32-percent and 1.33-percent reduction assumptions would be more optimistic and more pessimistic, respectively, than those based on the intermediate assumption.

Table 5 demonstrates that, if the reduction in death rates is changed from 0.75 percent per year, the Trustees' intermediate assumption, to 0.32 percent, meaning that people die younger, the shortfall for the period of estimated OASDI income relative to expenditures would decrease to $3,300 billion, from $4,562 billion; if the reduction were changed to 1.33 percent per year, meaning that people live longer, the shortfall would increase to $6,092 billion.

Table 5
Present Value of Estimated Excess of OASDI Income over Expenditures with Various Death Rate Assumptions
Valuation Period: 2002 – 2076

	Low	Intermediate	High
Average Annual Reduction in Death Rates (from 2002 to 2076)	0.32%	0.75%	1.33%
Present Value of Estimated Excess (In billions)	-$3,300	-$4,562	-$6,092

(**Source**: *SSA's FY 2002 Performance and Accountability Report*)

(5) Social Security Assumptions –The estimates used in the RSSI are based on the assumption that the programs will continue as presently constructed. They are also based on various economic and demographic assumptions. Table 6 shows Social Security assumptions and the other values on which these displays are based reflect the intermediate assumptions of the 2002 Trustees Report. Estimates made in certain prior years have changed substantially because of revisions to the assumptions based

[14] The resulting cumulative decreases in the age-sex-adjusted death rate during same period are 21, 43 and 63 percent, respectively.

on changed conditions or experience, and to changes in actuarial methodology. It is reasonable to expect more changes for similar reasons in future reports.

Table 6
Social Security Assumptions

			Period Life Expectancy at Birth[3]				Average Annual Percentage Change In:			
	Total Fertility Rate[1]	Age-Sex-Adjusted Death Rate[2] (per 100,000)	Male	Female	Net Annual Immigration (persons per year)	Real-Wage Differential[4] (percentage points)	Average Annual Wage in Covered Employment	CPI[5]	Real GDP[6]	Average Annual Interest Rate[7] (%)
2002	2.12	804.3	73.9	79.5	900,000	1.8	3.1	1.3	0.7	4.9
2005	2.10	789.6	74.3	79.7	900,000	1.2	4.1	2.9	3.2	6.4
2010	2.07	759.8	74.9	80.1	900,000	1.0	4.1	3.0	2.2	6.0
2020	1.99	698.1	76.0	81.0	900,000	1.1	4.1	3.0	1.8	6.0
2030	1.95	642.2	77.1	81.9	900,000	1.1	4.1	3.0	1.8	6.0
2040	1.95	593.2	78.0	82.8	900,000	1.1	4.1	3.0	1.8	6.0
2050	1.95	550.0	79.0	83.5	900,000	1.1	4.1	3.0	1.7	6.0
2060	1.95	511.9	79.8	84.3	900,000	1.1	4.1	3.0	1.7	6.0
2070	1.95	478.1	80.7	85.0	900,000	1.1	4.1	3.0	1.7	6.0

1. The total fertility rate for any year is the average number of children who would be born to a woman in her lifetime if she were to experience the birth rates by age observed in, or assumed for, the selected year, and if she were to survive the entire childbearing period. The ultimate total fertility rate is assumed to be reached in 2026.

2. The age-sex-adjusted death rate is the crude rate that would occur in the enumerated total population as of April 1, 1990, if that population were to experience the death rates by age and sex observed in, or assumed for, the selected year. It is a summary measure and not a basic assumption; it summarizes the basic assumptions from which it is derived.

3. The period life expectancy for a group of persons born in a given year is the average that would be attained by such persons if the group were to experience in succeeding years the death rates by age observed in, or assumed for, the given year. It is a summary measure and not a basic assumption; it summarizes the effects of the basic assumptions from which it is derived.

4. The real-wage differential is the difference between the percentage increases, before rounding, in the average annual wage in covered employment, and the average annual Consumer Price Index.

5. The Consumer Price Index (CPI) is the annual average value for the calendar year of the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

6. The real Gross Domestic Product (GDP) is the value of total output of goods and services, expressed in 1996 dollars. It is a summary measure and not a basic assumption; it summarizes the effects of the basic assumptions from which it is derived.

7. The average annual interest rate is the average of the nominal interest rates, which, in practice, are compounded semiannually, for special public-debt obligations issuable to the trust funds in each of the 12 months of the year.

(**Source**: *SSA's FY 2002 Performance and Accountability Report*)

IV. SUMMARY AND SUGGESTIONS

In this paper, we have introduced the new accounting standards for social insurance (SFFAS No. 17) in the Unites States for the National Pension Fund of Korea. We have further discussed important actuarial measures and data that are included in the financial report as supplementary stewardship required information (RSSI), such as cashflow projections, ratio of contributors to beneficiaries, actuarial present values (APV) and sensitivity analysis. A statement of specific social insurance program presents the actuarial present value of all future expenditures, contributions and tax income and the net present value of cashflow during the projection period. The net present value represents the required amount in order to sustain the program during the projection period, for example, 75-years for the U. S. Social Security.

Long-range actuarial estimations typically do not show the actuarial present values, but only shows how long a program sustains. Long-range actuarial estimates are sensitive to economic and demographic variables. For example, in early 1990's there were several reports that the Social Security Trust fund may become exhausted in around 2030 or even earlier. There were many proposals how to fix or "save" Social Security.[15] However, the SSA's 2002 Report has projected that the Trust fund may sustain until 2041.

Current annual reports of the National Pension Fund do not provide actuarial estimates that are important in assessing the long-term sustainability of the National Pension Scheme. We suggest the National Pension Corporation to adopt social insurance accounting standards and provide both long-range actuarial estimates and actuarial present values of the National Pension Fund in order to enhance public trust toward the NPF. We support Yun and Kang's (2002) proposal of the 50-year long-range estimation period. We, however, suggest the National Pension Corporation issue both 50-year long-range estimates and actuarial present values of the NPF every year, rather than every five years.

[15] Baker and Weisbrot (1999) insisted that, since funding problems of Social Security have been attributed to changes in demographic factors, no single reform proposal would be able to save Social Security. Only further changes in demographic factors would eventually save Social Security.

REFERENCES

Baker, Dean and Nark Weisbrot, *Social Security: The Phony Crisis,* The University of Chicago Press, 1999.

Bloomer, Carrie edited, *The IASC-U.S. Comparison Project: A Report on the Similarities and Differences between IASC Standards and U.S. GAAP,* Financial Accounting Standards Board (FASB) of the Financial Accounting Foundation, 1999, pp. 231 – 262.

Epstein, Barry and Abbas Mirza, *Wiley IAS 2000: Interpretation and Application of International Accounting Standards 2000*, John Wiley & Sons, Inc., 2000

Gillion, Colin, John Turner, Clive Bailey and Denis Latulippe, editors, *Social Security Pensions: Development and Reform,* International Labor Office (ILO) (Geneva), 2000.

Government Accounting Standards Board (GASB) No, 25, "Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans," 1994.

Korea Times, Editions of May 28, 2002, May 31, 2002, December 8, 2002 and January 2, 2003 (http://times.hankooki.com)

National Pension Corporation Home Page (http://www.npc.or.kr)

Shin, Hung Sik, *A Study of International Pension Accounting Standards for the National Pension Fund of Korea,* National Pension Research Center Research Monograph 2000-06, December 2000 (in Korean).

Social Security Administration (SSA), "Required Supplementary Stewardship Information on Social Insurance/Supplemental Information*," SSA's Performance and Accountability Report for FY 2000*, (http://www.ssa.gov).

Statement of Federal Financial Accounting Standards (SFFAS) Number 17, "Accounting for Social Insurance," Federal Accounting Standards Advisory Board (FASAB), August 1999.

Statement of Financial Accounting Standards No. 87, "Employers' Accounting for Pensions," Financial Accounting Standards Board (FASB) of the Financial Accounting Foundation, December 1985.

Statement of Financial Accounting Standards No. 132, "Employers' Disclosures about Pension and Other Postretirement Benefits," Financial Accounting Standards Board (FASB) of the Financial Accounting Foundation, February 1998.

Tchoe, Byoung Ho, “Evaluation on the National Health Insurance and the National Pension Policies during the Past Five-years,” *Health and Welfare Forum,* No. 74, December 2002, Korea Institute for Health and Social Affairs (http://www.kihasa.re.kr) (in Korean).

Yun, Sukmyoung and Sungho Kang, *A Proposal of Action Plans of Long Range Projection for the National Pension Fund,* National Pension Research Center Research Monograph 2001-17, October 2002 (in Korean).